Pinnacles National Monument

U.S. Department of the Interior
National Park Service

Draft General Management Plan and Environmental Assessment
October 2012

Photo Credits:

Front cover: Square Block at sunset, photo by Gavin Emmons © 2011.
Back cover: West side event, NPS photo.
Inside covers:
Front (left to right): Pacific chorus frog, photo by Paul G. Johnson; park visitors during Memorial Day weekend, NPS photo; and Flowing creek in upper Bear Gulch, photo by Gavin Emmons © 2011.
Back (left to right): High water inundates the Bear Gulch Cave Trail, reflecting the color of the moss beyond, photo by Paul G. Johnson; a volunteer restoration crew pulls exotic plants, with the High Peaks in the background, NPS photo; Chalone Annex group campground, 1965, NPS photo.
Bottom: Panoramic view of the high peaks from the Chalone Peak Trail, NPS photo.

United States Department of the Interior

NATIONAL PARK SERVICE
Pinnacles National Monument
5000 Highway 146
Paicines, California 95043-9770

IN REPLY REFER TO:

D-18 October 2012

Dear Friends of Pinnacles National Monument,

It is with great pleasure that we submit to you the *Draft General Management Plan and Environmental Assessment of Pinnacles National Monument* (GMP/EA). When completed, this plan will guide our management of the monument with a 15-20 year vision for its operation and protection.

However, before the GMP/EA can be completed, it is important that we receive comments on this draft. Please take the time to review the draft and provide us with any comments you may have.

The *Draft General Management Plan* offers four alternative approaches to public use and enjoyment of the monument, protection of natural and cultural resources, and the overall management of this unique unit of the National Park System. The environmental consequences section of the document provides an understanding of the effect each alternative may have on the environment.

This plan represents your involvement and input into planning processes. The preferred alternative addresses concepts many of you proposed or supported.

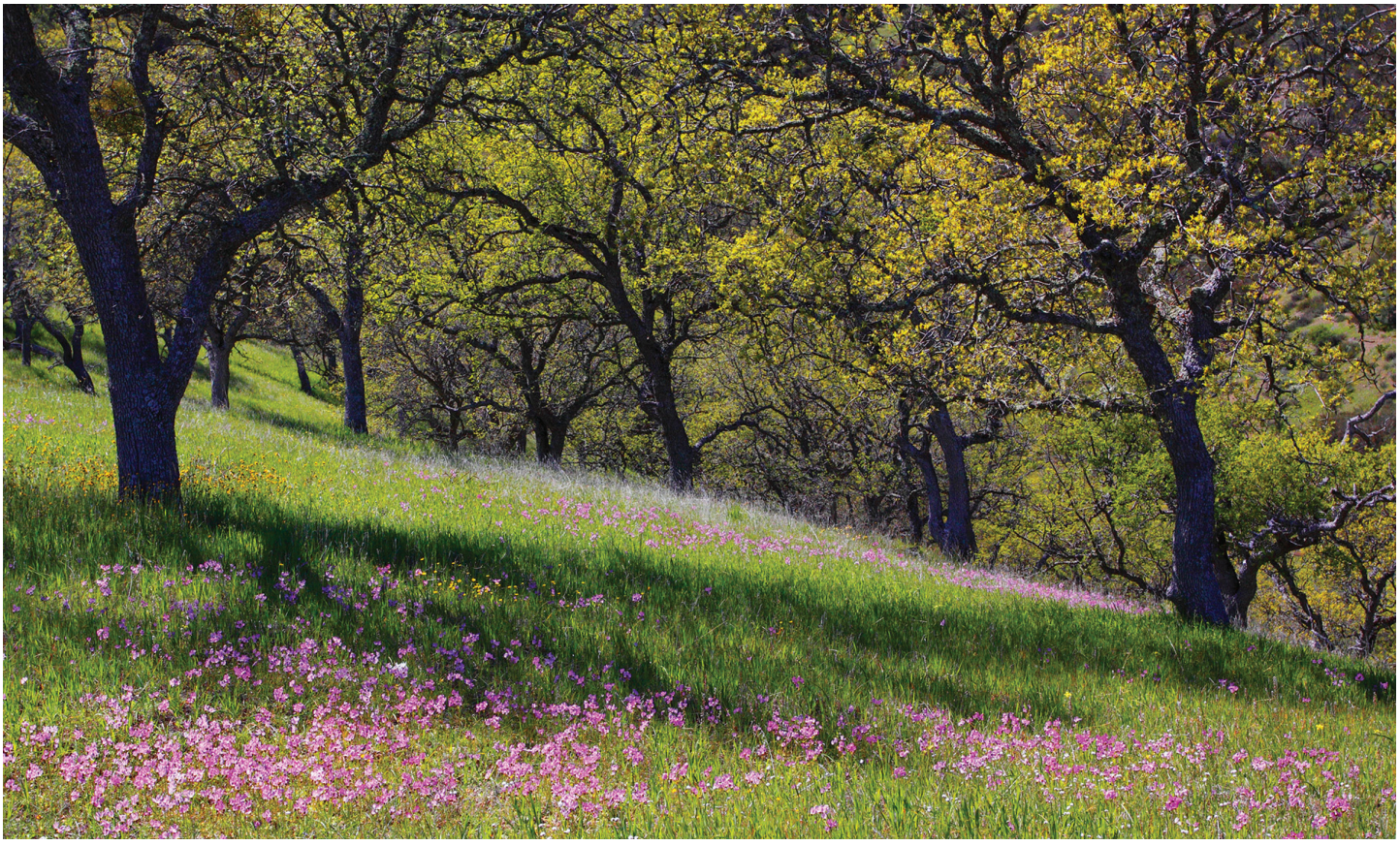
Your input into this plan is important and will make it a better guide for the monument's future. You are invited to attend public meetings where you can discuss with the planning team any questions you may have as well as provide public comments. These meetings will be held in November 2012. Dates, times and locations of these meetings will be published in a newsletter, in local newspapers, and on our webpage at www.nps.gov/PINN. You can submit comments or receive updates on the GMP/EA online through the NPS Planning, Environment and Public Comment System (PEPC) at http://parkplanning.nps.gov/PINN. An electronic public comment form is provided through this website. The public comment period for this draft GMP/EA will extend through January 11, 2013.

If you choose not to submit comments online, please send your written comments to:

Superintendent
Pinnacles National Monument
5000 Highway 146
Paicines, CA 95043

Our planning effort has benefited from your participation and involvement. We thank you for taking the time to make this the best plan possible for such a special place.

Karen Beppler-Dorn, Superintendent



Photos (top to bottom): 1. Prairie falcon fledgling flaring wings. 2. Blue oak woodland with shooting stars in bloom. Photos by Gavin Emmons © 2011.

Pinnacles National Monument
Draft General Management Plan and Environmental Assessment

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Rainwater splashes into Bear Gulch Cave. Photo by Paul G. Johnson

Watercolor painting by Liz Clayton, Artist in Residence Program.

Draft General Management Plan / Environmental Assessment

The National Park Service (NPS) planning team identified four alternatives for managing Pinnacles National Monument for the next 15 to 20 years. These alternatives respond to National Park Service planning requirements, and the issues identified during public scoping. The alternatives establish desired future conditions for administration and management, cultural and natural resource protection, research, education, and opportunities for visitor enjoyment. The alternatives also respond to comments received through public scoping and the ongoing involvement of public agencies, tribes, local communities, organizations, and individuals. Alternative D, Link People and Resources, is the preferred alternative of the NPS to guide future management of Pinnacles National Monument.

Alternative A, No Action, would continue existing management, programming, facilities, staffing, and funding at current levels.

Alternative B, Emphasize Backcountry Experience, would provide high quality backcountry experiences, including solitude, quiet, and views of natural settings. Integrated management of resources and visitor use opportunities would protect, restore, and maintain natural and cultural resources and backcountry experiences.

Alternative C, Expand Visitor Experiences, would provide an expanded array of visitor use opportunities, including recreation, interpretation, and education. Opportunities would be provided on the new lands and other areas with low visitor use.

Alternative D, Link People and Resources (the preferred alternative), would engage a broad range of visitors in the enjoyment, understanding, and stewardship of natural and cultural resources and values of the Gabilan Mountains ecoregion by focusing on ways to connect diverse audiences and resources, to acknowledge the interrelationship between natural and cultural resources, and to protect, preserve, and restore ecological communities and processes.

The environmental consequences of the alternatives are examined in the Environmental Assessment. Results of public involvement, consultation, and coordination conducted throughout the planning process are included in Chapter 6: Consultation and Coordination.

How to Comment on this Document

This *Draft General Management Plan / Environmental Assessment* (GMP/EA) has been distributed to agencies and interested organizations and individuals for their review and comment. The public comment period for this document will extend through January 11, 2013.

This document is available online at the NPS Planning, Environment, and Public Comment website at http://parkplanning.nps.gov/pinn. An online public comment form is provided at this website.

Comments may also be made in person at one of the public meetings that will be conducted during the public review period. The specific dates and times for these workshops will be announced in local newspapers, in the Draft GMP newsletter, and online at the above site.

For further information or to send written letters or comment forms on this draft plan, contact or write:

Karen Beppler-Dorn, Superintendent
Pinnacles National Monument
Attn: General Management Plan Team
5000 Highway 146
Paicines, CA 95043

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment - including your personal identifying information - may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

View of the high peaks from the Condor Gulch Trail. NPS photo.

A Guide to This Document

This Draft GMP/EA is organized in accordance with the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act, the National Park Service's "*Park Planning Program Standards*," and Director's Order 12 and Handbook, "*Conservation Planning, Environmental Impact Analysis, and Decision-making*."

Chapter 1: Introduction sets the framework for the document. It provides an overview of the monument, describes why the plan is being prepared and what needs it must address. This chapter also details the planning opportunities and issues raised during internal and public scoping meetings. The alternatives in Chapter 3 address these issues and concerns. Next is a statement of the scope of the environmental assessment—specifically what impact topics are or are not analyzed in detail. This chapter concludes with an overview of other related planning efforts.

Chapter 2: Foundation for Planning and Management provides guidance for the management alternatives that are being considered. This guidance is based on the national monument's establishing proclamation, subsequent legislation, its purpose, the significance of its resources, fundamental resources and values, special mandates, and administrative commitments. This chapter concludes with a list of servicewide laws and policies that are applicable to the alternatives presented in this plan.

Chapter 3: Alternatives begins with an overview of the individual components included in the General Management Plan alternatives. Management zones and specific actions that are common to all the alternatives are described. Next is a description of the four alternatives, including the continuation of current management practices and trends (Alternative A, No Action – Continue Current Management). Three additional action alternatives for managing the monument, Alternative B, Emphasize Backcountry Experience; Alternative C, Expand Visitor Experiences; and Alternative D, Link People and Resources (preferred alternative) are also presented. This section is followed by a discussion of user capacity indicators and standards, a summary of the alternatives; a summary of the environmental consequences of implementing the alternatives, and discussions of the Environmentally Preferable Alternative, Actions/Alternatives Considered But Dismissed From Detailed Consideration, and Implementation of the General Management Plan.

High Peaks Trail in the fog. NPS photo.

Chapter 4: Affected Environment describes those areas and resources that could be affected by implementing the actions contained in the alternatives.

Chapter 5: Environmental Consequences analyzes the impacts of implementing the alternatives on resources based on topics described in the "Affected Environment" chapter. The chapter includes a description of measures that would avoid, minimize or mitigate the impacts. Methods used for assessing the impacts in terms of the intensity, type, and duration are described for each impact topic.

Chapter 6: Consultation and Coordination describes the history of public and agency coordination during the planning effort and any future compliance requirements. It also lists agencies and organizations that will be receiving copies of the document.

The preparers, appendices, glossary, acronyms, and list of references are found at the end of the document.

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Mariposa lilies furled near sunset, Pinnacles National Monument. Photo by Gavin Emmons © 2011.

Executive Summary

Photo by Debbie Delatour, Artist in Resdience Program.

Introduction

Pinnacles National Monument is located in the southern portion of the Gabilan Mountains in California's central Coast Ranges. Pinnacles lies about 40 miles inland from the Pacific Ocean and about 80 miles south of the San Francisco Bay Area (See *Park Map* - Regional Context Inset). The monument was set aside in 1908 by President Theodore Roosevelt under the Antiquities Act to preserve and protect the remnants of ancient volcanic processes that formed a portion of the Gabilan Mountain Range.

The last comprehensive planning effort for Pinnacles was the 1975 Master Plan. Since then, Pinnacles has grown from 16,271 acres to over 27,000 acres. In 2006, the monument acquired the 2,000 acre Pinnacles Ranch, along with its resources, infrastructure, recreational opportunities, and management challenges. Other changes include the reintroduction of the endangered California condor and a related rise in the monument's regional and national visibility. Substantial floods have destroyed many facilities, including the camping facilities on the west side. Development of housing and maintenance facilities on the east side displaced traditional picnicking areas. There are transportation and parking challenges today, and many facilities and services are inadequate to meet visitor demand and monument operations.

Since the 1975 Master Plan, the population of Hollister, San Benito County's largest community, has more than doubled. The population of Soledad, the closest city on the west side of the monument in Monterey County, has also doubled. The region has been changing, from a quiet ranching and agricultural-based economy to a more urban and technology-based economy. A new general management plan (GMP), reflecting contemporary and future issues and challenges facing Pinnacles, is essential.

This *Draft General Management Plan / Environmental Assessment* (GMP/EA) was developed in consultation with NPS staff and program managers, local communities, government agencies, California Indian tribes, stakeholder groups, and individuals. The GMP articulates a vision and overall management philosophy for Pinnacles that will guide decision-making for the foreseeable future. The GMP includes management strategies for resource protection and preservation; potential visitor use opportunities; interpretation and education; use of facilities and the need for new facilities; and long-term operations and management of Pinnacles.

Return of the Condor. Stained Glass. By Linda Bjornson, Artist in Residence Program.

Issues

The general public, NPS staff, and representatives from various organizations and county, state, and federal agencies identified issues and concerns about monument management during the scoping phase (early information gathering) for this general management plan. An issue is an opportunity, conflict, or problem regarding the use or management of public lands. Issues and concerns raised during public scoping generally involved suggestions for the types and levels of services and activities offered at the monument (particularly interpretive and educational programs). Many identified a desire to ensure a high degree of protection of the monument's sensitive resources. The GMP alternatives provide strategies for addressing these issues within the context of the monument's purpose, significance, and special mandates.

NATURAL RESOURCES

- Defined priorities and management direction for natural resources protection, research, and monitoring is needed while addressing the balance between visitor enjoyment and natural resource protection. Management guidance from desired conditions, management zoning and indicators and standards for user capacity is needed.
- A comprehensive management approach is needed that addresses the desire for protection and restoration of sensitive plant and wildlife species and eradication of nonnative invasive species.
- The balance between existing historic and visitor-serving structures in wetland, floodplain and fire-prone areas, and the health of the riparian environment needs to be addressed.

CULTURAL RESOURCES

- Lands acquired since the Master Plan added cultural resources to the monument's responsibilities. The appropriate balance between protection of historic resources and visitor uses, resource management practices, and natural processes needs to be examined.
- Priorities and management direction for cultural resources protection, research and monitoring need to be defined. The balance between visitor use and enjoyment and resource protection also needs to be addressed. Management guidance from desired conditions, management zoning, and indicators and standards for user capacity is needed.

WILDERNESS

- Over 16,000 of the monument's 27,000 acres are in designated wilderness. A vision for wilderness preservation needs to be established that will be addressed later in more detail in the monument's wilderness plan. This includes determining the desired resource conditions and visitor experiences in wilderness and the appropriate balance of wilderness values with other public values.

CLIMATE CHANGE

- Global climate change can be expected to have direct and indirect impacts on Pinnacles National Monument, including natural and cultural resources, visitor use, facilities, administration and operations.

COLLECTIONS

- The monument has been implementing recommendations from its 2005 Museum Management Plan. Several recommendations still need resolution including professional upkeep and improved storage of collections to meet NPS standards and a plan for collections development following the updated Scope of Collections direction.

VISITOR USE AND FACILITIES

- Changing demographics and appropriate uses and facilities to serve visitors throughout the monument need to be addressed. Specific issues include determining the desired visitor experience throughout the monument (east side, west side, High Peaks, Bear Gulch, bottomlands, campground, backcountry, wilderness).
- Visitor services and opportunities need to be addressed.
- Appropriate uses in different parts of the monument, potential conflicts among these uses, potential resource impacts, and visitor safety need to be addressed.
- The appropriateness of the current location/facility of the east side visitor center needs to be addressed. Law enforcement and visitor safety needs need to be identified, considering infrastructure, access, and staffing limitations. In addition, adaptive reuse of historic structures needs to be considered.
- Appropriate visitor orientation needs to be addressed, including interpretive themes, resource education opportunities within the monument and in gateway communities, in a manner that includes the new lands and addresses the changing demographics.
- The appropriate long term management approach for camping at Pinnacles needs to be

determined. Pinnacles Campground, formerly privately owned and managed, is now within the monument boundary. The appropriate balance between protection of natural resources at the campground and visitor use needs to be explored.

- The reduction of crowding at popular locations needs to be addressed, along with opportunities for dispersal or areas where increased use is appropriate.
- Indicators and standards for user capacity are needed to define the types and levels of visitor and other public uses that can be accommodated while sustaining the desired resource and social conditions for each management zone. Monitoring strategies will be developed to test the effectiveness of management actions and to provide a basis for informed adaptive management of public use.

ACCESS AND TRANSPORTATION

- Access to both sides of the monument is limited by the amount of available parking. Current parking and facilities cannot accommodate peak levels of visitation. Alternatives for parking and access need to be considered and the appropriate balance between visitor access and the protection of resources needs to be determined.

Reflections on Bear Gulch Reservoir. Photo by Gavin Emmons © 2011.

- The monument's trail system provides a variety of opportunities, but does not provide access to newer lands. The enhancement of this system, including the integration of new lands and the types of abilities and uses that should be accomodated needs to be addressed, including consideration of Architectural Barriers Act (ABA), differing levels of trail difficulty and length, and equestrian use.

ADMINISTRATIVE AND OPERATIONAL FACILITIES

- The appropriate levels of development in different parts of the monument and which areas are appropriate for administration and operations activities need to be determined. Removal of facilities and infrastructure to support effective operations, improve facility condition index and invest available funds wisely, need to be examined. Long-term sustainability and cost-effective approaches to providing for office / administrative space, law enforcement operations, emergency service operations, interpretive operations, resource management, maintenance, meeting and training space, and housing need to be considered.

LAND USE AND REGIONAL ISSUES

- An examination is needed of how the monument can work with nearby communities to promote understanding of the Gabilan Mountain ecoregion and its resources and how to find common ground in regional stewardship of ecological, scenic and monument wilderness values.
- The GMP explores a range of management approaches including partnerships with surrounding neighbors, communities, local agencies, associated tribes, and organizations to protect the rural character and benefits of open working landscapes.

Development of the GMP

The GMP is based on an analysis of existing and predicted natural and cultural resource conditions, visitor experiences, environmental impacts, and costs.

It primarily provides a framework for administration and management and a vision to be realized through future actions. This document also includes an environmental assessment (EA), which considers at a general qualitative level the impacts that each of the alternatives could have on the monument environment. The EA sets the framework for future compliance with the National Environmental Policy Act (NEPA) and the National Historical Preservation Act (NHPA) for the monument. It also assists decision makers and the public in assessing the relative merits and effects of the alternatives.

Alternatives

Four alternatives for future management of Pinnacles National Monument are presented in the GMP. The alternatives, which are consistent with the monument's purpose, significance, and special mandates, present different ways to manage resources and visitor use and improve facilities and infrastructure. These four alternatives represent the range of ideas the public and NPS staff have identified regarding natural and cultural resource conditions, visitor use and experience conditions, and management at Pinnacles National Monument.

Alternative A: the No Action Alternative presents a continuation of current management direction and is required under NEPA. The action alternatives are Alternative B: Emphasize Backcountry Experience, Alternative C: Expand Visitor Experiences, and Alternative D: Link People and Resources (the preferred alternative).

Several other actions and alternatives were also considered, but were eventually dismissed from further analysis. These actions and alternatives, along with the rationale for their dismissal, are described near the end of Chapter 3 *Alternatives*.

Management zones are a component of the alternatives. They describe a range of desired conditions for resources and visitor experiences and/or management approaches to be achieved and maintained in particular areas. These zones form the basis for the alternatives and depending on the action alternative are applied to different geographic areas of Pinnacles. The five management zones are primitive, semi-primitive, front-country, cultural interpretation, and special research. Each zone description includes a zone concept, desired natural and cultural resource conditions, visitor experience, facilities, access and transportation.

Actions Common to All Alternatives are management actions or guidance that would apply to all the alternatives. This section is included before the detailed descriptions of the four alternatives. Under all four alternatives the existing monument boundary would be maintained, and would include potential future minor administrative boundary adjustments. The existing designated wilderness boundary would be maintained unless changed through legislation.

Alternative A, No Action, (Continue Current Management) would continue existing management, programming, facilities, staffing, and funding at current levels. The "no action" alternative provides a baseline for evaluating changes and impacts in other alternatives.

View from the High Peaks Trail. NPS photo.

Resource Management: Existing natural resource management activities would continue, including the raptor monitoring program, re-establishment of the California condor, and removal of nonnative invasive species. Cultural resources would be documented as needed; however, Pinnacles would continue to lack in-park cultural resource expertise, resulting in continued dependence on regional staff to assist the monument in maintaining a minimum level of cultural resource management and compliance.

Visitor Experience: Current recreational opportunities, including hiking, camping, picnicking, rock climbing, and viewing scenery would continue. Current interpretive services would be provided. Limited education programs would continue as funding allows.

Facilities: Existing facilities and trails would be maintained.

Alternative B, Emphasize Backcountry Experience, would provide visitors with high quality backcountry experiences, including solitude, quiet, and immersion in natural settings. Natural and cultural resources and visitor use opportunities would be managed in an integrated fashion for protection, restoration, and maintenance of natural and cultural resources and backcountry experiences, in cooperation with the surrounding communities and neighbors.

Resource Management: Natural resources protection would emphasize conserving and restoring natural functions, protecting watershed values, and protecting sensitive wildlife areas with a focus on providing visitors with a backcountry experience where natural processes predominate. Cultural resources would continue to be protected. Significant historic resources would be maintained, while some documented structures that do not contribute to the historical significance of the monument and are not being used for monument operations could be removed.

Visitor Experience: Visitors would be provided with a range of high quality backcountry experiences, including opportunities for solitude within natural settings. Visitor use would be dispersed. Traditional recreational uses would continue. Some new trails would be built to provide access to new areas within the monument including the newly added lands. Small scale interpretive and educational facilities and guided programs would be provided. Formal interpretation and education would be focused on wilderness values.

Facilities: Facilities would be minimized and located in existing developed areas. On the east side, facilities would be concentrated in the campground area. A small replacement visitor center would be constructed to replace the current visitor center/campground store when the current structure reaches the end of its useful life. There would be an emphasis on determining whether infrastructure located in the primitive zone should be removed. The Chaparral parking lot, North Chalone Peak, the bottomlands and riparian areas along Sandy Creek would be restored. The Moses Spring area would also be studied to determine how to improve natural functions.

Alternative C, Expand Visitor Experiences, would provide an expanded array of visitor use opportunities, including recreation, interpretation, and education. Opportunities would be provided on the new lands and other areas that receive lower visitor use. A greater diversity of activities and groups would be encouraged.

Resource Management: Natural resources protection would emphasize the importance of a natural setting and resource integrity for the visitor experience. Cultural resources would be protected and managed with a focus on providing visitors with opportunities to experience the broader history of the region.

Visitor Experience: Pinnacles would reach out to a broad audience by offering a wider range of recreational opportunities and learning experiences. New visitor uses like equestrian use and backcountry camping would be provided where such uses do not detract from resource or social values. New trails would be built to provide a wide variety of experiences. Additional interpretive and educational facilities and guided programs would also be provided. The monument would increase partnership efforts and outreach programs focused on visitor use stewardship opportunities.

Facilities: Facilities would be focused on supporting an expanded array of visitor use opportunities. A larger visitor center would be constructed between the campground and Highway 25 entrance to replace the current visitor center/campground store when the current structure reaches the end of its useful life. On the east side, most visitor facilities would be concentrated in the campground area.

Alternative D, Link People and Resources (preferred alternative), would engage a broad range of visitors in the enjoyment, understanding, and stewardship of natural and cultural resources and values of the Gabilan Mountains ecoregion. Pinnacles would focus on ways to connect diverse audiences and resources, to acknowledge the interrelationship between natural and cultural resources, and to protect, preserve, and restore ecological communities and processes.

Natural color along Moses Spring Trail. Photo by Gavin Emmons © 2011.

Resource Management: Natural resources would be protected to a high degree and natural ecosystem functions would be restored when practicable and beneficial. Natural resources protection would be enhanced by a strong education and research emphasis. Cultural resources would be managed to protect and interpret their significance, connect those resources within their broader regional history, and to provide visitors with opportunities to experience and learn about the interrelationship between humans and the environment. The monument would increase partnership efforts and outreach programs focused on regional protection of significant resources, habitat connectivity, and open rural working landscapes.

Visitor Experience: Pinnacles would connect visitors, communities, and resources in a variety of ways. New opportunities, such as backcountry camping, would be provided where these uses do not detract from resource or social values. New trails could be built to provide a wide variety of experiences. Interpretation and education would focus on science and history learning. There would be opportunities to learn about the monument's significant resources and its broader context within the Gabilan Mountains ecoregion. The monument could participate in developing and staffing regional visitor and interpretation centers.

Facilities: Facilities would be used to support increased visitor understanding of natural and cultural resources and/or would serve management, operational, and administrative functions. On the east side, most visitor facilities would be concentrated in the campground area. A replacement visitor center would be built in the vicinity of the existing visitor center to replace the current visitor center/campground store when the current structure reaches the end of its useful life.

Environmental Consequences

The potential effects of the four alternatives are analyzed for impacts to visitor use, natural resources, wilderness, cultural resources, NPS operations, and the socioeconomic environment. This analysis is the basis for comparing the advantages and disadvantages of the alternatives. Impacts are described in terms of whether they are beneficial or adverse. If adverse, their intensity and duration are described. In addition, cumulative impacts are described. Cumulative impacts result from the incremental (i.e., additive) impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of who undertakes such actions. Finally, conclusions for each topic area are provided, comparing each action alternative to the no-action alternative.

SUMMARY OF IMPACTS

The following discussion summarizes the impacts of all alternatives considered, in accordance with the National Environmental Policy Act.

Impacts from Alternative A

Implementation of alternative A would generally result in minor to moderate adverse impacts on natural and cultural resources from continued activities associated with visitor use, infrastructure maintenance, and NPS operations. Continuing resource management activities would result in long-term benefits to resources. Impacts to wilderness qualities would continue to be minor to moderate. Some existing impacts on the untrammeled and the undeveloped qualities of wilderness, such as the pig fence and reservoir, also have a beneficial effect on the natural quality of wilderness. Implementation of alternative A would not substantially change visitor services or programs and a full spectrum of recreation opportunities would continue resulting in overall long-term benefits to visitor use and opportunities. The monument would continue to face minor to moderate impacts to operational efficiency and efficacy. This alternative would also contribute minor adverse impacts to the socioeconomic environment, along with beneficial impacts.

Impacts from Alternative B

Alternative B would provide the monument with a wilderness and backcountry focus, resulting in numerous beneficial impacts for visitors seeking natural quiet and solitude and for natural resource management. Visitors would benefit from an expanded trail system, providing access into new areas, and a replacement east side visitor facility and day use area. Natural resources, cultural resources, and NPS operations would benefit greatly from increased staffing in several program areas. Adverse impacts to

cultural resources would result from removal of the North Chalone Peak fire lookout. Wilderness qualities would benefit, especially due to the removal of some development and more opportunities for solitude as more areas are zoned for such purposes. Visitors would also experience some adverse impacts from removal of two parking areas.

Impacts from Alternative C

Implementation of alternative C would result in many beneficial impacts to visitors. The expanded trail system, new access opportunities, and east side facilities described in alternative B would also be provided in this alternative. In addition, equestrian opportunities, west-side camping, and backcountry camping would increase the breadth of opportunities available to visitors. Natural and cultural resources would benefit from increased staffing and restoration efforts, but minor to moderate adverse impacts would occur with the addition of new facilities throughout the monument. Wilderness could benefit from the provision of backcountry camping opportunities and new access opportunities. This alternative brings the greatest amount of disturbance due to new construction and access, creating the greatest amount of long-term and short-term adverse impacts to resources.

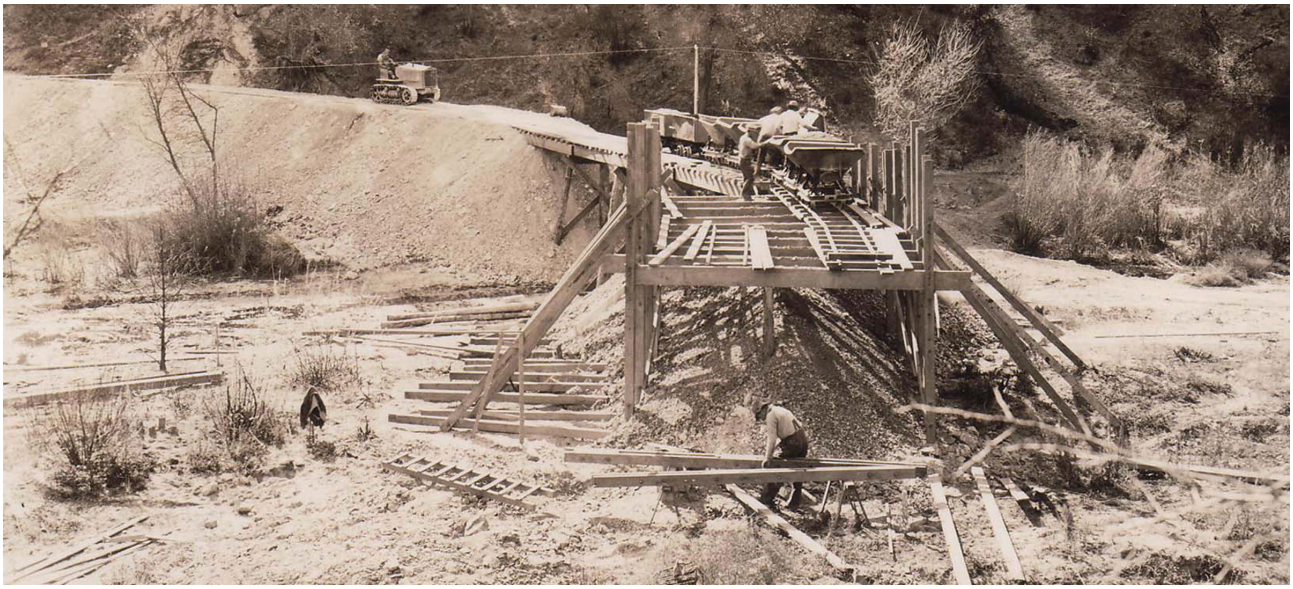
Impacts from Alternative D

Adverse impacts resulting from the implementation of alternative D would be very similar to alternative C with several key differences. Equestrian uses would not occur, eliminating the adverse and beneficial impacts associated with this activity. Also, removal of the North Chalone Peak fire lookout could occur under this alternative, with the same impacts as described in alternative B. The beneficial impacts resulting from new opportunities for solitude and unconfined recreation due to backcountry camping and enhanced access, increased staffing in multiple programs, and improved visitor facilities on the east side would be nearly the same as those described under alternative C.

Environmentally Preferable Alternative

The environmentally preferred alternative is "the alternative that promotes the national environmental policy expressed in the National Environmental Policy Act (NEPA) (Sec. 101(b))." After the environmental consequences of the alternatives were analyzed, each alternative was evaluated to see how well the goals from NEPA section 101(b) are met. Section 101 of the National Environmental Policy Act" states that it is the continuing responsibility of the federal government to

1. fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
4. preserve important historic, cultural, and natural aspects of our national heritage; and maintain, wherever possible, an environment which supports



Chalone Creek bridge under construction, 1932. NPS photo.

diversity, and a variety of individual choices;

5. achieve a balance between population and resource use which would permit high standards of living and a wide sharing of life's amenities; and
6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The Council of Environmental Quality states that the environmentally preferable alternative is "the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources (46 FR 18026 – 46 FR 18038)." According to the NPS NEPA Handbook (DO-12), through identification of the environmentally preferable alternative, the NPS decision-makers and the public are clearly faced with the relative merits of choices and must clearly state through the decision-making process the values and policies used in reaching final decisions.

The environmentally preferable alternative for Pinnacles National Monument is Alternative B: Emphasize Backcountry Experience. This alternative best satisfies the national environmental goals—it provides the highest level of protection of natural and cultural resources while concurrently providing for a wide range of neutral and beneficial uses of the environment. This alternative maintains an environment that supports a diversity and variety of individual choices, and it integrates resource protection with an appropriate and preexisting range of visitor uses and understanding.

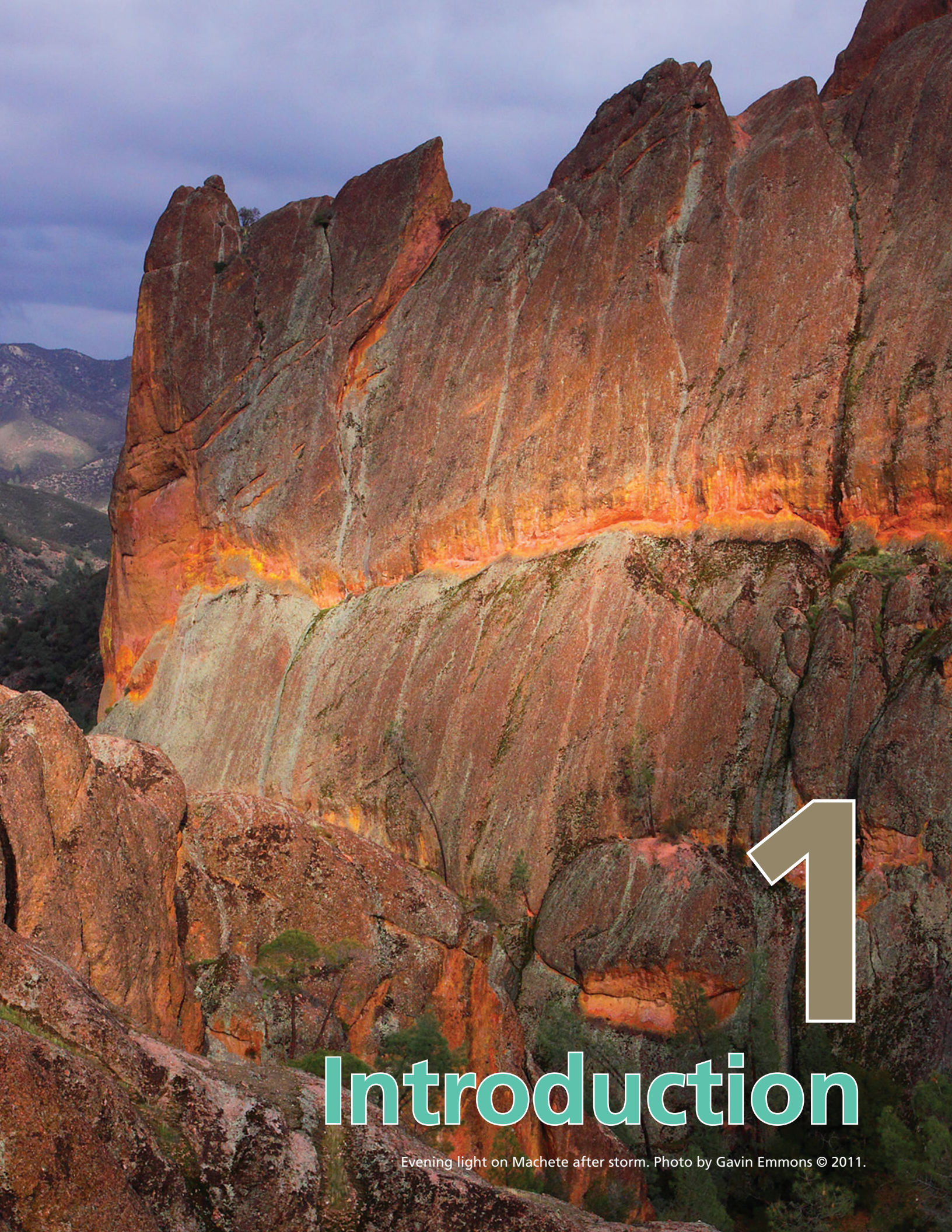
This alternative surpasses the other alternatives in realizing the full range of the Section 101 national environmental policy goals.

Alternative D, Link People and Resources, the preferred alternative, also meets many of the criteria. The enhancement of educational opportunities, research, and restoration of resources at the monument would result in a better understanding of the monument's resources, thus better equipping the monument in fulfilling criteria 3, 4, and 5.

Implementation

The implementation of the proposed action will depend on future funding, NPS priorities, and partnership efforts. The approval of a GMP does not guarantee that funding and staffing needed to implement the plan will be forthcoming. Full implementation of the GMP could be many years into the future.

California condor juvenile sunning. Photo by Gavin Emmons © 2011.



1 Introduction

Evening light on Machete after storm. Photo by Gavin Emmons © 2011.

Chapter 1: Introduction

Background on Pinnacles National Monument

Pinnacles National Monument is located in central coastal California and was set aside in 1908 by President Theodore Roosevelt under the Antiquities Act to preserve and protect the remnants of ancient volcanic processes that formed a portion of the Gabilan Mountain Range. Pinnacles was initially managed by the United States Forest Service (USFS) in 1906 and was ultimately transferred to the National Park Service (NPS) in 1916. Several boundary expansions over the years increased the monument's size from its original 2,080 acres to over 27,000 acres today.

Location and Access

The monument is located in the southern portion of the Gabilan Mountains, part of the series of parallel northwest-trending ridges and valleys that make up the central Coast Ranges in California. Pinnacles lies about 40 miles inland from the Pacific Ocean and about 80 miles south of the San Francisco Bay Area. The monument is in the 17th Congressional District of California. The monument is bordered entirely by private land, much of it in agricultural use.

The primary access points to Pinnacles National Monument are on Highway 146 on both the east and west sides of the monument. Highway 146, however, does not connect the two sides, nor does any other road. The shortest route from the east entrance to the west entrance (or from west to east) is through the town of King City on Highway 101 or by hiking. Both entrances are open year round. Currently, and historically, the east side receives higher visitation and provides more visitor services.

Overview of Monument Resources and History

Pinnacles National Monument, located near the San Andreas Fault along the boundary of the Pacific Plate and the North American Plate, is an excellent example of tectonic plate movement. The Pinnacles Rocks are believed to be part of the Neenach Volcanic Field that occurred 23 million years ago near present-day Lancaster, California, some 195 miles (314 km) southeast. The extensive San Andreas Fault split the volcano and the Pacific Plate crept north, carrying the volcanic field. The work of water and wind on these erodible volcanic rocks formed the unusual and dramatic rock features seen today.

Geologic activity also accounts for the talus caves, another Pinnacles attraction. Deep, narrow gorges or shear fractures were transformed into caves when huge boulders toppled from above and wedged in the fractures before reaching the ground. These boulders became the ceilings of the talus caves that entice not only visitors but also several kinds of bats and cave-dependent species.

The topography of Pinnacles is not all spire and crag, however. Elevations range from 790 feet along South Chalone Creek to 3,304 feet atop North Chalone Peak, and much of the monument consists of rolling hills.

Pinnacles has a Mediterranean climate of hot, dry summers and cool winters with moderate rainfall. Although the monument is only 40 miles from the Pacific Ocean, the Santa Lucia Mountains to the west strongly modify the ocean influence before it reaches inland to Pinnacles. Consequently, while the coastal summer temperatures might be a fairly steady 60 degrees Fahrenheit, the temperature at Pinnacles can swing from 50 degrees at night to 100 degrees in the day. Similarly, due to the absence of the ocean's warming effect, winter temperatures at Pinnacles often drop below freezing while coastal temperatures remain moderate.

Weather profoundly influences vegetation, and broadleaf chaparral is one of the vegetation types adapted to the monument's daily temperature extremes and summer drought. Comprising about 80% of the monument's vegetation, the chaparral ecosystem is not one entity, but many, with subtly varied vegetation composition quilted together over the land. Along with chaparral there are woodland, riparian, grassland, and rock and scree habitats here, all also subtly intergraded. It is the variability of Pinnacles' topography, weather and microclimate, and the location of the monument at the edge of intersecting ecosystem zones, that allows for the diverse vegetation and intricate mix of habitats found here. These diverse habitats in turn support a rich fauna – especially of birds, reptiles and bees.

Pinnacles is a refuge for species representative of the central California coastal mountains, not only because of the many ecological niches here, but also because of its long-term protected status. Chaparral vegetation at Pinnacles is an excellent example of this ecosystem that is losing ground elsewhere through urban expansion and intentional conversion for annual grasslands. Pinnacles retains relatively abundant wildlife populations and is one of five current release sites in the United States for the continuing recovery of the California condor.

Visitors are drawn to Pinnacles for other reasons, too. In the spring wildflowers decorate the land and the bird population swells with migrants. Solitude, dark night skies, and deep quiet are found here, especially in the 16,048 acres of federally designated wilderness within the monument – one of the two federal wilderness areas nearest to the San Francisco Bay Area. The surrounding private agricultural/ranching lands contribute to these conditions as well. Rock-climbers and hikers, both solitary and social, are regulars to Pinnacles.

Pinnacles was occupied by small groups of Native Americans, particularly the Chalon and Mutsun subgroups of the Ohlone (Costanoan) people. Evidence in the form of arrowheads, grinding stones, and bedrock mortars among other resources have been discovered within the monument. The Spanish had a dramatic impact on Native Americans in the region. They traveled into California from Mexico and eventually established 21 religious missions between 1769 and 1823, stretching from San Diego to Sonoma. Many of the Chalon and Mutsun people became baptized mission workers ("neophytes"). The mission way of life was devastating to California Indian people. A combination of diseases brought by the Spaniards and dramatic changes to their way of life decimated many Chalon and Mutsun people and their cultures. By the time Anglo-American settlers arrived during the middle of the nineteenth century, most native lifeways associated with the area had been lost.

Between 1810, when the last of the Chalon are believed to have disappeared from the area around Pinnacles, and 1865, when permanent Anglo-American settlers first arrived, this landscape was largely abandoned to wilderness, probably for the first time in millennia.

In 1891 Schuyler Hain, a homesteader, arrived in the Pinnacles area from Michigan. During the next twenty years he became known as the "Father of Pinnacles" leading tours up through Bear Valley and into the caves. Hain spoke to groups and wrote articles urging preservation of the area and acted as unofficial caretaker for many years. His efforts proved fruitful with the establishment of Pinnacles as a national monument in 1908 by President Theodore Roosevelt.

In 1933, the Civilian Conservation Corps (CCC) established a camp in what is now the Old Pinnacles trailhead area. From 1933 to 1942, during cooler winter months, the CCC accomplished many projects. The dirt road up to Bear Gulch was widened, paved and completed in 1934. The CCC improved many of the trails that had been established by the early homesteaders, including the exciting steep and narrow trail that winds through the High Peaks. They constructed the dam that forms the Bear Gulch reservoir and improved the trail into the caves, adding concrete steps and guard rails. Beginning in 1936 the CCC boys guided visitors through the caves using lanterns.

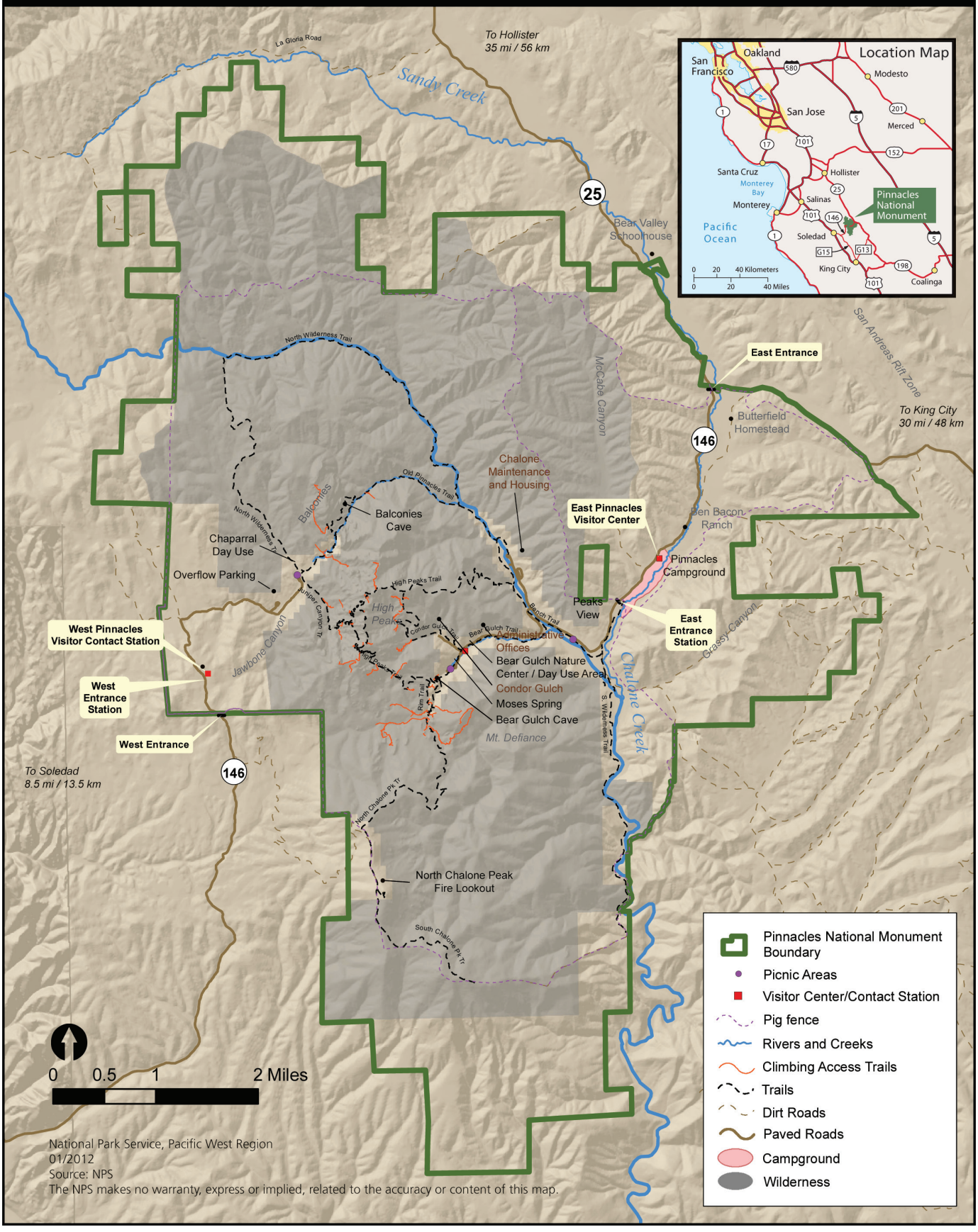
The post-war years were characterized by rapid population growth in the California Central Coast Region and increasing visitation to Pinnacles. The Mission 66 initiative, a nation-wide park modernization effort corresponding to the 50th anniversary of the National Park Service, gave Pinnacles the funds needed to purchase several private inholdings in the monument. This allowed for development of visitor facilities, trails,

Looking north from the High Peaks Trail. NPS photo.

Park Map

Pinnacles National Monument

National Park Service
U.S. Department of the Interior



National Park Service, Pacific West Region
01/2012
Source: NPS
The NPS makes no warranty, express or implied, related to the accuracy or content of this map.

and roads on the west side from 1963 to 1966. The 1964 Wilderness Act resulted in approximately 13,000 acres of the monument being designated as wilderness in 1975, nearly the entire undeveloped area at that time. In response to increased visitation and the new wilderness designation, Pinnacles produced a master plan in 1976 emphasizing the concentration of development away from the most sensitive and scenic areas of the monument. Major flooding in 1998 caused significant damage to monument buildings and infrastructure, but also provided the impetus to relocate west side facilities. However, many of the monument's facilities, particularly on the east side, remain in sensitive areas and vulnerable to flooding.

Pinnacles has expanded its boundaries eight times since it was first established as a national monument in 1908. In 2000, approximately 11,000 acres were added including land transferred from the Bureau of Land Management and nearly 3,000 acres of privately owned land on the park's east side. The former Pinnacles Ranch land acquired in 2006, includes the Ben Bacon Ranch Historic District. Notable as a dry-land subsistence farming area, the Ben Bacon Ranch Historic District has greatly expanded Pinnacle's cultural resources. Newly acquired lands also include McCabe Canyon, notable for its valley oak woodlands and intact native grasslands, including extensive stands of basket weaving species highly valued by Mutsun and other California Indian peoples. In 2002, 2,700 additional acres of wilderness were designated. The Bear Valley School property and several surrounding parcels were added to the boundary in 2010. See Chapter 3 *Alternatives, Boundaries* and Chapter 4 *Affected Environment, Cultural Resources* for more information about the monument's history and discussion about boundaries.

Mule deer foraging in oak leaves. Photo by Gavin Emmons © 2011.

Overview of the National Park Service Planning Process

General Management Plans and the National Park System

The National Parks and Recreation Act of 1978 requires each unit of the national park system to have a general management plan (GMP); and NPS Management Policies 2006 (§2.3.1) states "The National Park Service will maintain a general management plan for each unit of the national park system."

The purpose of a GMP is to ensure that a national park system unit (park unit) has a clearly defined direction for resource preservation and visitor use that will best achieve the NPS mandate to preserve resources unimpaired for the enjoyment of future generations.

The ultimate outcome of general management planning for park units is an agreement among the National Park Service, its partners, and the public on why each area is managed as part of the national park system, what resource conditions and visitor experience should exist, and how those conditions can best be achieved and maintained over time. General management plans are intended to be long-term documents that establish and articulate a management philosophy and framework for decision making and problem solving in the parks.

The National Environmental Policy Act (NEPA) requires federal agencies to fully consider the environmental costs and benefits of their proposed actions before they make any decision to undertake those actions. NEPA, and the Council on Environmental Quality (CEQ) regulations implementing NEPA, put two important mechanisms in place to achieve this goal. One is the requirement that all agencies make a careful, complete, and analytical study of the impacts of any proposal that has the potential to affect the human environment, and alternatives to that proposal, well before any decisions are made. The other is the mandate that agencies be diligent in involving any interested or affected members of the public in the NEPA process.

As plans that focus on desired conditions to be achieved and maintained over a relatively long period of time, GMPs are generally large in scope, implemented in phases over many years, and contain little or no detail about specific actions. As a result, the NEPA analysis for GMPs is typically a programmatic, or broad-scale analysis, rather than a site-specific analysis. As decision making moves from general management planning into program planning, strategic planning,

and implementation planning, the need for information becomes increasingly focused and specific, requiring additional analysis at those levels.

Public involvement provided critical input into this plan. Several opportunities for involvement, from the scoping phase to the release of preliminary alternatives to the draft general management plan were provided and comments were solicited from visitors, local community members, and other interested stakeholders. See Chapter Six *Consultation and Coordination* for more details on this process.

Purpose and Need for the General Management Plan

Purpose of the Plan

The approved general management plan will be the foundational document guiding management of Pinnacles National Monument for the forseeable future. The purposes of this general management plan are to:

- confirm the purpose, significance, and special mandates of Pinnacles National Monument
- clearly define resource conditions and visitor uses and experiences to be achieved in the monument
- provide a framework for managers to use when making decisions about how to best protect the monument's resources, how to provide quality visitor uses and experiences, how to manage visitor use, and what kinds of facilities, if any, to develop in the monument
- ensure that this foundation for decision making has been developed in consultation with interested stakeholders and adopted by the NPS leadership after an analysis of the benefits, impacts, and economic costs of alternative courses of action

Legislation establishing the National Park Service as an agency and governing its management provides the fundamental direction for the administration of Pinnacles National Monument (and other units and programs of the national park system). This general management plan builds on these laws and the proclamation that established Pinnacles National Monument to provide a vision for the monument's future.

This *Draft General Management Plan and Environmental Assessment* presents and analyzes four alternative future directions for the management and use of Pinnacles National Monument. Alternative D is the National Park Service's preferred alternative (see Chapter 3, Alternatives). The potential environmental impacts of all alternatives have been identified and assessed (see Chapter 5 *Environmental Consequences*).

Actions directed by general management plans or in subsequent implementation plans are accomplished over time. Budget restrictions, requirements

Sunset over Pinnacles National Monument. Photo by Paul G. Johnson.

for additional data or regulatory compliance, and competing priorities may delay implementation of many actions. Major or especially costly actions could be implemented 10 or more years into the future.

The general management plan does not describe how particular programs or projects should be prioritized or implemented. Those decisions will be addressed in future, more detailed planning efforts. All future plans should be consistent with the approved general management plan.

Need for the Plan

The last comprehensive planning effort for Pinnacles was a master plan developed in 1975. Since then, Pinnacles has grown from 16,271 acres to over 27,000 acres. In 2000, Proclamation No. 7266 authorized expansion of the monument to include approximately 10,939 acres. Approximately 8,008 acres were federal lands transferred from the Bureau of Land Management. In 2006, the monument acquired the 2,000 acre Pinnacles Ranch, along with its substantial resources, infrastructure, recreational opportunities, and management challenges. Other changes include the reintroduction of endangered California condors and a related rise in the monument's regional and national visibility. Substantial floods since the 1975 Master Plan destroyed many facilities, including all camping facilities on the monument's west side. Development of housing and maintenance facilities on the east side displaced traditional picnicking areas. There are transportation and parking challenges today, and many facilities and services are inadequate to meet visitor demand. Separate development concept plans for both the west and east districts were approved in the early 1990s, but do not reflect today's landscape or issues.

Since the Master Plan, the population of Hollister, San Benito County's largest community, has more than doubled. The population of Soledad, the closest city on the west side of the monument in Monterey County, has also doubled. Similarly, the region has been changing, from a quiet, small-scale ranching and agricultural-based economy to a more urban and technology-based economy. Hollister has become a bedroom community for the Silicon Valley, and Soledad is actively marketing itself for industrial and residential development. A new general management plan, reflecting contemporary and future issues and challenges facing Pinnacles, is essential.

Scope of the General Management Plan

Introduction

The following topics describe some of the preliminary needs and challenges the general management plan (GMP) must address for the monument to preserve resources while providing for public use and enjoyment. The general public, NPS staff, and representatives from various organizations and county, state, and federal agencies identified issues and concerns about monument management during the scoping phase (early information gathering) for this general management plan. An issue is an opportunity, conflict, or problem regarding the use or management of public lands. Comments were solicited at public meetings, through planning newsletters, and at meetings with agencies and community stakeholders (see Chapter 6 *Consultation and Coordination* for more information about the scoping efforts).

Comments received during scoping demonstrated that the public is generally pleased with current management and resources at Pinnacles National Monument. The public values the monument's diverse resources, viewsheds, solitude, visitor opportunities, and facilities. Issues and concerns raised during public scoping generally involved suggestions for the types and levels of services and activities offered at the monument (particularly interpretive and educational programs). Many identified a desire to ensure a high degree of protection of the monument's sensitive resources. The general management plan alternatives provide strategies for addressing these issues within the context of the monument's purpose, significance, and special mandates presented in Chapter 2 *Foundation for Planning and Management*.

Issues

NATURAL RESOURCES

New lands recently added to the monument include lands formerly used for ranching and dryland farming. A comprehensive management approach is needed that addresses the desire for protection and restoration of sensitive plant and wildlife species (red-legged frogs, condors) and eradication of non-native/invasive species (exotic pigs, non-native plants).

Native and endemic ecosystems are subject to positive and negative impacts from within and outside the monument, including overuse and vegetative trampling, agricultural practices and development within and beyond the monument. The balance between existing historic and visitor-serving

structures in wetland, floodplain and fire-prone areas (CCC buildings, parking lots, water reservoir, housing), and the health of the riparian environment needs to be addressed.

Defined priorities and management direction for natural resources protection, research, and monitoring is needed while addressing the balance between visitor enjoyment and natural resource protection. Management guidance from desired conditions, management zoning and indicators and standards for user capacity is needed.

CULTURAL RESOURCES

Newly acquired lands added cultural resources to the monument's responsibilities. Cultural resources include: Native American archeological and ethnographic resources; archeological, structural and landscape resources representing exploration and homesteading by Spanish and American colonizers and settlers; development of the monument by NPS and Depression era programs such as the CCC; later NPS Mission 66 buildings and structures; archives and museum objects; and other resources. The appropriate balance between protection of historic resources and visitor uses, resource management practices, and natural processes such as flooding and fire needs to be examined. In addition, adaptive reuse of historic structures needs to be considered.

Priorities and management direction for cultural resources protection, research and monitoring need to be defined. The balance between visitor use and enjoyment and resource protection also needs to be addressed. Management guidance from desired conditions, management zoning and indicators and standards for user capacity is needed.

WILDERNESS

Over 16,000 of the monument's 27,000 acres are designated wilderness. Visitors highly value the wild character of Pinnacles, including solitude and ecological diversity. The surrounding working landscapes contribute to the protection of these values. Development and other activities, both within and beyond the monument, may impact wilderness through viewshed obstruction, light pollution, noise, and air pollution.

The potential for visitors to experience wilderness throughout the monument needs to be explored. The new monument lands provide potential access opportunities to wilderness, including trail connections.

A vision for preservation of wilderness character needs to be established that will be addressed later in more detail in the monument's wilderness stewardship plan. This includes determining the desired resource conditions and visitor experiences in wilderness and the appropriate balance of wilderness values with other public values.

CLIMATE CHANGE

Global climate change can be expected to have direct and indirect impacts on Pinnacles National Monument, including natural and cultural resources, visitor use, facilities, administration and operations.

COLLECTIONS

The monument completed a Museum Management Plan in 2005. Many of the key recommendations have been addressed, but other recommendations still need to be resolved, including professional upkeep and improved storage of natural and cultural collections to meet NPS standards. A commitment of base funds for staffing assistance is needed. Identifying adequate space for collections at Pinnacles is challenging since many existing buildings are historic structures and are located within a floodplain.

Park visitors hike along the Bear Gulch Trail. NPS photo.

VISITOR USE AND FACILITIES

Since the Master Plan, there have been changes in visitor use, activities, and facilities, and new lands have been added to the monument, offering new visitor opportunities. Changing demographics and appropriate uses and facilities to serve visitors throughout the expanded monument need to be addressed. Specific issues include determining the desired visitor experience throughout the monument and its many components (east side, west side, High Peaks, Bear Gulch, Chalone, bottomlands, campground, backcountry, wilderness).

The monument acquired the 2,000 acre Pinnacles Ranch property at the east entrance, now referred to as the bottomlands, in 2006. With this acquisition, monument land begins at Highway 25, while the east entrance station is several miles further up the road. New replacement west side facilities, including a visitor contact station, were completed in January 2012. Additional visitor services and opportunities need to be addressed.

Visitors to Pinnacles engage in many different activities and have expressed interest in new types of activities, including recreation, interpretation and education. Appropriate uses in different parts of the monument, potential conflicts among these uses, potential resource impacts, and visitor safety need to be addressed. The identification of further management planning is also needed to address specific use issues (e.g. climbing management plan).

Some visitors have expressed a desire for more camping and picnic facilities, including family and group picnicking in shaded areas. Visitors have expressed interest in night hikes and programs, backpacking opportunities, camping, equestrian use, wheelchair accessible experiences, wilderness access, and educational and interpretive experiences. (Also see discussion of trails under "Access and Transportation.")

The appropriateness of the current location/facility of the East Pinnacles Visitor Center needs to be addressed. Law enforcement and visitor safety needs need to be identified, considering infrastructure, access and staffing limitations. Appropriate visitor orientation needs to be addressed, including interpretive themes, resource education opportunities within the monument and in gateway communities, interpretation of significant resources, and regulations, in a manner that includes the new lands and addresses the changing demographics of the region.

The long term management approach for camping at Pinnacles needs to be determined. Pinnacles Campground, formerly privately owned and managed, is now within the monument boundary. The appropriate balance between protection of natural resources at the campground and visitor use needs to be explored.

The growing regional population has increased visitation, while past floods have led to removal of certain visitor facilities. On busy weekends, visitors experience overcrowding - parking lots fill

Photos (top to bottom): 1. Panoramic view from the High Peaks Trail. NPS photo. 2. Acorn woodpecker, head detail. Photo by Gavin Emmons © 2011.

early, and visitors line up to get into the monument, waiting for vacant parking spaces or for shuttle buses. The reduction of crowding at popular locations needs to be addressed, along with opportunities for dispersal in areas where increased use is appropriate.

Indicators and standards for user capacity are needed to define the types and levels of visitor and other public uses that can be accommodated while sustaining the desired resource and social conditions for each management zone. Monitoring strategies will be developed to determine the effectiveness of management actions and to provide a basis for informed adaptive management of public use.

ACCESS AND TRANSPORTATION

Access to both sides of the monument is limited by the amount of available parking during peak visitation times. Alternatives for parking and access need to be considered and the appropriate balance between visitor access and the protection of resources determined.

The monument's trail system provides a variety of opportunities, but does not provide access to newer lands. The enhancement of this system, including the integration of new lands and the types of abilities and uses that should be accommodated needs to be considered.

ADMINISTRATIVE AND OPERATIONAL FACILITIES

Pinnacles staff offices, museum collections, and storage are currently located in inadequate facilities. Availability of housing near the park can be challenging for recruiting and retaining staff and volunteers. The appropriate levels of development in different parts of the monument need to be determined and areas appropriate for administration and operations activities need to be identified. Removal of facilities and infrastructure to support effective operations, improve facility condition index and invest available funds wisely, need to be examined. Long-term sustainability and cost-effective approaches to providing for office / administrative space, law enforcement operations, emergency service operations, interpretive operations, resource management, maintenance, meeting and training space, and housing need to be considered.

LAND USE AND REGIONAL ISSUES

The boundary of the monument has changed considerably since the Master Plan. The expanded boundary is now surrounded by private land. Surrounding communities continue to grow, with potential impacts on monument resources. An examination is needed of how the monument can work with nearby communities to promote understanding of the Gabilan Mountain ecoregion and its resources and how to find common ground in regional stewardship of ecological, scenic and monument wilderness values. The GMP explores a range of management approaches including partnerships with surrounding neighbors, communities, local agencies, associated tribes, and organizations to protect the rural character and benefits of open working landscapes.

Issues and Concerns not Addressed

Not all of the issues or concerns raised by the public will be addressed in this GMP. Some issues raised by the public were not considered because they are already prescribed by law, regulation, or policy; would be in violation of laws, regulations, or policies; or were at a level that was too detailed for this GMP and are more appropriately addressed in subsequent planning documents. For example, during public scoping, some commenters provided detailed suggestions for interpretive programming. While the GMP does not address this level of detail, such comments can be considered by the monument in implementing the GMP.

Commercial services within designated wilderness, along with other detailed wilderness issues, will be addressed in a wilderness stewardship plan.

Moses Spring picnic area. NPS photo.

Impact Topics: Resources and Values That Could be Affected by the Alternatives

The consequences of implementing each alternative evaluated in the general management plan are listed and compared using specific impact topics. These impact topics were identified based on federal laws and other legal requirements, the Council on Environmental Quality's guidelines for implementing the National Environmental Policy Act, NPS Management Policies (2006), subject-matter expertise and knowledge of limited or easily impacted resources, and issues and concerns expressed by other agencies or members of the public during scoping. Impact topics were developed to focus environmental analysis and to ensure that alternatives were evaluated against relevant topics. A detailed justification for dismissing any topics from further consideration is given below.

Impact Topics to be Considered

The following impact topics will be retained for analysis because of the potential for management alternatives to affect these resources and values, either beneficially or adversely. Current conditions for each of these topics are described in Chapter 4, *Affected Environment*.

Natural Resources

- air quality
- natural sounds
- dark night skies
- viewsheds/visual resources
- hydrologic resources and processes, including wetlands and floodplains
- geological resources and processes
- soils
- vegetation
- wildlife and wildlife habitat
- special status species

Cultural Resources

- cultural landscapes, historic buildings and structures
- archeological resources
- ethnographic resources
- museum collections

Wilderness Character

Visitor Opportunities

- recreation opportunities
- visitor services
- visitor facilities
- interpretation and education opportunities

Access and Transportation

Socioeconomic Environment

Management and Operations

Impairment of Resources

In addition to determining the potential environmental consequences of implementing the agency-preferred and other alternatives as required by NEPA, NPS Management Policies (2006) §1.4 requires a determination that no implementation of any actions would impair a park's resources and values.

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, is the conservation of park resources and values. Park managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on cultural and natural resources, as well as park values. However, these laws also afford park managers discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the express purposes of the park. That discretion is limited by the statutory requirement that the NPS must leave resources and values unimpaired unless a particular law directly and specifically provides otherwise.

The prohibited impairment is any impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Whether an impact has such a result depends on the particular resources that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the actions in question combined with other impacts.

As noted in NPS Management Policies (2006) §1.4.7, in addition to the above potential environmental consequences, the park managers also takes into consideration consultations required under §106 of the NHPA, relevant scientific information, pertinent information from subject matter experts, and results of related civic engagement and public involvement activities.

A determination of non-impairment will be provided as an attachment to the approved Finding of No Significant Impact, if appropriate.

Impact Topics Dismissed from Further Consideration

The following impact topics were considered and determined not relevant to the development of this general management plan because either they would have no

effect or a negligible effect on the topic or resource, or the resource does not occur in the monument. The topics dismissed from further analysis are as follows.

ENERGY REQUIREMENTS AND CONSERVATION POTENTIAL

Alternatives in the general management plan, including the preferred alternative, could result in new facilities with inherent energy needs. In the proposed alternatives, new facilities would be designed with long-term sustainability in mind. The NPS has adopted the concept of sustainable design as a guiding principle of facility planning and development. The objectives of sustainability are to design facilities to minimize adverse effects on natural and cultural values, to reflect their environmental setting, and to require the least amount of nonrenewable fuels/energy.

Although the monument's share of carbon emissions may be negligible when compared to state and regional emissions, the cumulative nature of small carbon sources and the expectation of NPS leadership on environmental issues justify actions to mitigate emissions from monument activities. Additionally, implementation of the Climate Friendly Park Action Plan, finalized in 2010, is common to all alternatives and will reduce the consumption of non-renewable energy.

The action alternatives could result in an increased energy need, but this need is expected to be negligible when seen in a regional context and in light of sustainability initiatives adopted by the NPS and the monument. Thus, this topic is dismissed from further analysis.

Photos (top to bottom): 1. Interpretive talk at the Bear Gulch Reservoir. NPS photo. 2. Family picnic on Chalone Bench, 1912. Photo from Grace Robinson album, courtesy of Deborah Melendy Norman.

ENVIRONMENTAL JUSTICE

The Environmental Protection Agency's Office of Environmental Justice defines environmental justice as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies." Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. The goal of this "fair treatment" is not to shift risks among populations, but to identify potentially disproportionately high and adverse effects and identify alternatives that may mitigate these impacts.

On February 11, 1994, President William J. Clinton signed Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. This order requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs/policies on minorities and low-income populations and communities. The Secretary of the Interior established Department of the Interior policy under this order in an August 17, 1994, memorandum. This memorandum directs all bureau and office heads to consider the impacts of their actions and inactions on minority and low-income populations and communities; to consider the equity of the distribution of benefits and risks of those decisions; and to ensure meaningful participation by minority and low-income populations in the department's wide range of activities where health and safety are involved.

In responding to this executive order two questions are asked and answered as the major part of the analysis:

1. Does the potentially affected community include minority and/or low-income populations?
2. Are the environmental impacts likely to fall disproportionately on minority and/or low-income members of the community and/or tribal resources?

San Benito and Monterey counties contain both minority and low-income populations; however, environmental justice is dismissed as an impact topic for the following reasons:

- NPS staff and the planning team actively solicited public participation as part of the planning process and gave equal consideration to all input

Photos (top to bottom): 1. CCC enrollees at work, 1935. NPS photo. 2. Coast horned lizard. Photo by Paul G. Johnson. 3. CCC crew building the entrance pylons, 1935. NPS photo.

from persons regardless of age, race, income status, or other socioeconomic or demographic factors.

- Implementation of the proposed alternative would not result in any identifiable adverse human health effects. Therefore, there would be no direct or indirect adverse health effects on any minority or low-income population.
- The impacts associated with the preferred alternative would not result in any identified effects that would disproportionately affect any minority or low-income population community.

Based on the above information and the requirements of Executive Order 12898, further analysis of environmental justice was dismissed as an impact topic.

INDIAN TRUST LANDS

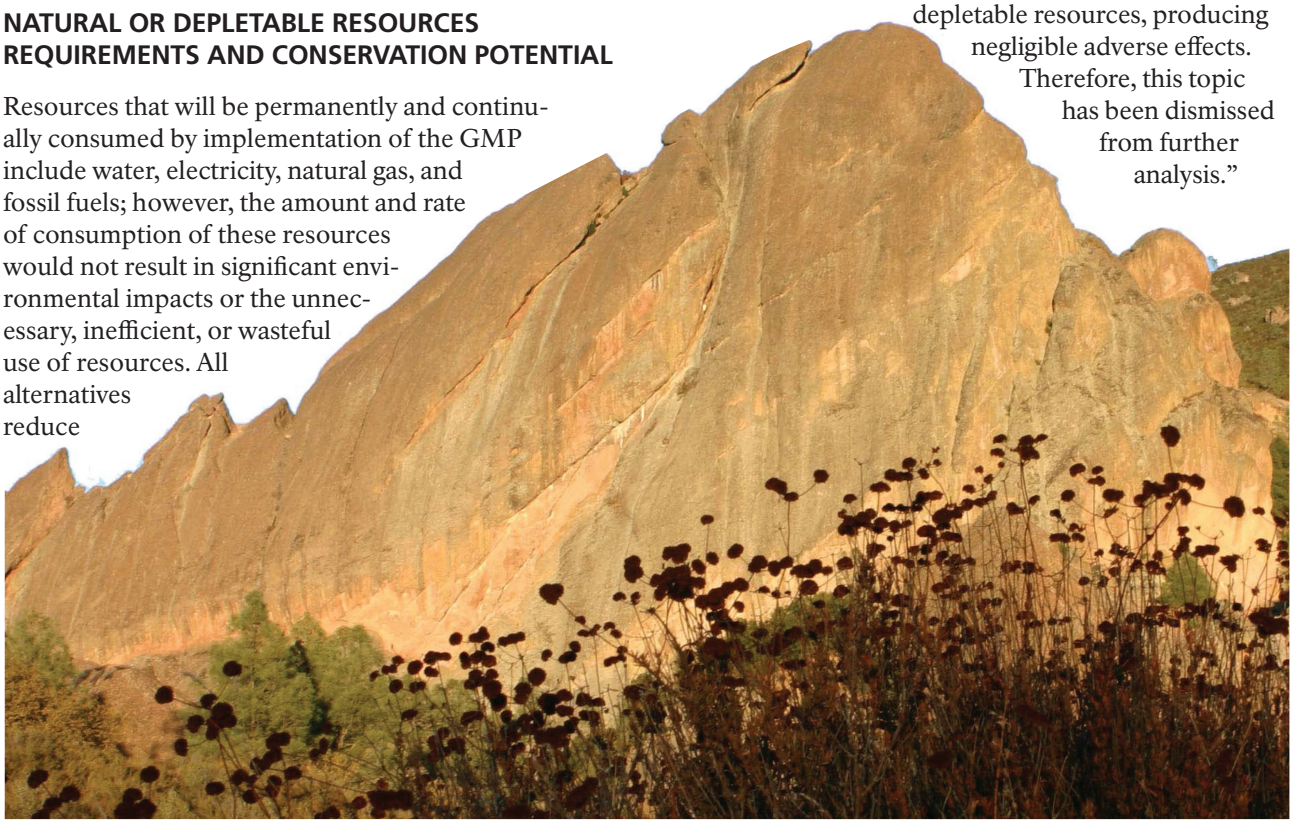
The National Park Service does not manage or administer Indian trust assets. The overriding mandate for the National Park Service is to manage national park system units consistent with park laws and regulations. No lands comprising Pinnacles National Monument are held in trust by the Secretary of the Interior solely for the benefit of American Indians. Therefore, this topic was dismissed from further analysis.

NATURAL OR DEPLETABLE RESOURCES REQUIREMENTS AND CONSERVATION POTENTIAL

Resources that will be permanently and continually consumed by implementation of the GMP include water, electricity, natural gas, and fossil fuels; however, the amount and rate of consumption of these resources would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of resources. All alternatives reduce the use of fossil fuels through implementation of the common-to-all Climate Action Plan and regional sustainability initiatives.

Construction activities related to implementation of the alternatives would result in the irretrievable commitment of nonrenewable energy resources, primarily in the form of fossil fuels (including fuel oil), natural gas, and gasoline construction equipment. With respect to operational activities, compliance with all applicable building codes, as well as project mitigation measures, would ensure that all natural resources are conserved or recycled to the maximum extent feasible.

Consideration of these topics is required by 40 *Code of Federal Regulations* (CFR) 1502.16. The National Park Service has adopted the concept of sustainable design as a guiding principle of facility planning and development (NPS Management Policies 9.1.1.7). None of the alternatives would substantially affect the monument's energy requirements because any rehabilitated or new facilities would take advantage of energy conservation methods and materials. This, coupled with implementation of the monument's Climate Action Plan, would result in reduced energy consumption. Through sustainable design concepts and other resource management principles, the alternatives analyzed in this document would conserve natural or depletable resources, producing negligible adverse effects. Therefore, this topic has been dismissed from further analysis."



Machete Ridge with California Buckwheat in the foreground. Photo by Paul G. Johnson.

PRIME OR UNIQUE FARMLANDS

In 1980 the Council on Environmental Quality directed federal agencies to assess the effects of their actions on farmland soils classified by the U.S. Department of Agriculture's Natural Resource Conservation Service as prime or unique. Prime farmland is defined as soil that particularly produces general crops such as common foods, forage, fiber, and oil seed; unique farmland soils produce specialty crops such as specific fruits, vegetables, and nuts.

According to the National Resource Conservation Service, there are no prime or unique farmlands in Pinnacles National Monument. Private agriculture does not exist within the monument, so this type of land use would not be affected by this plan. Therefore, there would be no impacts on prime or unique farmlands and the topic is being dismissed from further analysis in the plan.

URBAN QUALITY AND DESIGN OF THE BUILT ENVIRONMENT

Consideration of this topic is required by the *Code of Federal Regulations* (CFR) 1502.16. The quality of urban areas is not a concern in this planning project since the monument is not located in an urban area. Throughout the monument, vernacular architecture and compatible design would be taken into consideration for new structures built under all of the action alternatives. Emphasis would be placed on designs, materials, and colors that blend in, and do not detract from, the natural and built environment. Therefore adverse impacts are anticipated to be negligible and no further consideration of this topic is necessary.

CONFORMITY WITH LOCAL LAND USE PLANS

The basic land use of the monument as a recreation and resource management area is in conformance with local land use plans. The creation of additional recreation and visitor service opportunities in the monument, as proposed in the alternatives, would be consistent with the existing land uses in the monument and local (non-NPS) land use plans. Therefore this topic is dismissed from further consideration.

PUBLIC HEALTH AND SAFETY

Most actions and developments proposed in the alternatives would not result in any identifiable adverse impacts to human health or safety. A few actions are analyzed for public safety impacts under *Access and Circulation* in Chapter 5. These actions, including traffic congestion at the Bear Valley School turnoff and visitors walking along the road shoulder, were determined to present minor to moderate, long-term impacts. No other public health or safety issues have been identified. Therefore this topic is dismissed from further consideration.

Relationship of Other Planning Efforts to this General Management Plan

Several plans have influenced or would be influenced by the approved general management plan for Pinnacles National Monument. These plans have been prepared by the National Park Service and local counties. Some of these plans are described briefly here, along with their relationship to this general management plan.

National Park Service Plans and Studies

NATURAL AND CULTURAL RESOURCE MANAGEMENT PLAN (1999)

The 1999 Resource Management Plan (RMP) is an action plan which identifies and describes the natural and cultural resources preserved within the monument, threats to these resources, as well as the ongoing or potential management activities required to preserve these resources. A wide variety of research initiatives, baseline studies, and manipulative and

A portion of the High Peaks Trail with rock stairs and railing. NPS photo.

protective techniques are integrated into a comprehensive resource management program to meet management objectives. The RMP sets priorities for monument programs and projects and provides a rationale for allocating funding and staff. Although resource management plans are no longer being prepared by the National Park Service, information from the existing RMP was used in preparing this general management plan.

LONG RANGE INTERPRETIVE PLAN (2004)

The monument's interpretive staff completed a long range interpretive plan in 2004. The planning process required by this general management plan contains many of the elements that were also included in the interpretive plan, and many of the proposed actions in the GMP relate to interpretation and education. This plan would be modified as necessary to reflect any changes resulting from implementation of this general management plan.

FIRE MANAGEMENT PLAN (2005)

The Fire Management Plan (FMP) is an operational guide for managing the monument's wildland and prescribed fire program. It defines levels of protection needed to ensure personnel and public safety, protect facilities and resources, and restore and perpetuate natural processes. It is a detailed program of action to carry out fire management policies and objectives. This plan would be modified as necessary to reflect any changes resulting from implementation of this general management plan.

HABITAT RESTORATION, INCLUDING UPDATE TO FIRE MANAGEMENT PLAN (2010)

The Habitat Restoration Plan addresses a suite of management tools to restore degraded habitats throughout the monument with special emphasis on newly acquired lands of the former Pinnacles Ranch. The Habitat Restoration EA updated the monument's FMP to bring it into conformance with current federal policy requirements, evaluates proposed actions in addition to those that have already been articulated and evaluated in the FMP and provides the compliance documentation needed to complete the FMP update.

CLIMATE FRIENDLY PARK ACTION PLAN (2010)

The climate friendly park action plan identifies steps that the monument can undertake to reduce greenhouse gas (GHG) emissions and adapt to current and future impacts of climate change. The plan presents the monument's emission reduction goals, and associated reduction actions and adaptation strategies to achieve its goals. The climate action plan complements the general management plan by providing detailed actions related to the common-to-all GMP alternatives goal of carbon footprint reduction.

PINNACLES NATIONAL MONUMENT VISITOR STUDY (2002)

This report described the results of a visitor study at Pinnacles National Monument collected in the spring of 2002. A total of 394 visitor questionnaires were returned (77.1% response rate). These responses provided a valuable profile of Pinnacles visitors. The important data and insights gained through this study were used in the development of alternatives for the general management plan.

MUSEUM MANAGEMENT PLAN (2005)

This plan identifies the museum management issues facing the monument and presents management recommendations to address these issues. Specific recommendations outlined in the plan focus on museum staffing, facilities, and procedures. These recommendations were useful in the consideration of staffing and facility needs for the general management plan.

SCOPE OF COLLECTIONS (2010)

The Scope of Collections Statement defines the scope of present and future museum collection holdings of Pinnacles that contribute directly to the understanding and interpretation of the monument's purpose, themes, and resources, as well as those objects that the Service is legally mandated to preserve. It is designed to ensure that the museum collection is clearly relevant to the monument; it serves to prevent arbitrary, unnecessary, and excessive growth of the museum collection while preserving the unique values associated with Pinnacles. The Long Range Interpretive Plan (2004) and draft general management plan were influential in the development of the Scope of Collections Statement.

SAN FRANCISCO BAY AREA INVENTORYING AND MONITORING VITAL SIGNS (2006)

This plan is produced by the Pacific West Region Inventorying and Monitoring Program. It identifies significant monument resources and the key processes and stressors affecting those resources, recommends monitoring questions to be addressed, and provides a prioritized list of vital signs to be monitored. This information was developed through scoping sessions, technical expert focus groups, and extensive analysis and discussion by NPS staff. As long-term data sets are assembled, trend analyses will inform management decisions.

NATURAL RESOURCE CONDITION ASSESSMENT (2012)

This report is an assessment of condition of the natural resources of Pinnacles National Monument and an evaluation of the threats and stressors that act on these resources. This condition assessment was undertaken to provide NPS managers, interpreters, and planners with a synthesis of the most current information on the natural resources in and around the monument. The assessment followed an iterative process between NPS staff and the authors to identify the ultimate set of indicators of stressors and resources of greatest concern. The condition assessment identified a number of emerging issues that may become of greater management concern in the future.

TRANSPORTATION STUDY (2004) AND TRANSPORTATION STUDY REVIEW (2008)

The 2004 Transportation Study includes an integrated analysis of parking management and shuttle system implementation options. The 2008 Transportation Study Review evaluates the transportation alternatives developed in the 2004 study and expands and adjusts the study's alternatives and recommendations based on changes at the monument, including the addition of new land on the east side.

Local and Regional Plans

SAN BENITO COUNTY GENERAL PLAN (IN PROGRESS)

San Benito County began their general plan update in 2009. The general plan guides land use, economic, transportation, infrastructure, agricultural, resource, environmental, and other decisions and provides for orderly growth based on the community's values and vision for the future. Monument staff has participated directly in the planning process and no conflicts with any of the alternatives outlined in the general management plan are anticipated.

MONTEREY COUNTY GENERAL PLAN (2010)

The Monterey County general plan is a comprehensive, long-term plan for the physical development of the county. The policies of the general plan underlie most land use decisions within the county. Portions of the plan most relevant to the general management plan include policies related to agriculturally zoned lands. There appear to be no conflicts with any of the alternatives outlined in the general management plan.

Next Steps in the Planning Process

After the distribution of the *Draft General Management Plan and Environmental Assessment* there will be a 60-day public review and comment period, after which the NPS planning team will evaluate comments from other agencies, organizations, California Indian tribes, and individuals regarding the draft plan. If no significant environmental impacts are identified and no major changes are made in the alternatives, then a Finding of No Significant Impact (FONSI) can be made and approved by the Pacific West Regional Director. Following a 30-day waiting period, the plan can then be implemented.

Implementation of the Plan

Implementation of the approved plan will depend on future funding. The approval of this plan does not guarantee that the funding and staffing needed to implement the plan will be forthcoming. Full implementation of the actions in the approved general management plan could be many years in the future. The implementation of the approved plan could also be affected by other factors, such as changes in NPS staffing, visitor use patterns, and unanticipated environmental changes.

Once the general management plan has been approved, additional feasibility studies and more detailed planning, environmental documentation, and consultations would be completed, as appropriate, before certain preferred alternative actions can be carried out. For example:

- additional environmental documentation may need to be completed
- appropriate permits may need to be obtained before implementing actions
- appropriate federal and state agencies would need to be consulted concerning actions that could affect threatened and endangered species
- The State Historic Preservation Officer would need to be consulted, as appropriate, on actions that could affect cultural resources

Future program and implementation plans, describing specific actions that managers intend to undertake and accomplish in the monument, will be guided by the desired conditions and long-term goals set forth in this general management plan.

2 Foundation

Flowing creek in upper Bear Gulch. Photo by Gavin Emmons © 2011.

Chapter 2: Foundation for Planning

There are two components that provide a foundation for this general management plan: the **foundation document** and the **desired conditions based on law and policy**. These components provide basic guidance for decision-making and management of Pinnacles National Monument.

Foundation Document

A foundation for planning and management is provided for each unit of the national park system. The foundation document is a formal statement of the unit's core purpose and significance. This purpose provides a basis for all decisions made about a park unit. For Pinnacles the foundation document identifies the shared understanding of the monument's purpose, significance, resources and values, primary interpretive themes, special mandates, and the legal and policy requirements to which it must conform. The foundation document describes what is most important about Pinnacles National Monument.

The foundation for planning and management, or "foundation document," is generally developed early in the general management planning process, as part of agency scoping and data collection for the GMP.

The foundation document for Pinnacles National Monument was initiated during a planning team workshop held in December 2005. It has been further refined throughout the GMP process, including consideration of public comments. The foundation document can be used in all aspects of management to ensure that the most important objectives are accomplished before turning to items that are also important but not directly critical to achieving the park purpose and maintaining its significance.

Purpose

The purpose statement describes why Congress and/or the President established the park as a unit of the national park system. The purpose statement provides the most fundamental criteria against which the appropriateness of all planning recommendations, operational decisions, and management actions are tested. The purpose of the monument is based upon its establishment by Presidential proclamation and legislative history (See Appendix A: Pinnacles National Monument Legislative History).

Purpose of Pinnacles National Monument:

> The purpose of Pinnacles National Monument is to protect the Pinnacles Volcanic Formation, talus caves, associated lands and ecosystems for their scientific, educational and cultural values, by caring for their natural processes and wild character while providing opportunities for public enjoyment and understanding of these resources.

Photos (left to right): 1. Pinnacles viewed from the San Andreas Fault. 2. High water inundates the Bear Gulch Cave Trail. Photos by Paul G. Johnson.

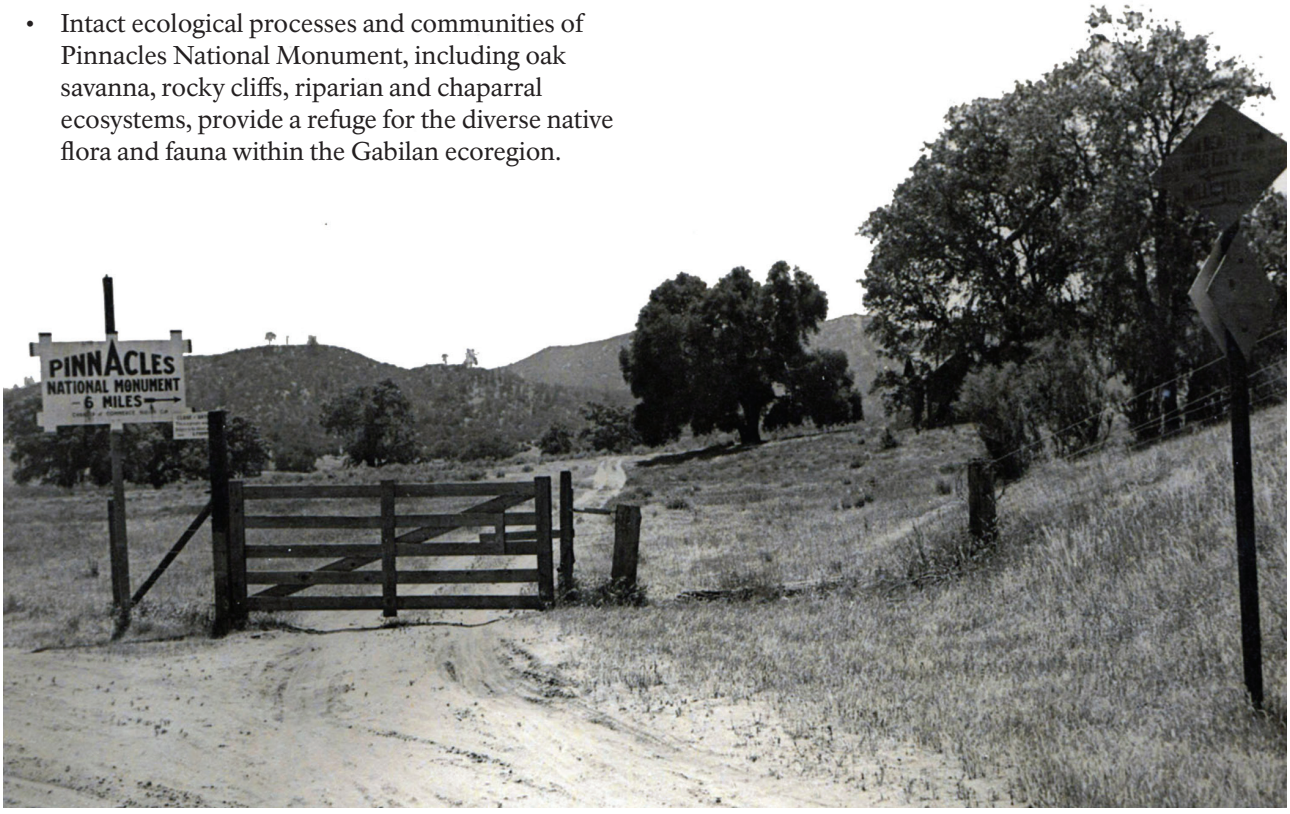
Significance

Significance statements express why the park unit's resources and values are important enough to warrant national park unit designation. These statements describe why the park unit is important within a global, national, regional, and system-wide context and are directly linked to the purpose of the park. A park's significance statements are substantiated by data or consensus and reflect the most current scientific or scholarly inquiry and cultural perceptions, which may have changed since the park's establishment. The following statements describe the significance of Pinnacles National Monument:

- Pinnacles National Monument contains a remnant of an ancient volcanic field that was split and offset approximately 200 miles by the movement of two continental plates and provided key evidence for the theory of plate tectonics.
- Pinnacles National Monument contains the most extensive assemblage of accessible, rare talus caves within the national park system and cares for the natural processes and ecosystems within.
- Pinnacles Wilderness protects the natural character of central California's native ecosystems and provides opportunities to experience wildness in a region of expanding urban development.
- Intact ecological processes and communities of Pinnacles National Monument, including oak savanna, rocky cliffs, riparian and chaparral ecosystems, provide a refuge for the diverse native flora and fauna within the Gabilan ecoregion.

Additional Significance

- The Native American archeological and ethnographically significant resources of Pinnacles National Monument are preserved within their ecological context and provide opportunities to study and continue traditional practices and resource management.
- Historic properties associated with early pastoral, resource extraction, and agricultural economies of the region are preserved within their rural context and provide opportunities for understanding aspects of life and land use practices from the early period of American settlement in California.
- The history of Pinnacles National Monument includes significant grassroots conservation efforts by local residents and the work of federal unemployment relief programs such as the Civilian Conservation Corps.
- Pinnacles National Monument plays a key role as a reintroduction site for the California condor, fostering public understanding and scientific research with the goal to one day remove this species from the federal Endangered Species List for the benefit of future generations.

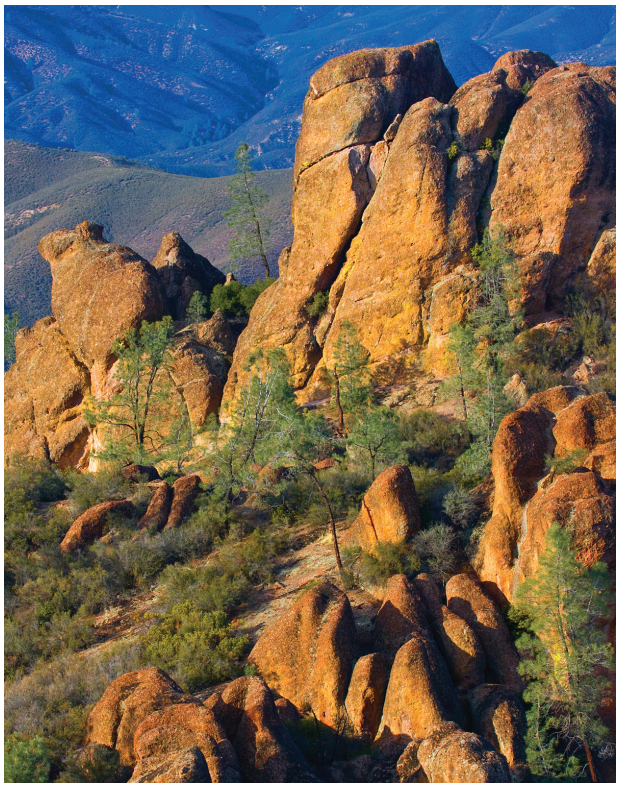


Road to Pinnacles National Monument in ca. 1920. This is the present east entrance to the monument. NPS photo.

Primary Interpretive Themes

Primary interpretive themes are based upon the monument's purpose and significance. They provide the foundation on which the monument's educational and interpretive program is based. Primary interpretive themes connect monument resources to relevant ideas, meanings, concepts, contexts, beliefs, and values. They support the desired interpretive outcome of increasing visitor understanding and appreciation of the significance of the monument's resources.

- Over millions of years, the power of volcanism, erosion, and plate tectonics created and transformed the Pinnacles Volcanic Field into the dramatic canyons, monoliths, and rock spires seen today. The offset of the Pinnacles Volcanics from the identical Neenach Volcanics 200 miles to the south provides key evidence for the theory of plate tectonics.
- The enclosed dark spaces of Pinnacles' rare and extensive assemblage of talus caves, formed by massive rocks falling into narrow canyons, offer shelter, create habitat for bats and other specialized cave species, inspire legends and encourage exploration and adventure.
- Pinnacles' remote pristine central California wilderness beckons primitive recreation, solitude, adventure, challenge, and connections to the natural elements.
- Extreme diversity of moisture, temperature, and soil composition at Pinnacles support a remarkable complexity of biotic communities in unusual proximity; a relatively undisturbed ecosystem that allows natural processes to continue, providing sanctuary for present and future life.
- The Pinnacles landscape and resources reflect influences of a succession of people with diverse worldviews, cultures, and technologies.



Photos (top to bottom): 1. Square Block from High Peaks Trail. Photo by Gavin Emmons © 2011. 2. Hiker on the North Wilderness Trail. NPS photo. 3. A stairway and handrail built by the CCC descends into Bear Gulch Cave. Photo by Paul G. Johnson.

Fundamental Resources and Values

Fundamental resources and values are the most important ideas or concepts to be communicated to the public about a park and merit primary consideration during planning and management because they are critical to achieving the monument's purpose and maintaining its significance. They may include systems, processes, features, visitor experiences, stories, scenes, sounds, smells or other resources and values. Fundamental resources and values provide a valuable focus throughout the planning process and the life of the plan. They are the reasons for data collection, planning issues, management prescriptions, impact assessments, and value analyses.

Other important resources and values or secondary significance statements are those that may not be fundamental to the purpose and significance but are nevertheless determined to be particularly important in general management planning.

Fundamental and other important resources and values, which link directly to the significance statements follow.

LANDFORMS AND GEOLOGIC FAULTS REFLECTING PAST AND PRESENT TECTONIC FORCES

- The Pinnacles Volcanics – remnants of ancient volcanic layers, containing eroded rock spires, cliffs, ledges and grottos.
- Physical evidence of plate tectonics and faulting – steep terrains, uplifted and tilted layers, spires eroded from fractured rock, varied landscapes, springs, narrow canyons, landslides and associated features.

SCENIC VIEWS AND WILD CHARACTER

- Wilderness attributes – undeveloped land with high quality viewsheds, natural soundscapes, dark night skies, Class 1 air quality, natural smells, and natural systems.
- Scenic viewsheds – dramatic views of the Pinnacle Rocks formation and the surrounding geologic landscapes.
- Inspiration and challenge provide varied opportunities for primitive recreation and solitude in wild settings.

TALUS CAVES

- Talus caves – structures and physical processes.
- Ecosystems within the caves – including temperatures, water, plants, animals.

OPPORTUNITIES FOR RESEARCH AND STUDY

- Knowledge about Pinnacles geology and plate tectonics – cumulative knowledge and opportunities for understanding the features and processes.
- Knowledge about the talus caves – cumulative knowledge and continued opportunities for understanding the geologic and ecologic features and processes.
- Cumulative knowledge of natural systems and stressors.
- Past and present human interactions with the landscape.

NATIVE SPECIES AND ECOLOGICAL PROCESSES

- Diverse assemblage of native species.
- Integrity of native habitats, including living and nonliving components and the interactions among them.
- Dynamic natural processes including erosion, flooding, fire and tectonic activity.
- Pinnacles National Monument's role as a component of larger interdependent ecosystems.

Special Mandates and Constraints

Special mandates are legal requirements and administrative commitments that apply to a specific unit of the national park system. They are mandated by Congress or by signed agreements with other entities. Special mandates and constraints provide direction for park planning and management. Mandates include the designation of an area in the park as wilderness or may also commit park managers to specific actions and limit their ability to modify land use in a park unit, such as long term cooperative agreements, or easements. All easements and rights-of-way are managed under the terms of federal law and NPS regulations. Based on NPS Management Policies (2006), all easements must be formal, legal titles or they will be extinguished.

Administrative commitments are agreements that have been reached through formal, documented processes. Examples include a memorandum of agreement to abide by the policies of an interagency management commission, or to manage fishing in cooperation with the state department of fish and game. Although agreements also identify park commitments they are not legally binding and are revocable by the superintendent

or regional director, or are subject to renegotiation or amendment.

The legislative and administrative mandates and constraints that may affect park management at Pinnacles National Monument include the following:

Wilderness designation: The total wilderness acreage is 16,048 acres (65 percent of the monument). On October 20, 1976 legislation (P.L. 94-567) designated 13,270 acres of Pinnacles National Monument as wilderness (Pinnacles Wilderness). On December 2002 (P.L. 107-370), 2,715 acres were added to the Pinnacles Wilderness. NPS must manage these Wilderness areas for the preservation of the wilderness character as well as for the physical wilderness resources.

Grazing. The boundary expansion proclamation of January 11, 2000 allowed grazing to continue on 2,561 acres of the former BLM-managed lands that were added to the monument.

> *The Secretary of the Interior shall manage the area being added to the monument through the National Park Service, under the same laws and regulations that apply to the rest of the monument, except that livestock grazing may be permitted in the area added by this proclamation.*

This proclamation allows, but does not require the NPS to allow grazing on these lands. Thus, the NPS retains discretion on whether and how to allow grazing.

California State Highway 146 extends for approximately three miles from the eastern side of the boundary at Highway 25, through the former Pinnacles Ranch to the entrance of the former boundary of the national monument. It is the main entrance road for the east side of Pinnacles. This right-of-way was never formalized between the State of California and the former landowner, but has been grandfathered over the years. The monument also has encroachment permits with California Department of Transportation (CalTrans) to allow the NPS to place signs within their easements associated with Highways 25 and 146.

Pacific Gas and Electric (PG&E) has an easement for the overhead electrical power line that parallels Highway 146, and provides electricity to NPS facilities, the campground, and neighboring ranches located south of the monument.

Pinnacles Telephone Company holds an easement through the former Pinnacles Ranch property in the vicinity of the PG&E service line. The "Pin Tel" line serves the same users as PG&E.

A road access easement through the former Pinnacles Ranch is used to access the Regan Ranch which is located within the boundary of the national monument.

Pinnacles National Monument has a memorandum of understanding (MOU) with California Department of Fire (CalFire) giving them primary response for

Photos (left to right): 1. Bitterroot blooms among the scree along the Rim Trail. Photo by Paul G. Johnson. 2. CCC enrollees at work, 1935. NPS photo.

wildfire within the monument. After the first 24 hours the NPS decides how a fire within the monument will be managed.

A U.S. Fish and Wildlife Service permit is obtained and updated as needed for specific NPS staff and key partners to conduct specific activities relating to California condor management and care.

Although former BLM lands added to the monument in 2000 contain various roads, trails, infrastructure and other constructed land uses, there is no indication that any of these include legal rights that would constrain NPS planning. These uses include various jeep trails and at least one water pipeline for stock use on the southern addition.

The monument has some additional special use permits with surrounding landowners. These permits are not expected to constrain future NPS planning.

Condor Gulch former horse barn. NPS photo.

Desired Conditions from Law and Policy

The desired conditions described in this section provide the broadest level of direction for management of Pinnacles National Monument and are based on federal laws, executive orders, and NPS Management Policies.

To understand the implications of the actions described in the GMP alternatives, it is important to describe the laws and policies that underlie the management actions. Many monument management directives are required based on law and/or policy and are therefore are not subject to alternative approaches. A GMP is not needed to decide, for instance, that it is appropriate to protect endangered species, control nonnative invasive species, protect archeological sites, conserve artifacts, or provide for universal access — laws and policies already require the NPS to fulfill these mandates. The NPS would continue to implement these requirements with or without a new general management plan.

The National Park System General Authorities Act affirms that while all national park system units remain "distinct in character," they are "united through their interrelated purposes and resources into one National Park System as cumulative expressions of a single national heritage." The act makes it clear that the NPS Organic Act and other protective mandates apply equally to all units of the system. Further, the Redwood Act of 1978 states that NPS management of park units should not "derogat[e]… the purposes and values for which these various areas have been established." The NPS has established policies for all units under its stewardship that are explained in a guidance manual – NPS Management Policies 2006. The alternatives considered in this document incorporate and comply with the provisions of these laws and policies.

Table 1 includes the most pertinent laws and policies related to planning and managing Pinnacles National Monument. For each topic there are a series of desired conditions required by law and policy that Pinnacles National Monument would continue to work toward under all of the alternatives presented in this GMP/EA. The alternatives therefore address the desired future conditions that are not mandated by law and policy and that are appropriate to determine through a planning process. The table below cites the law or policy behind these desired conditions, and gives examples of the types of actions being pursued by the NPS at Pinnacles.

TABLE 1: SERVICEWIDE LAWS, POLICIES AND DESIRED CONDITIONS

Servicewide Laws, Policies and Desired Conditions	
Air Quality	
Policy Guidance/ Sources Clean Air Act, 1970 NPS Management Policies 2006 Natural Resources Management Guidelines (NPS-77)	Pinnacles National Monument is a Class I air quality area under the Clean Air Act. Class I areas are afforded the highest degree of protection under the Clean Air Act. This designation allows very little additional deterioration of air quality. **Desired Conditions** • Air quality in the monument meets national ambient air quality standards (NAAQS) for specified pollutants. The monument's air quality is maintained or enhanced with no significant deterioration. • Nearly unimpaired views of the landscape both within and outside the park are present. Scenic views are substantially unimpaired (as meant by the Clean Air Act). **Management Direction/Strategies** Pinnacles National Monument would take the following kinds of actions to meet legal and policy requirements related to air quality: • Continue to cooperate with the California Commission on Environmental Quality and the U.S. Environmental Protection Agency to monitor air quality and ensure that park actions do not impair air quality. (Note: The NPS has very little direct control over air quality in the airshed encompassing the national monument.) • Inventory the air quality-related values (AQRVs) associated with the national monument. • Monitor and document the condition of air quality and related values. • Evaluate air pollution impacts and identify causes. • Minimize air pollution emissions associated with national monument operations, including the use of prescribed fire, management practices, and visitor use activities. • Conduct air quality monitoring in conjunction with other government agencies. • Conduct national monument operations in compliance with federal, state, and local air quality regulations. • Ensure healthful indoor air quality at NPS facilities. • Participate in federal, regional, and local air pollution control plans and drafting of regulations and review permit applications for major new air pollution sources • Work to reduce emissions associated with administrative and visitor uses. • Develop educational programs to inform visitors and regional residents about the threats of air pollution. • Participate in research on air quality and effects of air pollution. Determine changes in ecosystem function caused by atmospheric deposition and assess the resistance and resilience of native ecosystems in the face of these external perturbations. • Research effects of atmospheric deposition on plants, soils, and wetlands in the national monument.

Servicewide Laws, Policies and Desired Conditions	
Archeological Resources	
Policy Guidance/ Sources National Historic Preservation Act, 1966 Archaeological Resources Protection Act, 1979 Protection of Historic Properties (36 CFR 800) Curation of Federally-Owned and Administered Archaeological Collections (36 CFR 79) Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, 1983 NPS Management Policies 2006 NPS Cultural Resource Management Guideline (Director's Order 28, 1996) Programmatic Agreement among the National Park Service, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation, 2008	**Desired Conditions** • Archeological sites are identified and inventoried, their significance is evaluated and documented, and they are in good condition. • Significant archeological sites are nominated for listing in the National Register of Historic Places either individually or in districts. • Archeological sites are protected in an undisturbed condition unless it is determined through formal processes that disturbance is unavoidable or that ground disturbing research or stabilization is desirable. **Management Direction/Strategies** Pinnacles National Monument would take the following kinds of actions to meet legal and policy requirements related to archeological sites: • Continue the process of parkwide archeological survey and inventory until all archeological resources have been identified, documented and evaluated. • Conduct archeological fieldwork and research in accordance with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, by qualified individuals and organizations. • Curate archeological collections in accordance with federal standards. • Record all archeological sites including new discoveries in the Archeological Resources Management Information System (ASMIS). • Monitor all archeological sites on a regular basis and record their current conditions in ASMIS. • Regularly update archeological baseline documents including but not limited to GIS base maps and the archeological overview and assessment. • Protect archeological site locations and other sensitive archeological information and keep confidential as required or appropriate. • Implement the research and management recommendations of the archeological overview and assessment as feasible to provide direction for identifying and preserving archeological resources. • Partner with colleges, universities, and other appropriate organizations to encourage preservation and appropriate research for the public benefit.

Servicewide Laws, Policies and Desired Conditions	
Cultural Landscapes	
Policy Guidance/ Sources National Historic Preservation Act, 1966 Advisory Council on Historic Preservation's implementing regulations regarding the Protection of Historic Properties (36 CFR 800) Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes, 1996 NPS Management Policies 2006 NPS Cultural Resource Management Guideline (Director's Order 28, 1996)	According to the NPS's Cultural Resource Management Guideline (DO-28), a cultural landscape is a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions. **Desired Conditions** • Cultural landscape inventories are conducted to identify landscapes potentially eligible for listing in the National Register and to assist in future management decisions for landscapes and associated resources, both cultural and natural. • The management of cultural landscapes focuses on preserving the landscape's physical attributes, biotic systems, and use when that use contributes to its historical significance. • The preservation, rehabilitation, restoration, or reconstruction of cultural landscapes is undertaken in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guideline's for the Treatment of Cultural Landscapes. **Management Direction/Strategies** Pinnacles National Monument would take the following kinds of actions to meet legal and policy requirements related to cultural landscapes: • Complete a survey, inventory, and evaluation of cultural landscapes under national register criteria. • Submit the inventory and evaluation results to the state or tribal historic preservation officer for review and comment; forward final nomination form with recommendations for eligibility to the Keeper of the National Register. • Determine the appropriate level of preservation for each landscape formally determined to be eligible for listing or actually listed on the national register, subject to the Secretary of the Interior's Standards. • Implement and maintain the appropriate level of preservation for such resources. • Prepare cultural landscape inventories and reports for cultural landscapes to determine historical significance, to support preservation needs and guide the rehabilitation and maintenance of cultural landscapes.

Harvesting cereal grains with a mechanical header on George Butterfield's Shorthorn Ranch ca.1900. Two-story house visible in left background. Photo from Grace Robinson album, courtesy of Deborah Melendy Norman.

Values, Traditions, and Practices of Traditionally Associated Peoples (also referred to as ethnographic resources)	
Policy Guidance/ Sources National Historic Preservation Act, 1966 American Indian Religious Freedom Act, 1978 Archaeological Resources Protection Act, 1979 National Environmental Policy Act, 1969 Indian Sacred Sites (Executive Order 13007, 1996) NPS Management Policies 2006 NPS Cultural Resource Management Guideline (Director's Order 28, 1996) Nationwide Programmatic Agreement for Section 106 of the National Historic Preservation Act, 2008	As defined in NPS *Management Policies* 2006, these resources and values (ethnographic resources) are objects and places, including sites, structures, landscapes, and natural resources, with traditional cultural meaning and value to associated peoples. Research and consultation with associated people identifies and explains the places and things they find culturally meaningful. Ethnographic resources eligible for the National Register of Historic Places are called traditional cultural properties. Traditionally associated peoples are social/cultural entities such as tribes, communities, and kinship units, as well as park neighbors, traditional residents, and former residents who remain attached to a park area despite having relocated, are "traditionally associated" with a particular park when (1) the entity regards park resources as essential to its development and continued identity as a culturally distinct people; (2) the association has endured for at least two generations (40 years); and (3) the association began prior to establishment of the park. **Desired Conditions** • The NPS acknowledges that Native American Indian tribes treat specific places containing certain natural and cultural resources as sacred places and as locales for private ceremonial activities. Pinnacles National Monument will strive to allow Native American groups and other traditionally associated peoples access to, and use of, these places. **Management Direction/Strategies** Pinnacles National Monument would take the following kinds of actions to meet legal and policy requirements related to values, traditions, and practices of traditionally associated peoples: • Allow for continued access to and use of resources and areas essential to the survival of family, community, or regional cultural practices and behaviors. The NPS may not allow access and use, however, if it would violate the visitor use criteria listed in section 8.2 of NPS *Management Policies* (2006). • Exercise reasonable control over the times when and places where specific groups are provided exclusive access to particular areas of the monument. • Allow for consumptive use of monument resources as provided for in regulations published at 36 CFR 2.1. These regulations allow superintendents to designate certain fruits, berries, nuts, or unoccupied seashells which may be gathered by hand for personal use or consumption if it will not adversely affect park wildlife or the reproductive potential of a plant species, or otherwise adversely affect park resources. The regulations do not authorize the taking, use, or possession of fish, wildlife, or plants for ceremonial or religious purposes, except where specifically authorized by federal statute or treaty rights, or where hunting, trapping, or fishing are otherwise allowed. These regulations are currently under review, and NPS policy is evolving. • Protect sacred resources to the extent practicable, consistent with the goals of the traditionally associated Native American groups when authorized under NHPA. • Withhold the location and character of sacred sites from public disclosure, if disclosure will cause effects, such as invasion of privacy, risk harm to the resource, or impede the use of a traditional religious site by practitioners. • Allow members of Native American groups to enter the monument for traditional non-recreational activities without paying an entrance fee. • Develop a record about such places in consultation with appropriate groups, and identify any treatments preferred by the groups. This information will alert superintendents and planners to the potential presence of sensitive areas, and will be kept confidential to the extent permitted by law. • Collaborate with affected groups to prepare mutually agreeable strategies for providing access to ordinarily gated or otherwise inaccessible locales, and for enhancing the likelihood of privacy during religious ceremonies. Any strategies that are developed must comply with constitutional and other legal requirements. • Make accommodations for access to, and the use of, sacred places when interest is expressed by traditionally associated peoples who have a long standing connection and identity with Pinnacles.

Geologic Resources	
Policy Guidance/ Sources	**Desired Conditions**
NPS Management Policies 2006 Natural Resources Management Guidelines (Reference Manual 77)	The national monument's geologic resources are preserved and protected as integral components of the natural systems. Natural geological processes are unimpeded. **Management Direction/Strategies** Pinnacles National Monument would take the following kinds of actions to meet legal and policy requirements related to geologic resources: • Assess the impacts of natural processes and human-related events on geologic resources. • Integrate geologic resource management into NPS operations and planning to maintain and restore the integrity of existing geologic resources. • Interpret geologic resources for visitors. • Develop programs to educate visitors about geologic resources. • Update geologic interpretations of localities that are the subject of interpretive venues. • Collect baseline information on surficial geology. • Partner with the U.S. Geological Survey (USGS) and others to identify, address, and monitor geologic hazards. • Partner with USGS to develop a plan to address geologic research, inventory, and monitoring. • Update geologic map of the Pinnacles National Monument in digital format that can be used in the geographic information system (GIS). • Update geologic history using modern theory and techniques. • Prepare a geologic inventory, including the identification of the significant geologic processes that shape ecosystems and the identification of the human influences on those geologic processes (i.e., "geoindicators"); identification of geologic hazards; inventory of type sections or type localities within the monument; inventory of "textbook" localities that provide particularly well-exposed examples of geologic features or events, and that may warrant special protection or interpretive efforts; and, identification of interpretive themes or other opportunities for interpreting the significant geologic events or processes that are preserved, exposed, or occur in the monument.

View of Balconies and Machete, Pinnacles National Monument. Photo by Gavin Emmons © 2011.

Historic Structures	
Policy Guidance/ Sources	**Desired Conditions**
National Historic Preservation Act, 1966 Archeological and Historic Preservation Act, 1974 The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, 1983 Secretary of the Interior's Standards for the Treatment of Historic Properties, 1995 NPS Management Policies 2006 NPS Cultural Resource Management Guideline (Director's Order 28, 1996) Programmatic Agreement among the National Park Service, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation, 2008	• Historic structures are inventoried and their significance and integrity are evaluated under National Register of Historic Places criteria. The qualities that contribute to the listing or eligibility for listing of historic structures on the national register are protected in accordance with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (unless it is determined through the Section 106 process (including a signed MOA) that disturbance or natural deterioration is unavoidable). **Management Direction/Strategies** Pinnacles National Monument would take the following kinds of actions to meet legal and policy requirements related to historic structures: • Update and certify the list of classified structures (LCS). • Determine the appropriate level of preservation for each historic structure formally determined to be eligible for listing or listed on the National Register of Historic Places (subject to the Secretary of the Interior's Standards). • Implement and maintain the appropriate level of preservation for such properties. • Analyze the design elements (e.g., materials, colors, shape, massing, scale, architectural details, and site details) of historic structures in the park (e.g., intersections, curbing, signs, and roads and trails) to guide the rehabilitation and maintenance of sites and structures. • Prepare historic preservation plans to guide maintenance. • Document history through oral histories of individuals, groups, and others who have ties to the park. • Consult with the SHPO and the Advisory Council for Historic Preservation (as appropriate) before modifying any historic structure on the National Register of Historic Places. • Complete a survey, inventory, and evaluation of historic properties. • Submit the inventory and evaluation results to the state historic preservation officer for review and comment. Forward the final nomination with recommendations for eligibility to the Keeper of the National Register. • Implement and maintain the appropriate level of preservation for such structures.

California condor adult in flight, Pinnacles National Monument. Photo by Gavin Emmons © 2011.

Lightscape Management/Dark Night Sky	
Policy Guidance/ Sources	**Desired Conditions**
NPS Management Policies 2006	• Excellent opportunities to experience the night sky are available. Artificial light sources both within and outside the national monument do not unacceptably adversely affect opportunities to see the night sky. **Management Direction/Strategies** Pinnacles National Monument would take the following kinds of actions to meet legal and policy requirements related to lightscape management/dark night sky: • Cooperate with visitors, neighbors, and local government agencies to find ways to prevent or minimize the intrusion of artificial light into the night scene in Pinnacles National Monument. • Limit artificial outdoor lighting in the monument to basic safety requirements and shield it when possible. • Evaluate impacts on the night sky caused by park facilities. If light sources within the monument are affecting night skies, alternatives such as shielding lights, changing lamp types, or eliminating unnecessary light sources would be used.
Museum Resources	
Policy Guidance/ Sources	**Desired Conditions**
National Historic Preservation Act, 1966 Archeological and Historic Preservation Act, 1974 Archaeological Resources Protection Act, 1979 Native American Graves Protection and Repatriation Act, 1990 Management of Museum Properties Act, 1955 Curation of Federally-Owned and Administered Archeological Collections (36 CFR 79) NPS Management Policies 2006 NPS Cultural Resource Management Guideline (Director's Order 28, 1996) NPS Museum Collections Management (Director's Order 24, 2008) NPS Museum Handbook Programmatic Agreement among the National Park Service, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation, 2008	• Pinnacles National Monument would collect, protect, preserve, provide access to, and use objects, specimens, and archival, and manuscript collections. These collections contribute to advancing knowledge in the humanities and sciences in many disciplines, including but not limited to archeology, ethnography, history, biology, geology, and paleontology to improve understanding by park visitors, staff and researchers. **Management Direction/Strategies** Pinnacles National Monument would take the following kinds of actions to meet legal and policy requirements related to museum resources: • Continue to ensure adequate conditions for the climate control of collections and means for fire detection and suppression, integrated pest management, and research and interpretation access are maintained. • Inventory and catalog all monument museum collections in accordance with standards in the NPS Museum Handbook. • Develop and implement a collection management program according to NPS standards to guide the protection, conservation, and use of museum objects. • Develop documentation for all specimens in the natural and cultural resource collections. • Ensure that the qualities that contribute to the significance of collections are protected and preserved in accordance with established NPS museum curation and storage standards. • Maintain a curator-of-record.

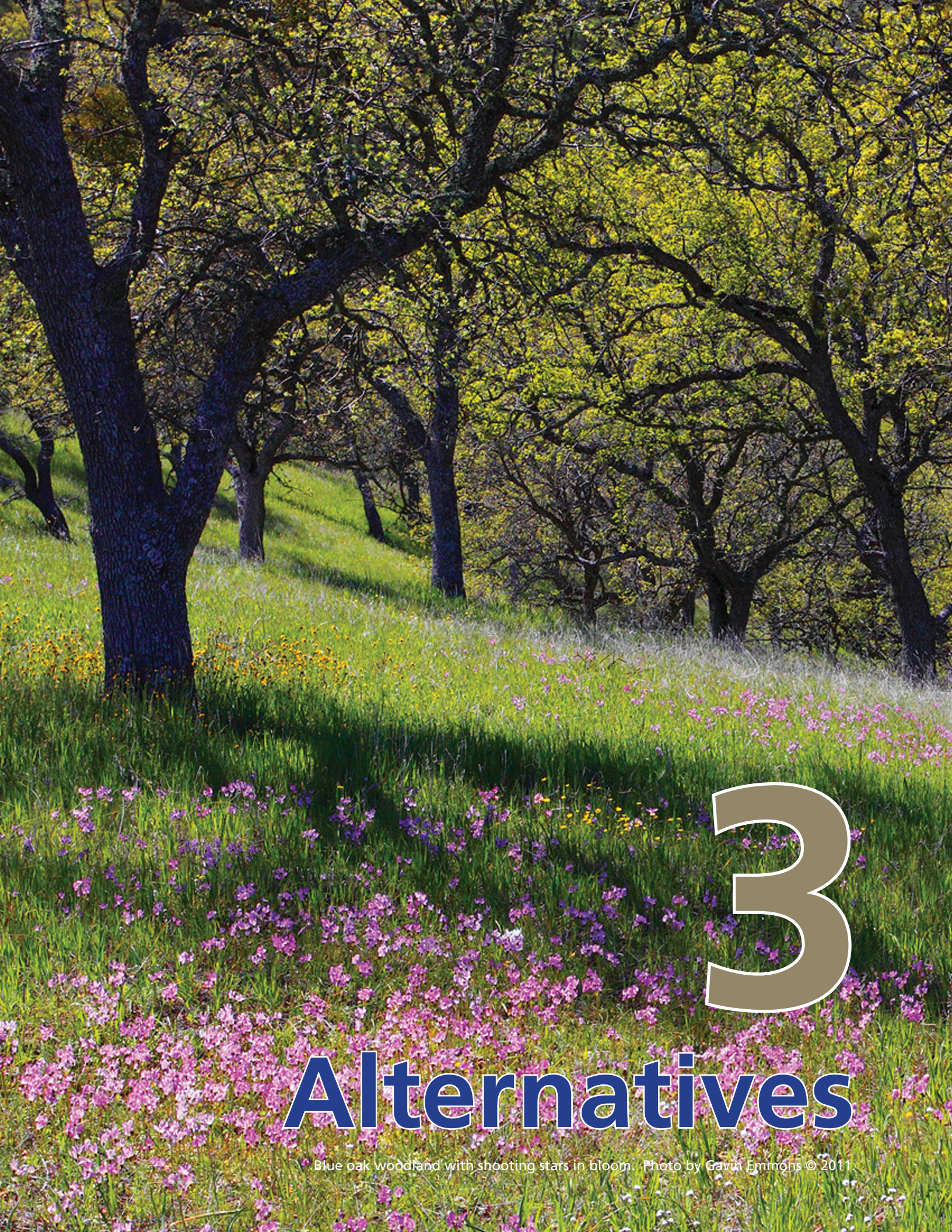
Natural Resources: Ecological Communities	
Policy Guidance/ Sources	**Desired Conditions**
Endangered Species Act,1973 National Invasive Species Act, 1996 Lacey Act, 1900 Federal Noxious Weed Act, 1974 Invasive Species, Executive Order 13112, 1999 NPS Management Policies 2006 Natural Resources Management Guidelines (Reference Manual 77)	• The national monument will maintain as parts of the natural ecosystem, all native plants and animals in the monument. • Natural abundance, diversity, dynamics, distribution, and habitat of native plant and animal populations are preserved and restored. • Populations of native plant and animal species function in as natural a condition as possible except where special considerations are warranted (such as with rare species management). • Native species populations that have been severely reduced or extirpated from the monument are restored where feasible and sustainable. • Potential threats to the monument's native plants and wildlife are identified early and proactively addressed through inventory and monitoring. • Sources of air, water, and noise pollution and visitor uses adversely affecting plants and animals are limited to the greatest degree possible. • Visitors and staff recognize and understand the value of the monument's native plants and wildlife and the role that surrounding open working landscapes play in habitat connectivity. • NPS staff uses the best available scientific information and technology to manage these resources. • State and federally listed threatened and endangered species and their habitats are protected and sustained. NPS staff prevents the introduction of nonnative species and provides for their control to minimize the economic, ecological, and human health impacts that these species cause. **Management Direction/Strategies** Pinnacles National Monument would take the following kinds of actions to meet legal and policy requirements related to native wildlife and vegetation: • Continue to inventory and monitor plants and animals in the monument. Collected data will be used as a baseline to regularly monitor the distribution and condition of selected species, including indicators of ecosystem condition and diversity, rare and protected species, and nonnative species. Management plans will be modified to be more effective, based on the results of monitoring. • Develop methods to restore native biological communities. • Participate in regional ecosystem efforts to restore native species and ecosystem processes. • Support research that contributes to management of native species. • Minimize negative human impacts on native plants, animals, populations, communities and ecosystems and the processes that sustain them. • Restore native plant and animal populations in the park that have been extirpated by past human-caused action, where feasible. • Rely upon natural processes whenever possible, to maintain native plant and animal species, and to influence natural fluctuations in populations of these species. • Protect a full range of genetic types (genotypes) of native plant and animals populations in the park by perpetuating natural evolutionary processes and minimizing human interference with evolving genetic diversity. • Manage populations of exotic plant and animal species using integrated pest management techniques, up to and including eradication, when control is prudent and feasible. • Use best available scientific information and technology to manage these resources. • Work cooperatively with other public and private land managers to conserve open space connectivity and native species, both common and rare. Work cooperatively with park neighbors regarding best management practices inside and outside the monument to conserve native species and habitats. • Continue to provide interpretive and educational programs on the preservation of native species for visitors. • Avoid, minimize, or otherwise mitigate any potential impacts on state or federally listed species. Should it be determined through informal consultation that an action might adversely affect a federally listed or proposed species, NPS staff would initiate formal consultation with the USFWS under Section 7 of the Endangered Species Act. • Implement the fire management plan, and update when necessary, consistent with federal law and departmental management policies that also addresses the need for adequate funding and staffing to support the planned fire management program.

Natural Sounds	
Policy Guidance/ Sources Executive memorandum signed by President Clinton on April 22, 1996 NPS Management Policies 2006 Sound Preservation and Noise Management (Director's Order 47, 2000)	An important component of NPS management is to preserve or restore the natural sounds associated with national park system units. The sounds of nature are among the intrinsic elements that combine to form the environment of national park system units. **Desired Conditions** • The NPS preserves the natural ambient soundscapes, restores degraded soundscapes to the natural ambient condition wherever possible, and protects natural soundscapes from degradation due to human-caused noise. • Disruptions from recreational uses are managed to provide a high-quality visitor experience in an effort to preserve or restore the natural quiet and natural sounds. **Management Direction/Strategies** Pinnacles National Monument would take the following kinds of actions to comply with policy requirements related to soundscapes: • Take actions to monitor and minimize or prevent unnatural sounds that adversely affect monument resources and values, including visitors' enjoyment. • Continue to require tour bus companies, monument visitors and staff vehicles to comply with regulations designed to reduce noise levels (e.g., turning off engines when buses are parked). • Minimize noise generated by NPS management activities by strictly regulating administrative use of motorized equipment. Consider noise in the procurement and use of equipment within the national monument. • Work with the U.S. Department of Defense to address noise from military flights. • Encourage visitors to avoid unnecessary noise, such as the use of generators and by maintaining quiet hours in the campgrounds. • Manage activities or actions producing excessive noise in cave environments to protect cave resources, including the state-listed Townsend's big-eared bat.
Public Health and Safety	
Policy Guidance/ Sources OSHA Regulations (29 CFR) Federal Acquisition, Recycling, and Waste Prevention (Executive Order 12873, 1993) Energy Efficiency and Water Conservation at Federal Facilities (Executive Order 12902, 1994) NPS Management Policies 2006 Emergency Medical Services (Director's Order 51, 2005 and Reference Manual 51, 2009) Hazard and Solid Waste Management (Director's Order 30 and Reference Manual 30)	**Desired Conditions** • Pinnacles National Monument and its partners, contractors, and cooperators work cooperatively to provide a safe and healthful environment for visitors and employees while applying nationally accepted standards and while recognizing that there are limitations on the NPS's capability to eliminate all hazards. • Consistent with mandates and nonimpairment, the monument would reduce or remove known hazards by applying appropriate mitigation measures, such as closures, guarding, gating, education, and other actions. **Management Direction/Strategies** Pinnacles National Monument would take the following kinds of actions to meet legal and policy requirements related to public health and safety: • Maintain a documented safety program in the monument to address health and safety concerns and to identify appropriate levels of action and activities to reduce or eliminate safety hazards. • Ensure that all potable water systems and waste water systems in the monument continue to meet state and federal requirements. • Provide interpretive signs and materials as appropriate to notify visitors of potential safety concerns, hazards and procedures; to help provide for a safe visit to the monument; and to ensure visitors are aware of the possible risks of certain activities. • Continue professional EMS and Search and Rescue program to train a cadre of park staff and volunteers, in conjunction with county and state emergency response personnel, private life flight organizations and Sequoia and Kings Canyon National Parks dispatch office, to assist lost persons and respond to emergency situations affecting human health. • Continue to partner with network fire personel and Calfire to provide both wildland and structural fire protection within the monument.

Sustainable Facility Design	
Policy Guidance/ Sources	**Desired Conditions**
Federal Acquisition, Recycling, and Waste Prevention (Executive Order 12873, 1993) Energy Efficiency and Water Conservation at Federal Facilities (Executive Order 12902, 1994) Strengthening Federal Environmental, Energy, and Transportation Management (Executive Order 13423, 2007) Federal Leadership in Environmental, Energy, and Economic Performance (Executive Order 13514, 2009) Energy Policy Act, 2005 Energy Independence and Security Act, 2007 NPS Management Policies 2006	• Administrative and visitor facilities are harmonious with monument resources, compatible with natural processes, aesthetically pleasing, functional, as accessible as possible to all segments of the population, energy efficient, and cost-effective. • Decisions regarding operations, facilities management, and development in the monument—from the initial concept through design and construction—reflect principles of resource preservation. • Monument development and operations are sustainable to the maximum degree practicable. • New development and existing facilities are located, built, and modified according to the Guiding Principles of Sustainable Design or other similar guidelines. • Biodegradable, nontoxic, and durable materials are used in the monument whenever possible. • The reduction, reuse, and recycling of materials is promoted, while use of materials that are nondurable, environmentally detrimental, or that require transportation from great distances are avoided whenever possible. **Management Direction/Strategies** Pinnacles National Monument would take the following kinds of actions to meet policy requirements related to sustainable design: • Develop major facilities - especially those that can be shared with other agencies - outside of the monument boundary whenever possible. • Remove or relocate structures and facilities that are no longer functional in their present locations or that have been determined to be inappropriately placed in important resource areas. • Design, construct, and operate all buildings and facilities so they are accessible and usable by persons with disabilities to the greatest extent practicable. • Use transportation plan updates to determine whether the road system should be maintained as is, reduced, expanded, reoriented, eliminated, or supplemented by other means of travel. • Strive to make Pinnacles National Monument's facilities and programs sustainable. • Provide NPS staff a comprehensive understanding of their relationship to environmental leadership and sustainability. • Support and encourage the service of suppliers and contractors that follow sustainable practices. • Monitor energy use and promote energy efficient practices and renewable energy sources wherever possible. • Identify sustainable and unsustainable practices where appropriate in interpretive programs. • Incorporate the principles of environmental leadership and sustainability in exhibits and other interpretive media as appropriate. • Perform value analysis and value engineering, including life cycle analysis, to examine the energy, environmental, and economic implications of proposed developments. • Measure and track environmental compliance and performance. • Document environmental compliance, identify best management practices, and educate employees at all levels about environmental management responsibilities through Environmental Management System audits.

Visitor Experience	
Policy Guidance/ Sources NPS Organic Act, 1916 Americans with Disabilities Act, 1990 Architectural Barriers Act (ABA), 1968 NPS Management Policies 2006 Accessibility for Visitors with Disabilities (Director's Order 42, 2000) Interpretation and Education (Director's Order 6, 2005) Law Enforcement (Director's Order 6, 2005, Reference Manual 9, 2009)	The NPS Organic Act, NPS General Authorities Act, and NPS Management Policies (2006) (§1.4, 8.1) all address the importance of national park units being available to all Americans to enjoy and experience. Current laws, regulations, and policies leave considerable room for judgment about the best mix of types and levels of visitor use activities, programs, and facilities. For this reason, most decisions related to visitor experience are addressed in the alternatives, however, all visitor use of the national park system must be consistent with the following guidelines. **Desired Conditions** • Monument resources are conserved "unimpaired" for the enjoyment of future generations. • Visitors have enjoyment opportunities that are uniquely suited and appropriate to the natural and cultural resources in the monument; opportunities continue to be provided for visitors to understand, appreciate, and enjoy the monument within its regional context. • Visitors have opportunities to understand and appreciate the significance of the monument and its resources, and to develop a personal stewardship ethic. Interpretive and educational programs build public understanding of, and support for, such decisions and initiatives, and for the NPS mission and for Pinnacles National Monument. • Excellent communication between resource managers/ researchers and professional interpreters produce compelling and effective science communication to a wide audience. • To the extent feasible, all programs, services, and facilities in the monument are accessible to and usable by all people, including those with disabilities. **Management Direction/Strategies** Pinnacles National Monument would take the following kinds of actions to meet legal and policy requirements related to the provision of visitor services: • Provide visitors with easy access to the information they need to have a safe and enjoyable experience through information and orientation programs. • Provide both on and off-site interpretive programs that are designed to encourage visitors to form their own intellectual or emotional connections with the resource. Interpretive programs facilitate a connection between the interests of visitors and the meanings of the monument. • Design curriculum-based educational programs that link monument themes to national standards and state curricula and involve educators in planning and development. These programs would include pre-visit and post-visit materials, address different learning styles, include an evaluation mechanism, and provide learning experiences that are linked directly to clear objectives. Programs would develop a thorough understanding of a monument's resources in individual, regional, national, and global contexts and of the monument's place within the national park system. • Develop interpretive media that provide visitors with relevant monument information and facilitate more in depth understanding of—and personal connection with—monument stories and resources. This media will be continually maintained for both quality of content and condition based upon established standards. • Integrate resource issues and initiatives of local and national importance into the interpretive and educational programs. • Provide outreach and education services in English and Spanish as an active part of a balanced visitor services program. • Ensure that, to the extent possible, modifications for access benefit the greatest number of visitors, staff, and the public, and are integrated with, or in proximity to, the primary path of travel for building entrances and from parking areas. • Provide access to wilderness areas in a way that balances the intent of access and wilderness laws and provides the highest level of protection to wilderness resources. • Allow to the highest extent possible, for people with disabilities to participate in the same programs and activities available to everyone else. • Give higher priority to methods of providing accessibility that offer programs and activities in the most integrated setting appropriate. • Provide special, separate, or alternative facilities, programs, or services only when existing ones cannot reasonably be made accessible.

Wilderness	
Policy Guidance/ Sources	**Desired Conditions**
Wilderness Act, 1964 Wilderness Designation for Pinnacles National Monument (1976, P.L. 94-567 and 2002, P.L. 107-370) NPS Management Policies 2006 Wilderness Stewardship (Director's Order 41) Wilderness Preservation and Management (Reference Manual 41, 1999)	The National Park Service will manage wilderness areas for visitor use and enjoyment in such a manner as will leave them unimpaired for future use and enjoyment as wilderness. Visitors to the monument will continue to find opportunities for solitude and primitive, unconfined recreation, and signs of people and modern development in wilderness areas will remain substantially unnoticeable. Guidance for prescribed burning in wilderness will be provided in the monument's Wilderness Stewardship Plan. **Management Direction/Strategies** Pinnacles National Monument would take the following kinds of actions to meet legal and policy requirements related to wilderness: • Preserve or improve the qualities of wilderness character including the natural, untrammeled, undeveloped, and outstanding opportunities for solitude or primitive and unconfined recreation. • Describe and preserve the other features of wilderness character that exemplify scenic, scientific, educational, and cultural values unique to Pinnacles NM. • Manage areas proposed/recommended for wilderness so as to not diminish their wilderness qualities until Congress has taken action on the proposal/recommendation. • Encourage uses that are in keeping with the definitions and purpose of wilderness, and do not degrade wilderness resources and character. Impose appropriate restrictions on any authorized activity as necessary to preserve wilderness character and resources, or to ensure public safety. • Develop a wilderness stewardship plan to guide the preservation, management and use of these resources. • Consider impacts to the character, aesthetics, and traditions of wilderness before considering the costs and efficiency of the equipment if the use of aircraft or other motorized equipment or mechanical transportation is proposed. • Ensure that all management decisions affecting wilderness are consistent with the minimum requirement / minimum tool concept: a proposed management action must be appropriate or necessary for administration of the area as wilderness (minimum requirement) and not pose a significant impact to wilderness resources and character (minimum tool), and the management method (tools) used must cause the least amount of impact to the wilderness resources and character. • Authorize administrative use of mechanized equipment or mechanical transport only if the superintendent determines it is the minimum requirement needed to achieve the purposes of the area as wilderness, or it is needed in an emergency situation involving the health or safety of persons actually within the area. • Take into account wilderness qualities and values, including the primeval character and influence of the wilderness; the preservation of wilderness conditions in evaluation of environmental impacts. • Address cultural resources management considerations of actions that might impact wilderness resources in the development and review of environmental analysis documents. • Encourage and permit scientific activities in wilderness when these are consistent with NPS responsibilities to preserve and manage wilderness. • Use wilderness education/interpretive programs to inform visitors about wilderness ethics and how to minimize their impacts on wilderness, leave-no-trace practices will be emphasized. • Ensure that all fire management activities in wilderness conform to the basic purposes of wilderness.



3 Alternatives

Blue oak woodland with shooting stars in bloom. Photo by Gavin Emmons © 2011.

Chapter 3: Alternatives

The National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality regulations that implement NEPA require the development of alternatives in a draft general management plan to fully explore a range of ideas, methods, and concepts for managing a national park unit. It must be feasible to implement the alternatives considered. In addition, other regulations require that the draft general management plan identify a "preferred alternative" before the draft plan and environmental assessment is released for public review. The preferred alternative is the alternative that the National Park Service believes would best accomplish its goals, based on the analyses conducted.

This *Draft General Management Plan and Environmental Assessment* presents four alternatives for future management of Pinnacles National Monument. Alternative A, the No Action Alternative, presents a continuation of current management direction and is required under NEPA. Alternative A is included as a baseline for comparing the consequences of implementing the action alternatives. The action alternatives are Alternative B: Emphasize Backcountry Experience, Alternative C: Expand Visitor Experiences, and Alternative D: Link People and Resources (the preferred alternative).

These four alternatives represent the range of ideas the public and NPS staff have identified regarding natural resource conditions, cultural resource conditions, visitor use and experience conditions, and management at Pinnacles National Monument.

Formulation of the Alternatives

The planning team, comprised of staff from the monument and the NPS Pacific West Region, developed four preliminary management alternatives during winter 2007 and spring 2008. The planning team considered information about resources and visitor use, and ideas and concerns expressed by NPS staff, visitors, and stakeholders during the scoping process. The preliminary alternatives included the required "no action" (Continue Current Management) alternative and three action alternatives: Research and Learning, Backcountry Experience, and Expanded Visitor Experience. Each of these alternatives was evaluated to ensure consistency with the monument's purpose and significance, desired future conditions, and current laws, regulations, and policies.

The preliminary alternatives were presented for public review in summer 2008. The planning team analyzed public and stakeholder comments the following winter. Overall, actions that the public was most supportive of included preserving the monument's character and resources, enhancing educational opportunities and interpretive programs, and providing additional visitor use opportunities, including access to newly added lands and improved facilities on the west side. Many of the public comments received on the preliminary alternatives indicated a preference for an alternative or a mix of actions from particular alternatives with elements of increased preservation, education, and interpretation; opportunities for diverse user groups; and moderately-sized facilities. The preferred alternative was developed to include a blend of the strengths and advantages of elements from the preliminary alternatives.

The alternatives would balance resource protection with new visitor use opportunities and are viable. Each alternative has a different concept, which is described based on different management zones and how these are applied geographically. Each alternative also varies in the management prescriptions, or actions, for various resource topics that the monument would initiate in order to achieve the desired conditions (see *Alternative Components*, next page). The four alternatives are:

Alternative A, No Action, (Continue Current Management) would continue existing management, programming, facilities, staffing, and funding at current levels.

Alternative B, Emphasize Backcountry Experience, would offer high quality backcountry experiences, including solitude, natural quiet, and views of natural settings. Resources and opportunities would be managed in an integrated fashion for protection, restoration, and maintenance of natural and cultural resources and backcountry experiences.

Alternative C, Expand Visitor Experiences, would provide an expanded array of visitor use opportunities, including recreation, interpretation, and education. Opportunities would be provided on the new lands and other areas that receive lower visitor use.

Alternative D, Link People and Resources (the preferred alternative), would engage a broad range of visitors in the enjoyment, understanding, and stewardship of natural and cultural resources and values of the Gabilan Mountains ecoregion by focusing on ways to connect diverse audiences and resources, to acknowledge the interrelationship between natural and cultural resources, and to protect, preserve, and restore ecological communities and processes.

The Research and Learning preliminary alternative was subsequently dropped from the range of alternatives being considered (*see Actions/Alternatives Considered but Dismissed From Detailed Consideration*).

The alternatives focus on which resource conditions and what visitor uses and experiences should exist within the monument rather than on the details of how these conditions and experiences should be achieved. As a result, the alternatives do not include day-to-day or operational information about resource or visitor use management. For many actions, more detailed plans or studies would be required before most conditions proposed in the alternatives are achieved. The implementation of any alternative also depends on future funding and the need for additional

A typical high season scene in the East Pinnacles Visitor Center and Camp Store. NPS photo.

ALTERNATIVE COMPONENTS

The alternatives include the following components:

Management concept. This statement generally describes the guiding philosophy or overall direction for each alternative. The concept highlights the alternative's overall character by emphasizing different resource conditions and associated visitor experiences.

Management of specific areas. Area specific desired conditions are described for various locations throughout the monument, including the desired resource conditions, associated visitor experience opportunities, and the appropriate kinds and levels of management, development, and access. This plan describes area specific desired conditions for the Bottomlands; East Side Campground Developed Area; West Side; Bear Gulch, Condor Gulch, and Chalone areas; High Peaks; McCabe Canyon; and Bear Valley School.

Management zoning is the method used by the NPS to identify and describe the appropriate variety of resource conditions and visitor experiences to be achieved and maintained in the different areas of a park. The zoning process includes: (1) identifying a set of management zones and defining what activities or conditions are appropriate for each zone, and (2) allocating those zones to the monument areas on maps. The alternative zoning maps therefore show where recommended management actions are appropriate. For example, zones identify what areas of the monument would be appropriate for new visitor facilities such as a picnic area. (See *Management Zones and* alternatives zoning maps later in this chapter).

User capacity defines the types and levels of visitor and other public use that can be accommodated while sustaining the desired resource conditions, social conditions and visitor experiences that complement the purposes of the monument. The premise behind user capacity management is that with any use on public lands comes some level of impact that must be accepted; therefore it is the responsibility of the public land management agency to decide what level of impact is acceptable and what actions are needed to keep impacts within these agency-defined acceptable limits.

Potential boundary adjustments. GMPs are required to take a comprehensive look at concerns about adjacent land uses, implications for management of lands within the authorized boundary, and the potential for boundary adjustments.

Management actions describe the changes in management direction or strategies that the monument would consider to achieve the vision described in the alternative concept. Because some management actions would be implemented regardless of alternative, those management actions are "common to all alternatives."

Projected implementation costs. NPS policies require general management plans to include estimates of annual recurring costs ("annual operating costs") and of one-time capital costs for facility rehabilitation, new construction, or management projects. Alternative costs may vary substantially in recurring needs such as staffing, operations, and maintenance, as well as in those costs associated with one-time projects such as facility construction, transportation projects, research, and resource restoration or rehabilitation.

environmental analysis. This plan does not guarantee that funding will be forthcoming. The plan establishes a vision of the future that would guide management of the monument, however full implementation could take many years.

Identification of the Preferred Alternative

The preferred alternative is the alternative the National Park Service believes would best fulfill its mission and responsibilities. The planning team used an objective analysis process called "choosing by advantages" to identify and compare the relative advantages of each alternative according to a set of factors or management goals. The factors were selected based on issues and goals identified for the GMP and on public comments. The alternatives were evaluated based on the degree to which each would accomplish the following factors:

1. Enhances Protection of Natural Resources
2. Enhances Protection of Cultural Resources
3. Provides Quality Experiences for a Diversity of Visitors
4. Promotes Operational Efficiency and Park Sustainability
5. Expands Community Outreach and Partnership Opportunities

The planning team evaluated the relationships between the advantages and costs of each alternative according to the factors listed above. Both the preliminary alternatives and a hybrid alternative (later titled "Link People and Resources) were evaluated. The hybrid alternative was developed after both park staff and the public expressed preferences for elements that were included in different alternatives. The hybrid alternative was selected as the preferred alternative. Several elements were pulled from the Research and Learning preliminary alternative. The analysis from the "choosing by advantages" process was used to further refine the preferred alternative. Based on preliminary analysis, this alternative gives the National Park Service the greatest overall benefits for each factor listed above for the most reasonable cost.

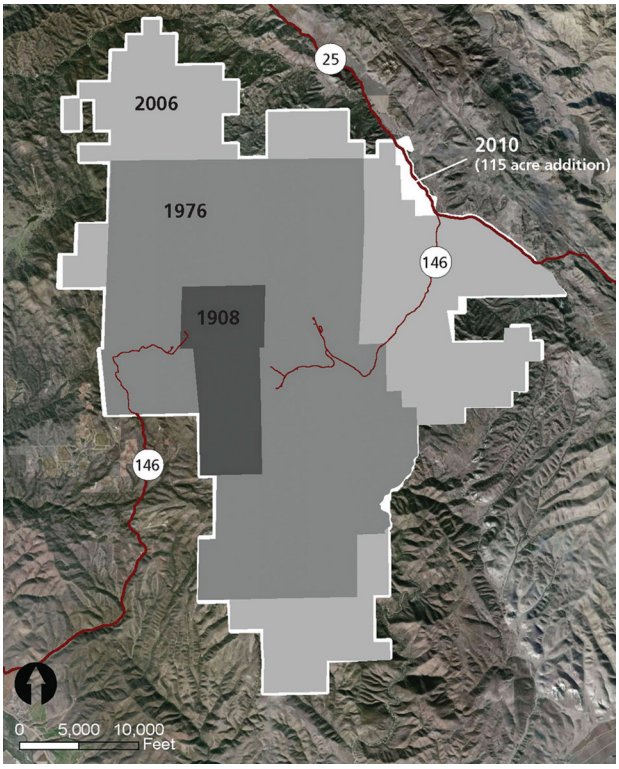
Potential for Boundary Adjustments

The National Parks and Recreation Act of 1978 requires general management plans to address whether boundary modifications should be made to park units. The NPS has evaluated different options for expanding the Pinnacles National Monument boundary for resource preservation and visitor use. The boundary has been expanded many times since establishment of the monument.

The Proclamation of July 18, 1906 established Pinnacles Forest Reserve, comprising 14,080 acres. This reserve was managed by the U.S. Forest Service. Proclamation No. 796, January 16, 1908 (35 Stat. 2177) established Pinnacles National Monument, comprising approximately 2,080 acres within the existing Pinnacles Forest Reserve. The monument was supposed to contain all of the most interesting geologic and scenic features of the original reserve—the caves and spires of the Pinnacles themselves. The boundary map prepared in Washington, however, excluded significant portions of these features.

Gabilan Slender Salamander, endemic to Pinnacles and surrounding areas. Photo by Paul G. Johnson.

Pinnacles National Monument boundary adjustments over time.



In 1923, Proclamation No. 1660 (43 Stat. 1911) added approximately 562 acres, to include the upper half of Bear Gulch with the Bear Gulch Caves. In 1924, Proclamation No. 1704 (43 Stat. 1961) added adjoining lands totaling 326 acres. In 1931, Proclamation No. 1948 (47 Stat. 2451) added 1,926 acres including lower Bear Gulch and the lands below it along Chalone Creek, where the monument would later establish administrative facilities and a campground. In 1933, Proclamation No. 2050 (48 Stat. 1701) added 5,322 acres. In 1941, Proclamation No. 2528 (55 Stat. 1709) added 4,300 acres, including the water source at Marcott Spring (later renamed Willow Spring). In 1976, Public Law 94-567 (90 Stat. 2692) added 1,717.9 acres. In addition, 12,952 acres of land within the monument were designated as wilderness and 990 acres as potential wilderness. The legislation also stated that the total area within the monument may not exceed 16,500 acres. In 1980, Public Law 96-344 (94 Stat. 1134) authorized a minor boundary change along the southeast edge of the monument to adjust a fence line on Chalone Creek. Approximately 3.35 acres were removed from the monument, while approximately 44.02 acres were added. The monument's acreage totaled approximately 16,275 acres.

In 2000, Proclamation No. 7266 (65 F.R. 2831-32) authorized expansion of monument to include approximately 10,939 additional acres (thereby rendering moot the acreage limitation established by P.L. 94-567 in 1976). Of these additional lands approximately 8,008 acres were federal lands transferred from the Bureau of Land Management, while the remaining 2,931 acres were privately owned (including the former Pinnacles Ranch land). By 2006, approximately 2,251 additional acres had been purchased under the authority of this proclamation. After acquisition of the former Pinnacles Ranch land, the monument staff did not identify other major boundary modifications for the long-term, but did acknowledge minor boundary adjustments could be made. In 2010, additional lands northeast of the monument, totaling 114.79 acres, including the Bear Valley School property, were added to the monument as an administrative boundary adjustment. All landowners were willing sellers. As of 2011, Pinnacles National Monument contains approximately 26,648.79 acres with legislative boundaries comprising a total area of approximately 27,328.79 acres.

In June 2010, Congressman Sam Farr requested that the National Park Service consider the 18,000-acre Rock Springs Ranch property for addition to Pinnacles National Monument from a willing seller. The National Park Service agreed to evaluate Rock Springs Ranch as part of the ongoing general management plan and to provide the Congressman with a brief report in advance of the draft GMP. Although Rock Springs Ranch appears to include nationally significant resources, the report determined that the addition to Pinnacles does not appear to be feasible based on high costs for land acquisition, resource protection, and staffing and visitor services for this large property that is geographically separated from Pinnacles National Monument. Therefore, this area has not been included as a boundary expansion recommendation in this draft general management plan. (See *Actions/Alternatives Considered but Dismissed From Detailed Consideration* for more information.)

Although the action alternatives in this GMP do not propose any boundary adjustments, the monument would continue to focus on collaborating with partners in the management of significant resources that are associated with but not within the monument. This GMP also recommends preparation of a comprehensive boundary study to identify park needs, inventory significant resources, and to determine minor boundary adjustment priorities.

Management Zones

Management zones describe a range of desired conditions for resources and visitor experiences and/or management approaches to be achieved and maintained in particular areas of Pinnacles National Monument. Each zone includes the desired conditions for resources and the types of activities and facilities that are appropriate in that management zone. The management zones are consistent with the monument's purpose, significance, and special mandates. Five management zones have been identified for Pinnacles National Monument: primitive, semi-primitive, frontcountry, cultural interpretation, and special research. Each zone description includes a zone concept, desired natural and cultural resource conditions, visitor experience, facilities, access and transportation. The management zones and prescriptions for Pinnacles National Monument are presented in Table 2 *(next several pages)*.

These zones form the basis for the alternatives and depending on the action alternative are applied to different geographic areas of Pinnacles National Monument. Alternative A, No Action, is not described using management zones because these have not previously been identified in the monument. The action alternatives (B, C, and D) apply the management zones in different ways based on the overall concept for each alternative. The special research zone includes the area managed for condor research and other areas landlocked by this area. This area, also known as Grassy Canyon, provides an ideal area for undisturbed research for condor recovery. This zone is applied to the same area under each of the action alternatives. The zoning schemes for each action alternative are shown on the alternatives zoning maps.

In addition to the management zones, park managers would continue to use the *Superintendent's Compendium* to effect limitations or closures as necessary to protect resources and wilderness values. The *Superintendent's Compendium* is a list of designations, closures, requirements, and other restrictions imposed under the discretionary authority of the superintendent as provided by Title 36 of the *Code of Federal Regulations*.

View from the High Peaks Trail. NPS Photo.

TABLE 2: MANAGEMENT ZONES

ZONES	PRIMITIVE	SEMI-PRIMITIVE
Zone Concept Summary	*This zone is managed primarily to preserve the four qualities of wilderness character; untrammeled, naturalness, undeveloped, and solitude or primitive, unconfined recreation.* Natural resources are in as pristine a condition as possible, and are minimally modified only for wilderness visitor use and resource protection. Significant cultural resources are protected and managed according to NPS policy consistent with wilderness values. Visitors are immersed in a primitive (undeveloped) and wild environment and experience solitude, natural sounds, a sense of remoteness, self-reliance and discovery. Development is very minimal in this zone and only allowed in support of wilderness values such as resource protection. Visitors access this zone on primitive natural surface trails.	*This zone represents a transition between the frontcountry and primitive areas. In designated wilderness, this zone is managed, like the Primitive Zone, to preserve the four qualities of wilderness character, but can accommodate periodic high visitor use with limited improvements for essential visitor services and park operation needs.* Natural resources retain their integrity and wild character, but may be minimally modified for visitor use and resource protection to protect naturalness. Significant cultural resources are protected and managed according to NPS policy. Interpretive services and recreational access are important functions of this zone. Visitors also have opportunities to experience solitude, natural sounds, a sense of remoteness, self-reliance and discovery. Development is minimal in this zone. Visitors access this zone on natural surface trails.
Natural Resources		
Overall Condition	Natural resources are in as pristine a condition as possible, and are minimally modified only for wilderness visitor use and resource protection.	Natural resources retain their integrity and wild characteristics, but may be minimally modified for visitor use and resource protection compatible with the natural environment.
Vegetation and Wildlife	Native vegetation communities and wildlife habitat are intact. Nonnative invasive species are managed with emphasis on species that have the most severe adverse impacts on native communities. Sensitive, threatened and endangered species and associated habitats may be actively managed to perpetuate these species. (Common to all - CTA)	Native vegetation communities and wildlife habitat are mostly intact but may be minimally modified. Nonnative invasive species are managed with emphasis on species that have the most severe adverse impacts on native communities. Sensitive, threatened and endangered species and associated habitats may be actively managed to perpetuate these species. (CTA)

FRONTCOUNTRY	CULTURAL INTERPRETATION	SPECIAL RESEARCH
This zone is managed for visitor access, education, recreation, and orientation as well as park operations. Natural resources are protected, but may be modified in less sensitive locations for visitor use, park operations or administrative use. Significant cultural resources are protected and managed according to NPS policy. Modifications of other cultural resources for visitor use, administrative purposes, safety, and resource protection may occur where compatible with the historic character. This zone provides capacity for a large number of visitors and serves as an access point for park experiences. Visitors are provided with opportunities for orientation, education, interpretation, and a wide range of visitor activities. Development includes a diversity of facilities to support park operations and visitor use, mixed with open space and natural settings. Visitors access this zone on paved and unpaved roads, and on natural surface and paved trails designed for universal access where possible	*This zone is focused on the preservation, protection, and interpretation of historically significant cultural resources.* Visitors are provided opportunities to learn about and experience these cultural resources. Natural resources are protected, but may be modified in appropriate locations to support important cultural resources and their interpretation. Significant cultural resources are protected and managed according to NPS policy. Cultural sites, structures, and landscapes are managed to reflect and interpret their period of significance. Cultural preservation and interpretation of human time periods and cultural themes are the primary focus of this zone. Visitors experience sights, sounds, and activities that are evocative of the site's period(s) of significance. Development in this zone consists primarily of historic structures and additional facilities necessary for adaptive reuse or public enjoyment. Visitors access this zone on natural surface and paved trails.	*This zone is managed to protect and promote research that improves the survival of the federally endangered California condor, and to provide areas for undisturbed research.* Protection of this special resource takes precedence over visitor accommodations and access is highly controlled. Natural resources are protected, but may be modified in less sensitive locations to support condor research and protection activities. Significant cultural resources, if present in this zone, are protected and managed according to NPS policy. Modifications of cultural resources for research and resource protection may occur. Visitor use and access are highly controlled. Access is allowed at management discretion, if not disruptive to research or protection activities. Development levels are fairly minimal and consist primarily of facilities that support research and resource protection activities. Roads and trails in this zone are maintained to support resource protection and research activities.
Natural resources are protected, but may be modified in less sensitive locations for visitor use, park operations or administrative use.	Natural resources are protected, but may be modified in appropriate locations to support important cultural resources and their interpretation.	Natural resources are protected, but may be modified in less sensitive locations to support condor research and protection activities.
Native vegetation communities and wildlife habitat are mostly intact, but may be modified by development and high visitor use in suitable areas. In developed settings, native vegetation will be used for landscaping. Invasive nonnative species will not be used. Sensitive, threatened and endangered species and associated habitats may be actively managed to perpetuate these species. (CTA)	Native vegetation communities and wildlife habitat may be modified to support important cultural landscape features. Noninvasive nonnative species may be maintained if determined to be a contributing resource to the cultural landscape. Native alternatives will first be examined. Nonnative invasive species are managed with emphasis on species that have the most severe adverse impacts on native communities. Sensitive, threatened and endangered species and associated habitats may be actively managed to perpetuate these species. (CTA)	The primary purpose of this zone is to support California condor recovery. Native vegetation communities and wildlife habitat may be manipulated for research and protection purposes, but are otherwise intact. Nonnative invasive species are managed with emphasis on species that have the most severe adverse impacts on native communities. Sensitive, threatened and endangered species and associated habitats may be actively managed to perpetuate these species. (CTA)

ZONES	PRIMITIVE	SEMI-PRIMITIVE
Geologic Resources	Geologic features are protected and geologic processes continue. Impacted areas are restored to the greatest extent possible.	Geologic features are protected and geologic processes continue. Geologic features may be minimally modified to provide for a safe visitor experience. Impacted areas are restored to the greatest extent possible.
Hydrologic Systems	Natural hydrologic systems and processes are primarily left unimpeded. Impacted areas are restored to the greatest extent possible.	Natural hydrologic systems and processes are primarily left unimpeded. Hydrologic systems may be minimally modified to allow for visitor use. Impacted areas are restored to the greatest extent possible.
Soundscape, Viewshed, and Night Sky	The natural soundscape, night sky and viewsheds are intact and enhance the visitor experience. Natural sounds dominate, however distant artificial sounds may intrude at times. Habitats for noise-sensitive wildlife are free or nearly free of intrusive noise. No artificial outdoor lighting is present, although distant lighting may be visible from certain locations. Viewsheds are protected to a high degree. Uninterrupted views of natural and scenic resources are an integral part of the visitor experience.	The natural soundscape, night sky and viewsheds are largely intact and enhance the visitor experience. Natural sounds dominate. Sounds from park visitors and operations may occasionally be present. Habitats for noise-sensitive wildlife are free or nearly free of intrusive noise. No artificial lighting is present, although lighting from developed areas may be visible from certain locations. Viewsheds are protected to a high degree.

FRONTCOUNTRY	CULTURAL INTERPRETATION	SPECIAL RESEARCH
Significant geologic features and processes are protected. Other geologic features and processes may be altered to support visitor use and park operations. Infrastructure is designed or relocated to avoid significant geologic resources and hazards.	Geologic features are protected and geologic processes continue. Some alteration or intervention in geologic processes may occur to protect cultural resources and support visitor use. Impacted areas are restored to the greatest extent possible consistent with cultural resource protection.	Geologic features are protected and geologic processes continue. Some alteration or intervention in geologic processes may occur to support research and resource protection activities. Infrastructure is designed or relocated to avoid significant geologic resources and hazards. Impacted areas are restored to the greatest extent possible consistent with research and resource protection needs.
Natural hydrologic systems and processes are left unimpeded except where stabilization and management are needed to protect existing facilities and significant resources, and to support visitor services and park operations. Where possible, infrastructure is designed or relocated to minimize impacts on hydrologic systems and to restore natural functions.	Natural hydrologic systems and processes are left unimpeded except where stabilization and management are needed to protect cultural and other significant resources, and to support visitor services and park operations. Where possible, infrastructure is designed or relocated to minimize impacts on hydrologic systems and to restore natural functions.	Natural hydrologic systems and processes are left unimpeded except where stabilization and management are needed to protect significant resources and support park operations. Where possible, infrastructure is designed or relocated to minimize impacts on hydrologic systems and to restore natural functions.
Intact natural soundscapes, night skies and viewsheds can be experienced in certain locations and times. Facilities are sited and designed to minimize impacts on the soundscape, night sky, and viewshed. Natural sounds are generally audible but may be mixed with pulses of sounds from visitor and park operations activities. Habitats for noise-sensitive wildlife are nearly free of intrusive noise beyond immediate developed areas. Outdoor lighting is present when needed to support visitor services or park operations, but is designed to minimize light pollution. Views of natural and scenic resources are present at many locations.	The natural soundscape, night sky and viewsheds are largely intact and enhance the visitor experience. New facilities are sited and designed to minimize impacts on the soundscape, night sky, viewshed, and cultural landscape. Natural sounds are generally audible but may be mixed with pulses of sounds from visitor and park operations activities. Habitats for noise-sensitive wildlife are nearly free of intrusive noise beyond immediate developed areas. Outdoor lighting is present when needed to support visitor services or park operations, but is designed to minimize light pollution. Historically appropriate sounds and lighting from the period of significance may modify the otherwise intact natural soundscape and night sky. Views reflect historic landscapes. Night sky enhances the cultural landscape.	The natural soundscape, night sky and viewsheds are largely intact and benefit protection of sensitive species within this zone. Natural sounds dominate, however distant artificial sounds may intrude at times. Habitats for noise-sensitive wildlife would be free or nearly free of intrusive noise. Artificial outdoor lighting may be visible from some locations. Viewsheds are protected to a high degree, although minimal impacts may occur from research and protection activities.

ZONES	PRIMITIVE	SEMI-PRIMITIVE
Cultural Resources		
Overall Condition	Significant cultural resources are protected and managed according to NPS policy consistent with wilderness values.	Significant cultural resources are protected and managed according to NPS policy.
Historic Structures	Historically significant structures are present in this zone and are preserved and managed according to NPS policy. (CTA) Non-contributing historic structures may be stabilized, removed, or allowed to deteriorate naturally, consistent with wilderness values.	Historically significant structures are present in this zone and will be preserved and managed according to NPS policy. (CTA) Historically significant structures may be interpreted on-site. Non-contributing historic structures may be preserved, removed, or allowed to deteriorate naturally, consistent with wilderness values.
Cultural Landscapes	Significant cultural landscape features are preserved and managed according to NPS policy, consistent with wilderness values.	Significant cultural landscape features are preserved and managed according to NPS policy, to perpetuate historic and scenic values. Modifications for interpretation, safety, and resource protection may be allowed where compatible with the character defining features of the cultural landscape.
Archeological Resources	Significant archeological sites and resources will be protected and managed according to NPS policy, consistent with wilderness values. Opportunities for interpretation and cooperation with traditionally associated peoples may be developed.	Significant archeological sites are protected and managed according to NPS policy. Opportunities for interpretation and cooperation with traditionally associated peoples may be developed.
Visitor Experience		
Overall Visitor Experience	Visitors are immersed in a primitive (undeveloped) and wild environment and experience solitude, natural sounds, a sense of remoteness, self-reliance and discovery.	Interpretive services and recreational access are important functions of this zone. Visitors also have opportunities to experience solitude, natural sounds, a sense of remoteness, self-reliance and discovery.

FRONTCOUNTRY	CULTURAL INTERPRETATION	SPECIAL RESEARCH
Significant cultural resources are protected and managed according to NPS policy. Modifications of other cultural resources for visitor use, administrative purposes, safety, and resource protection may occur where compatible with the historic character.	Significant cultural resources are protected and managed according to NPS policy. Cultural sites, structures, and landscapes are managed to reflect and interpret their period of significance.	Significant cultural resources, if present in this zone, are protected and managed according to NPS policy. Modifications of other cultural resources for research and resource protection may occur.
Historically significant structures are present in this zone and will be preserved and managed according to NPS policy. (CTA) Historically significant structures may be interpreted on-site. Non-contributing historic structures may be adaptively reused, stabilized, or removed, based on visitor or administrative use potential.	Historically significant structures are present in this zone and will be preserved and managed according to NPS policy. (CTA) Historic structures will be interpreted on-site. Non-contributing historic structures may be preserved or removed, based on interpretive potential. Any adaptive reuse for administrative purposes must be historically compatible.	Historically significant structures, if present in this zone, will be preserved and managed according to NPS policy. (CTA) Non-contributing historic structures, if present in this zone, may be preserved, removed, or allowed to deteriorate naturally, in support of research and resource protection activities.
Significant cultural landscape features are preserved and managed according to NPS policy, to perpetuate historic and scenic values. Modifications for visitor use, administrative purposes, safety, and resource protection may be allowed where compatible with the character defining features of the cultural landscape.	Significant cultural landscape features are preserved and managed according to NPS policy, to support interpretive values. Modifications for visitor use, administrative purposes, safety, and resource protection may be allowed where compatible with the character defining features of the cultural landscape.	Significant cultural landscape features, if present in this zone, are preserved and managed according to NPS policy, to perpetuate historic and scenic values. Modifications for research and resource protection may be allowed where compatible with the character defining features of the cultural landscape.
Significant archeological sites are protected and managed according to NPS policy. Opportunities for interpretation and cooperation with traditionally associated peoples may be developed.	Significant archeological sites are protected and managed according to NPS policy. Opportunities for interpretation and cooperation with traditionally associated peoples may be developed.	Significant archeological sites are protected and managed according to NPS policy.
This zone provides capacity for a large number of visitors and serves as an access point for park experiences. Visitors are provided with opportunities for orientation, education, interpretation, and a wide range of visitor activities.	Cultural preservation and interpretation of human time periods and cultural themes are the primary focus of this zone. Visitors experience sights, sounds, and activities that are evocative of the site's period(s) of significance.	The primary purpose of this zone is to support California condor recovery. Visitor use and access are highly controlled. Access is allowed at management discretion, if not disruptive to research or protection activities.

ZONES	PRIMITIVE	SEMI-PRIMITIVE
Interpretation and Education	Interpretation and education are focused on wilderness values and are mostly self-directed.	Interpretation and education are important functions of this zone, and are achieved through a range of methods that are complementary to the natural setting.
Types of Activities	Visitor activities are primarily unstructured and self-guided. Limited, small group activities may be appropriate, if wilderness values are not degraded. Visitors have opportunities to experience solitude, open space, and primitive and unconfined recreation. Visitor use opportunities are subordinate to the protection of the natural setting and wilderness values, and may be restricted to protect resources or wilderness values. Visitor use opportunities may include hiking, climbing, and nature appreciation, so long as wilderness values are not degraded. A high degree of physical effort may be required to experience the wilderness and backcountry. Visitors should be prepared for challenge and use of outdoor skills.	Visitors have opportunities for unstructured and self-guided experiences as well as opportunities to participate in interpretive and stewardship programs and guided walks/hikes. Visitors generally have opportunities to experience solitude, open space, and primitive and unconfined recreation. Visitor use opportunities are complementary to the natural setting, and may be restricted to protect resources or wilderness values. Visitor use opportunities may include hiking, climbing, nature appreciation, and dispersed picnicking. Bicycling is limited to those trails and facilities, if any, designated specifically for that use. A moderate to high degree of physical effort may be required to experience this zone. Visitors should be prepared for challenge and use of outdoor skills.
Use Levels / Density	Visitation levels are low and encounters with other visitors are infrequent. Large groups and events are not permitted.	Visitation levels are generally low to moderate, with moderate to high use levels sometimes found at entry points or points of interest. Encounters with other visitors are generally low, but may be high during times of peak use. Group sizes may be limited to protect experiential and resource protection objectives.
Wilderness	This zone includes designated wilderness and other areas managed for their wilderness values. Resources retain their integrity and wild character, and are minimally modified only for wilderness visitor use and resource protection. There are no visible signs of human use off trails and routes. Visitors are immersed in a primitive and wild environment and experience solitude, natural sounds, smells, a sense of remoteness, self-reliance and discovery.	This zone includes designated wilderness areas that receive periodic high use. Within designated wilderness in this zone: • Resources retain their integrity and wild character, and are minimally modified only for wilderness visitor use and resource protection. • Visitors have opportunities to experience a primitive and wild environment, solitude, natural sounds, smells, a sense of remoteness, self-reliance and discovery, although during times of peak visitation, high levels of use may occur on popular trails.

FRONTCOUNTRY	CULTURAL INTERPRETATION	SPECIAL RESEARCH
Interpretation and education are important functions of this zone, and are achieved through a range of methods, facilities and programs.	Interpretation and education are important functions of this zone, and are achieved through a range of methods, facilities and programs	This zone is generally closed to visitor use. When visitor use is allowed, appropriate interpretation and education may be determined by park management on a case-by-case basis.
This zone provides a wide range of visitor use opportunities. Visitors of all physical abilities can experience this zone. Visitors have opportunities to participate in interpretive and stewardship programs and guided walks/hikes. Visitor use opportunities may include hiking/walking, climbing, sightseeing, appreciation of natural and cultural resources, picnicking, camping, and bicycling. Bicycling is limited to those roads, if any, designated specifically for that use.	Visitors have opportunities to experience cultural resources. There are opportunities for interpretation, programs, and recreation that complement the historic setting. Visitor use opportunities may include hiking/walking, appreciation of natural and cultural resources, picnicking, and bicycling, so long as cultural resources are not degraded. Bicycling is limited to those roads, if any, designated specifically for that use.	This zone is generally closed to visitor use. Park managers may allow visitor use if not disruptive to research or resource protection activities. Appropriate visitor use opportunities, if any, will be determined by park management on a case-by-case basis.
Visitation levels are moderate to high. Visitors may encounter a moderate to high level of contact with rangers and other visitors during peak use. A wide range of group sizes may be accommodated.	Visitation levels are moderate to high. Visitors may encounter a moderate to high level of contact with rangers and other visitors during peak use. A wide range of group sizes may be accommodated.	This zone is generally closed to visitor use. Park managers have the discretion to allow visitor uses that are not disruptive to research or resource protection activities, including limited special/organized events, such as condor release events. Visitors may encounter a moderate to high level of contact with other visitors during special events.
This zone does not contain designated wilderness.	This zone does not contain designated wilderness.	This zone does not contain designated wilderness.

ZONES	PRIMITIVE	SEMI-PRIMITIVE
Facilities		
Overall Faciities	Development is very minimal in this zone and only allowed in support of wilderness values. Visitors access this zone on primitive natural surface trails.	Development is fairly minimal in this zone. Visitors access this zone on natural surface trails.
Development Levels and Facilities	Development is very minimal in this zone and only allowed in support of wilderness values, such as resource protection, wilderness visitor use and visitor safety. Any necessary facilities are designed and sited to be unobtrusive and compatible with the wilderness setting. Visitor facilities could include natural surface trails, unobtrusive directional signs, and backcountry campsites. Facilities within designated wilderness are subject to a minimum requirement analysis. Telecommunications facilities and transmission lines are not allowed in this zone.	Development is fairly minimal in this zone and only allowed in support of resource protection, dispersed visitor use and visitor safety. In designated wilderness, development levels and types of facilities are the same as in the primitive zone. Outside of designated wilderness, visitor facilities could include natural surface trails, signs, waysides, backcountry campsites, and dispersed picnic tables and benches. Limited, small scale telecommunications facilities and transmission lines may be allowed outside of designated wilderness in this zone if designed and sited to minimize visual impacts.
Access and Transportation	New roads will not be allowed in this zone. Existing unpaved roads will be decommissioned. There are a limited number of designated natural surface trails. Universal access opportunities are limited in this zone.	There are no paved roads in this zone. Existing unpaved roads may be maintained for infrequent administrative use. There are a moderate number of natural surface trails. Universal access opportunities are limited in this zone.

FRONTCOUNTRY	CULTURAL INTERPRETATION	SPECIAL RESEARCH
Development includes a diversity of facilities to support park operations and visitor use, mixed with open space and natural settings. Visitors access this zone on paved and unpaved roads, and on natural surface and paved trails designed for universal access where possible.	Development in this zone consists primarily of historic structures and additional facilities necessary for adaptive reuse or public enjoyment. Visitors access this zone on natural surface and paved trails.	Development is fairly minimal and consists primarily of facilities that support research and resource protection activities. Roads and trails in this zone are maintained to support resource protection and research activities.
Development includes a diversity of facilities to support park operations and visitor use, mixed with open space and natural settings. Facilities include historic resources and non-historic visitor and administrative facilities that complement historic and natural landscapes. Visitor facilities may include natural and paved surface trails, visitor centers, developed and walk-in campgrounds, fee stations, kiosks, trailheads, picnic areas, group use areas, signs, wayside exhibits, restrooms, roads and parking areas. Park operations facilities may include administrative offices, maintenance shops, storage, staff housing, utilities, communications structures, and facilities to serve cultural and natural resources objectives. Sustainability and energy efficiency are core park values and are part of all facility management decisions.	Development in this zone consists primarily of historic structures and additional facilities necessary for adaptive reuse or public enjoyment. Non-historic facilities are designed and sited in ways that protect cultural landscape values. Development levels are minimal to moderate. Facilities may include natural and paved surface trails, wayside exhibits, interpretive trails, restrooms, picnic and group use areas, administrative roads, and facilities to serve cultural and natural resources objectives. Limited, small scale telecommunications facilities and transmission lines may be allowed if compatible with cultural landscape values and if designed and sited to minimize visual impacts.	Development levels are fairly minimal. Development in this zone consists primarily of facilities that support research and resource protection activities. Research facilities may include condor enclosures and support structures, administrative roads and trails. Limited, small scale telecommunications facilities and transmission lines may be allowed if not disruptive to research or resource protection activities and if designed and sited to minimize visual impacts.
Access opportunities are a primary purpose of this zone. There are paved and unpaved roads, parking, and shuttle stops with amenities. There are natural surface and paved trails, including some designed for universal access where possible. Visitors do not normally enter park operations areas except for park business purposes.	There are no paved roads in this zone. Existing unpaved roads may be maintained for administrative use. There could be a moderate number of natural surface and paved trails. Trails are designed for universal access when compatible with cultural and natural resource protection.	Access is highly controlled in this zone. Roads and trails in this zone are maintained to support resource protection and research activities.

Description of the Alternatives

This section describes the range of alternatives considered in this general management plan for Pinnacles National Monument. Before the detailed description of each alternative, an overview of specific general management plan actions common to all alternatives are described. Each alternative includes a description of the overall vision followed by a description of management actions that would apply park-wide, actions for specific areas, management zoning schemes (for action alternatives), costs, and staffing.

Actions Common to All Alternatives

The following section summarizes the management guidance or actions that would apply to all the alternatives (This section is later referred to as *Actions Common to All*).

Visitor Experience

RECREATION

- Recreational opportunities would be dispersed to reduce congestion and improve the quality of the visitor experience in the core of the monument.
- Pinnacles would continue to provide or expand opportunities for existing recreational uses, such as hiking, climbing, and picnicking.
- Developed camping would continue to be provided at the east side campground.
- Climbing use would continue in congruence with raptor advisory updates and voluntary closures. The monument would continue to work in close coordination with the climbing community, including the Friends of Pinnacles – an organization focused on climbing. A Climbing Management Plan would be developed. Existing bolted routes would be allowed where critical resources are not adversely affected.
- Picnic sites would be improved, including shade structures.
- New recreational facilities may include additional trails at various locations within the monument.
- A South Wilderness trail connection would be constructed.

INTERPRETATION AND EDUCATION

- Pinnacles would continue to provide interpretive programs and media regarding monument significance.

Summary tables comparing alternatives side-by-side, costs of alternatives, and environmental impacts of alternatives can be found starting on page 111. For the full text of Environmental Consequences and Impacts, see Chapter 5.

- Education programs such as Camp Pinnacles would continue.
- The Comprehensive Interpretive Plan would be updated and would include new opportunities for education and interpretation of cultural resources.
- The monument would consider multi-use options for the Bear Gulch nature center including administrative purposes and visitor orientation.
- A virtual museum would be developed to provide public access to a portion of Pinnacles' museum collections.

Facilities

SUSTAINABILITY AND CARBON FOOTPRINT

- The monument would plan for the removal or relocation of facilities from flood prone areas that do not contribute to the historical significance of the monument and are not being used for park operations. Natural processes would be restored in these areas where feasible.
- Building footprints would be compact, using previously disturbed areas where possible and minimizing impacts on ecological components and processes.
- Pinnacles would take measures to reduce energy use (carbon emissions) through monument operations and to increase energy and fuel efficiency using sustainable facility design and other means, such as by expanding shuttle use during peak visitation periods.

EAST SIDE FACILITIES

- The east side campground would be reconfigured to protect sensitive riparian areas, to improve operations, and to improve visitor experience. An amphitheater and store would be retained in the campground.
- If Bear Gulch headquarters buildings are heavily damaged or lost (e.g. fire or flood), headquarters would be rebuilt outside of Bear Gulch in a suitable location in the frontcountry zone (for example, on the bench across the road from the Pinnacles campground).

- Existing utilities would be replaced as needed, including the Bear Gulch sewer system.
- Most housing would continue to be located at the Chalone area (with limited housing at the west side administrative area). If expanded programs and mission changes occur, the monument may need to complete an updated Housing Needs Assessment to further evaluate the housing needs for the monument.
- Maintenance facilities would remain at Chalone.
- Existing roads would be maintained, except as noted in some alternatives (see alternatives maps). If administrative roads are no longer needed, they could be removed, re-contoured, or used as trails. McCabe Road would be used by administrative vehicles only. A public trail and administrative road would provide access to the bottomlands.
- A shuttle service with stops at the visitor center, Bear Gulch, campground, and other major sites would continue to be used to reduce congestion and carbon emissions from visitor vehicles. The monument would continue to pursue environmentally friendly shuttle vehicles and operations.

WEST SIDE FACILITIES

- Restoration efforts started during construction of replacement West Side facilities (visitor contact station, entrance station, maintenance facility, and housing) would continue, including removing decommissioned facilities from flood-prone areas, as well as recontouring and revegetating former building footprints and other disturbed areas.
- Visitor facilities such as parking, picnicking, a comfort station, and trail access would continue to be provided. Shuttle service could be provided.

Wilderness

- Pinnacles Wilderness was designated in 1976, but the monument has not prepared a wilderness stewardship plan. Development of a wilderness stewardship plan would be scheduled after the completion of the GMP and would provide guidance for wilderness stewardship activities such as cultural and natural resource protection, day use activities, climbing, commercial services (if any), infrastructure management, and backcountry camping (if any). This plan will follow the guidance recently developed and articulated in the NPS *Wilderness Stewardship Planning Handbook* and Director's Order 41.

Photos (top to bottom): 1. West side development, 1966. 2. Previous ranger station on the west side. 3. New west side visitor contact station. NPS photos.

- Pinnacles would continue to follow national wilderness requirements and policies (e.g. management interventions considered only when necessary to manage the site as wilderness, avoid or minimize use of aircraft or motorized equipment, Leave No Trace© education and interpretation, etc).
- Protection or restoration of resource values within designated wilderness could continue to include stewardship activities as are required for maintaining or recovering wilderness, including management of historic properties, infrastructure management including fencing out and control of nonnative species.
- Visitor use opportunities for solitude and primitive, unconfined recreation would be provided in wilderness.

Natural and Cultural Resources

COMBINED RESOURCE MANAGEMENT

- Pinnacles would continue to follow existing laws, policies, guidelines, and approved monument plans in coordinating and balancing the management of natural and cultural resources. Relative significance or sensitivity of resources would be weighed and their management balanced accordingly.
- Pinnacles would continue to implement and expand long-term monitoring programs, baseline studies, inventories, and research.
- Pinnacles would increase the involvement of traditionally associated peoples in research and protection of resources with traditional cultural meaning and value. Pinnacles would document and interpret the influences of traditionally associated peoples on the landscape.
- Museum collections would be managed according to the current Museum Management Plan.
- Pinnacles would work cooperatively with surrounding neighbors, communities, local agencies, associated tribes, and organizations to protect the rural character and benefits of open working landscapes.
- Visitor access in certain areas would continue to be managed, based on long term monitoring, to protect sensitive resources.
- The monument would prepare a resource stewardship strategy (underway 2012).

NATURAL RESOURCES

- Pinnacles would continue existing natural resource management activities, including bat and raptor monitoring, re-establishment of the California condor, and removal of nonnative invasive species.
- Visitor access in certain areas would continue to be managed, based on long-term monitoring, to protect sensitive resources.
  - Seasonal closures would continue at the talus caves and in raptor nesting areas to protect threatened and sensitive species.
- Visitor facilities, including trails, at the bottomlands would be developed only after park managers have determined that there would be little or no risk of spread of nonnative invasives from the bottomlands into uninfested areas of the monument from visitor activity. Consequently, partial opening or seasonal visitor use may be employed if selected areas of the bottomlands have been determined to have high priority invasive species under control or during times when priority invasive plant seeds or other plant propagules are less likely to be dispersed.
- Extirpated native species, such as Foothill yellow-legged frogs, could be re-established at Pinnacles.
- Pinnacles would continue to control nonnative species, including feral pigs and highly invasive plants.
- Pinnacles would continue current efforts to protect and restore riparian areas, while considering other resources and monument needs.
- Geologic resources and processes would continue to be highlighted and protected.
- Pinnacles would continue to implement its current Fire Management Plan. Fires would be managed to protect structures, lives, property, and to achieve desired resource conditions; adaptive management would be used.
- Fire management activities would continue to be coordinated with cultural resource identification and protection.
- Pinnacles would continue particulate, ozone, and visibility monitoring at the east entrance. Placement of additional air quality monitoring equipment could occur based on NPS Air Quality Division recommendations.

CLIMATE CHANGE

- Pinnacles would continue to support, encourage, and conduct scientific research related to understanding the effects of climate change

on monument resources and/or the broader region, including coordinating efforts with other agencies.

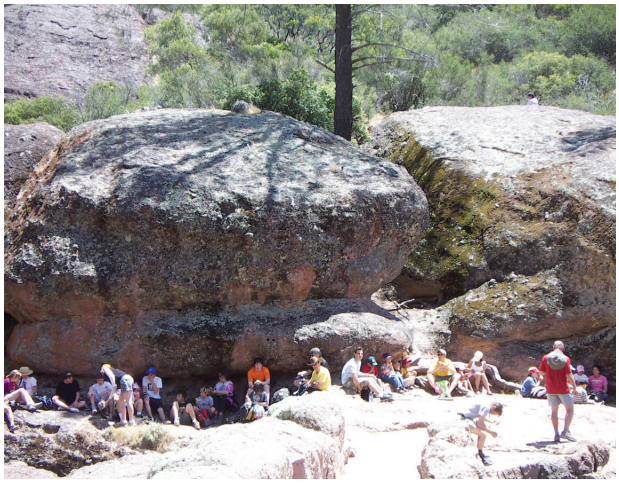
- The monument would strive to accomplish goals of the Climate Friendly Action Plan.

CULTURAL RESOURCES

- Cultural resources would be documented and assessed for significance in accordance with existing policy. Features / landscapes eligible for listing on the National Register of Historic Places would be nominated.
- Pinnacles would develop long-term treatment strategies for significant cultural resources (archeological sites, historic buildings, structures and landscapes). Appropriate treatments for cultural resources, including adaptive reuse of historic structures, would be applied. For example, a Historic Structure Report for the Ben Bacon House would be prepared to document the physical history of the building and determine appropriate preservation treatments.
- Policy-required baseline studies, such as historic structures reports and a historic resource study would be completed. Identification studies, site condition assessments, and long term preservation strategies would be planned and completed. One or more traditional association (ethnographic) studies would be completed.
- Pinnacles would conduct regular monitoring of significant cultural resources (e.g. archeological sites, historic structures, and cultural landscapes) for protection and preservation. This would include providing staff and volunteers with guidelines (e.g. monitoring form) and training (knowledge of resources).
- Historic structures could be adaptively reused; the nature of the use may vary.
- Management of cultural landscapes would be balanced with natural resource objectives, monument operations needs, and visitor use.
- The Bear Valley School property was recently included within Pinnacles National Monument. The NPS would prepare a determination of eligibility for listing the school building on the National Register of Historic Places. The NPS would also complete a Historic Structure Report to document the physical history of the building and determine appropriate preservation treatments. The Bear Valley School building would be rehabilitated and interpretation about its significance would be provided.

Commercial Services

- The monument would continue to work with a cooperating association to run the bookstore sales in the East Pinnacles Visitor Center and West Pinnacles visitor contact station.
- If commercial services in support of visitor experiences in wilderness are considered in the future, the determination of extent necessary would be addressed in the wilderness stewardship plan as noted above.



Photos (top to bottom): 1. Memorial Day 2006. 2. West side public meeting. NPS photos.

Boundary Adjustments

- The monument would prepare a comprehensive boundary study to identify park needs, inventory significant resources, and to determine minor boundary adjustment priorities.
- The monument would consider administrative boundary changes to acquire lands from willing sellers adjacent to the boundary consistent with NPS *Management Policies* criteria.
- The monument would seek to acquire inholdings within the boundary if/when they become available from willing sellers.

Partnerships, Regional Cooperation, and Outreach

- Monument staff would continue to participate in community outreach activities including attending local meetings and special events.
- The monument would engage communities, universities, Native American groups, Pinnacles Partnership friends group, and other organizations in resource protection, education, research, and interpretation.
- Community use opportunities of Bear Valley School could be available.
- Pinnacles would work cooperatively with surrounding neighbors, communities, local agencies, associated tribes, and organizations to protect regional resources (See also Combined Natural and Cultural Resource Management section).
- Pinnacles National Monument and Parque Nacional Quebrada del Condorito in Argentina would continue a sister park relationship to exchange information and resources regarding common themes at both parks. The primary theme for this agreement is the conservation of the California condor and the Andean condor. Other benefits from this collaboration include weed management, species reintroduction, trail and infrastructure development, work with indigenous peoples, visitor use management, and habitat improvement and neighboring landowner cooperative programs.

Park Operations

- The monument would consider shared or leased office space outside the monument for administrative purposes.

Photos (top to bottom): 1. Groundbreaking ceremony for new Bear Gulch entrance road, October 20, 1932. 2. Pinnacles National Monument Centennial Celebration. 3. Sister Park Managers in Argentina. NPS Photos.

Alternative A: No Action (Continue Current Management)

Concept

The "no action" alternative provides a baseline for evaluating changes and impacts in other alternatives. Under this alternative, the National Park Service would continue to manage Pinnacles as it is currently managed, following existing management policies and programs. There would be no major change in the management of the monument.

The key components of alternative A are:

- Existing facilities and trails would be maintained.
- Current recreational opportunities, including hiking, camping, picnicking, rock climbing, and viewing scenery would be provided. Current interpretive services would be provided. Limited education programs would continue as funding allows.
- Existing natural resource management activities would continue, including the raptor monitoring program, and re-establishment of the California condor.
- Cultural resources would be documented as needed; however, Pinnacles would continue to lack in-park cultural resource expertise, resulting in continued dependence on regional staff to assist the monument in maintaining a minimum level of cultural resource management and compliance.
- Projects currently programmed for funding would occur
- Boundary adjustments and wilderness - see *Common to All*.

Management Actions For Alternative A:

VISITOR EXPERIENCE

Recreation

Under this alternative, existing visitor service levels would continue. A diversity of uses, including hiking, climbing, viewing scenery, developed camping, and picnicking would be provided consistent with administrative policies and resource protection.

The current trail system would be maintained plus a South Wilderness trail connection would be constructed. Current trailheads would be retained.

Climbing use would continue to be managed through the Climber Access Plan and Raptor Monitoring Protocol until a Climbing Management Plan is completed.

Bicycling opportunities at the campground and on paved roads would continue.

Backcountry camping would continue to be prohibited. All trails would continue to be closed to stock use except for administrative use.

The Pinnacles Campground and current picnic and group facilities would remain. Minor improvements (such as adding shade structures) could be made.

Interpretation and Education

The monument would continue to provide interpretive services that meet the needs of differing types of visitor interests and ages.

Limited education programs would continue as funding allows. Pinnacles is currently unable to fill all requests for education outreach programs due to limited staff and this situation would likely continue.

Current interpretation facilities would remain. Visitor information would continue to be provided at the east side entrance station (on weekends), Bear Gulch Nature Center, East Pinnacles Visitor Center, and the West Pinnacles Visitor Contact Station.

Non-personal interpretive information, including waysides, internet web sites, trailhead and facility bulletin boards would continue to be provided.

Education programs would continue as funding allows.

FACILITIES

Under the no-action alternative, most facilities and trails would remain and continue to be maintained, including minor improvements over time.

East Side Facilities

The existing visitor center would continue to be located in the same room and building as the campground store. The building would continue to be used for interpretation, visitor information, fee collection, book sales, campground registration, and concession sales. The NPS and cooperating association space allocated is 430 sf. The monument would continue to repair and maintain the building dependent on available funding. The current day use/picnic area(s) would remain. The entrance station would remain in its current location and would continue to be used on busy weekends only. The campground area

would be reconfigured to protect sensitive resources. Reconfiguration could include removal of campsites from sensitive areas and adding new campsites in more suitable areas while maintaining a scale similar to that currently available. Existing amenities, such as the campground store and swimming pool, would be retained. The amphitheater would remain in its current location, but improvements would be made to make it more accessible.

The monument's headquarters would remain in Bear Gulch. Parking capacity in Bear Gulch would remain unchanged. Condor Gulch would continue to be used for storage. Visitor facilities at Moses Spring would be retained.

At the Ben Bacon Ranch Historic District, the Bacon House would be stabilized and used for storage. Other historic structures (such as the barn, etc.) could also be adaptively reused. The Butterfield Homestead area would continue to be protected and historic structures would be stabilized and/or rehabilitated.

The existing parking capacity would be retained. The shuttle service and current stops at trailhead areas and Peaks View would continue.

West Side Facilities

The west side would be managed to retain a natural and quiet character, while providing for increased visitor services and safety.

Improved picnic sites would include shade structures.

At Chaparral, the parking lot, picnic area, comfort station, and road, which currently are located in flood-prone areas, would remain.

Potential shuttle service (such as for special events and on busy weekends) would be accommodated at the west side facilities.

NATURAL RESOURCES

The natural resource management program would continue. (See *Common to All* for more details on raptor monitoring, re-establishment of the California condor, removal of nonnative invasive species, vegetation, fire, wilderness, wildlife, air quality management, and hydrological and geological resources).

Existing restoration efforts would also continue, including enhancement of habitat areas in the bottomlands, McCabe Canyon, and in former facility locations at Chaparral.

Current natural resources research and education efforts and partnerships would continue. The monument would provide facilities, such as Cabin 10 in Bear Gulch or staff office space as available, for researchers.

CULTURAL RESOURCES

Pinnacles would continue to lack in-park cultural resource expertise, resulting in continued dependence on NPS regional and other park cultural resource and museum staff to assist in a minimum level of cultural resource management and compliance.

Cultural resource management actions, including completion of baseline inventories and studies, would continue (see *Common to All*).

Actions associated with historic structures on the east side would be the same as noted under *East Side Facilities*. Historic mining resources would be protected in the west side. The North Chalone Peak Fire Lookout would be stabilized.

The current level of cultural resources education, interpretation, and research would continue. Interpretation of cultural resources would likely remain limited because cultural resources staff would not be available to support the programming.

COMMERCIAL SERVICES

The monument has an existing concession contract for camping, limited convenience and grocery items that expires in April 2018. The monument would continue to authorize a concessioner to provide additional services in the monument consisting of the sale of firewood, rental of bicycles, sale of climbing gear, and wireless internet services. Other recreational concession activities may also be authorized with the approval by the Superintendent. The concessioner would not offer for sale items that are sold by the Western National Park Association with the exception of water containers. The concessioner and a cooperating association would continue to operate the East Pinnacles Visitor Center and Campground General Store.

PARTNERSHIPS, REGIONAL COOPERATION, AND OUTREACH

See *Common to All*.

Photos (left to right): Tribal work day - looking at soaproot. NPS photo. A hiker views the Balconies Cliffs from the High Peaks Trail. Photo by Paul G. Johnson.

Management of Specific Areas

BOTTOMLANDS

Current management of the bottomlands would continue. The natural ecosystem, including native plant communities such as oak savanna, would predominate, while also taking cultural landscape values into consideration. The Ben Bacon Ranch Historic District would be managed for cultural landscape values to reflect the historic homesteading period. As noted above, historic structures could be adaptively reused. The bottomlands would offer limited visitor use opportunities and facilities, such as hiking on existing ranch roads only after park managers have determined that there would be little or no risk of spread of nonnative invasives from the bottomlands into uninfested areas of the monument from visitor activity (See *Common to All* for further guidance). Interpretive programs would be offered as staffing allows.

EAST SIDE CAMPGROUND DEVELOPED AREA

This area would continue to include the visitor center, day use/picnic area, parking, amphitheater and campground-related structures. The entrance station would continue to be located just beyond the campground. The campground area would be reconfigured to protect sensitive resources. Environmental education programs such as Camp Pinnacles could be provided at the campground. See *Facilities* for further description of campground reconfiguration and existing visitor facilities.

WEST SIDE

Construction of replacement west side facilities, including a visitor contact station, entrance station, maintenance facility, and housing would allow formerly disturbed areas to be restored. The existing picnic area, comfort station, and trailhead parking would be retained at Chaparral. Trail access would continue to be provided. Interpretive opportunities would be provided at the visitor contact station.

BEAR GULCH, CONDOR GULCH, AND CHALONE

Headquarters would remain in Bear Gulch. Visitor information would be provided at the Bear Gulch Nature Center when possible. Condor Gulch would continue to be used for storage. Visitor facilities at Moses Spring would be retained. The Chalone area would continue to be used for maintenance, resource management, emergency operations, and staff housing.

HIGH PEAKS

Current visitor activities, including hiking and climbing, would continue to be allowed in the High Peaks/ Pinnacles Rocks area with voluntary temporary closures of areas for protection of sensitive resources, including raptors. Current use levels would continue.

MCCABE CANYON

Current management of the McCabe Canyon Watershed as a relatively undisturbed area would continue. Broad guidance for managing this area would continue to be absent. Visitor access to McCabe Canyon would be allowed; however, there would be no designated trails/facilities for visitors. Current research efforts would continue. Park staff could continue to work with traditionally associated people in incorporating traditional ecological knowledge in habitat restoration as well as educational opportunities for public and tribal benefit.

BEAR VALLEY SCHOOL

The Bear Valley School building would be rehabilitated and interpretation about its significance would be provided. Community use opportunities could be available. See *Common to All* for further guidance.

Management Zoning

Land that was part of the monument in 1975 would continue to be classified according to the 1975 Master Plan. The land use concepts, described by the Outdoor Recreation Resources Review Commission, include Class II - General Outdoor Recreation, Class III - Natural Environment Area, Class IV - Outstanding Natural Area, and Class V - Primitive Area. There would continue to be no management zones under alternative A.

User Capacity

The National Park Service would continue to manage visitation based on approved plans. Monument staff would continue to respond to user capacity issues on a case-by-case basis, with facility capacity (including parking) largely setting the monument's user capacity. The monument would continue to conduct occasional user capacity studies to better manage visitors.

Estimated Costs

Cost estimates for alternative A are identified on the next pages in Tables 3 and 4. The costs shown here are not for budgeting purposes; rather they are only intended to show a relative comparison of costs among the alternatives.

Implementation of the approved plan will depend on future funding. The approval of this plan does not guarantee that the funding and staffing needed to implement the plan would be forthcoming. Full implementation of the actions in the approved general management plan would likely take many years.

ONE-TIME CAPITAL COSTS

The estimated costs for alternative A reflect the continuation of current management, including continuation

View of Pinnacles on Memorial day weekend. NPS photo.

of the current level of facilities. One-time costs for alternative A include projects that are currently approved and funded in fiscal year 2011 and other deferred maintenance and resource preservation projects that would occur under current management but are not yet funded (see table 3). The total gross cost estimates for these projects, identified as "common to all alternatives," would total $12,500,000. Projects that involve stabilization and rehabilitation of historic structures would also address deferred maintenance. Under this alternative, these projects include cultural resources in the Ben Bacon Ranch Historic District, historic Bear Valley School building, Condor Gulch historic structures, and North Chalone Peak Fire Lookout. Other facility improvements include repairing campground structures such as the East Pinnacles Visitor Center/campground store building to eliminate health and safety hazards and to address some structural deficiencies.

Projects are identified as either Priority 1 or Priority 2. Priority 1 projects include deferred maintenance, natural and cultural resource protection, and the construction of some trails to provide visitor access to the new lands. Priority 1 projects total $4,880,000. More than half of this cost is replacement of the sewer system. Priority 2 projects include facility replacement, facility rehabilitation, removal of facilities and restoration of those areas, and additional trails. Priority 2 costs total $8,490,000. The total estimated one-time capital cost, including common to all projects, in 2011 dollars is approximately $13,370,000. Additional projects that have been submitted for funding through 2020 total approximately $7,000,000 (not included in the cost estimate).

STAFFING

Alternative A assumes that current authorized staffing levels (2010) would remain, for a total of 43 base funded full time equivalent (FTE) staff. One full time equivalent (FTE) is one person working 40 hours per week for one year, or the equivalent number of hours worked by different individuals. In 2010, the monument's base-funded staffing was 38.38 FTE, which is below the authorized level. Base-funded staff include full time, term, part-time, and seasonal staff. In addition, some staffing is not funded out of the monument's base, including air quality monitoring, raptor monitoring, lead outreach, and some visitor use assistants (VUAs), interns, and volunteers.

Base-funded Staffing in 2010 (38.38 FTE):

- Interpretation and Education = 6.66
- Law Enforcement & Protection = 5.28
- Facilities = 12.07
- Research and Resource Management = 8.35
- Administration = 6.02

Staff positions were reduced after floods heavily damaged the previous facilities at the Chaparral area on the west side. Additional staffing needs to address the current lack of NPS presence on the west side have been identified, including interpreters, protection rangers, and part-time maintenance and administrative support (see below for additional detail). The details of these staffing needs (total of 9 FTE, $790,000) are included in two OFS (Operations Formulation System) requests that have been Regionally prioritized. Since the 2010 staffing level of 38 FTE is below the authorized level of 43 FTE, these staffing requests would add 4 FTE to the authorized level (total of 47 FTE).

Proposed Additional Staffing for the West District:

- Research and Resource Management – none
- Interpretation and Education – 2.8 FTE: a fee collector and two seasonal interpreters)
- Facilities – .5 FTE: maintenance worker to return to pre-existing levels
- Law Enforcement and Emergency Response – 4.5 FTE: a district ranger, 2 front-line rangers, a protection ranger for Wildland Fire and SAR, and on-site backup
- Administration / Superintendent – 1.2 FTE: a park planner and increase in part-time administrative positions to full time

Total Staffing = 47 FTE, 4 FTE above the authorized staffing level of 43. Salaries and benefits are included in the annual operating costs.

ANNUAL OPERATING COSTS

The monument's annual operating budget for fiscal year 2010 (FY 2010) was $3,600,000. Additional operations and maintenance costs related to capital investments would be $30,000. The total annual operating cost for Alternative A including the additional 9 FTE ($790,000) would be $4,420,000.

TABLE 3: SUMMARY OF ONE-TIME COSTS FOR ALTERNATIVE A: CONTINUE CURRENT MANAGEMENT

Location	Infrastructure, Facility, and Resource Projects		Facility Rehabilitation	Historic Preservation	Natural Resource Restoration	Facility / Infrastructure Replacement	New Construction	Facility Removal	Priority
Ben Bacon Ranch Historic District	Preserve (stabilize or rehabilitate) Ben Bacon Ranch core historic structures*			$280,000					1
	Preserve and rehabilitate Butterfield Homestead historic resources for adaptive reuse*			$330,000					1
	Bottomlands area – manage invasive nonnative species*				$380,000				1
Bear Gulch	Replacement of sewer system*					$2,500,000			1
	Rehabilitate Bear Gulch Road to improve drainage*					$3,710,000			2
	Replace telecommunications and electric lines in Bear Gulch*					$3,070,000			2
Bear Valley	Stabilize historic school building*			$400,000					1
	Rehabilitate historic school building for meeting space*		$1,230,000						2
Chalone	Construct accessible Bench trail improvement*						$250,000		2
Condor Gulch	Rehabilitate Historic Gas House Building and Horse Barn*			$80,000					2
Pinnacles Campground	Continue to maintain and repair campground store building for use as combined visitor contact station and campground store		$300,000						1
	Repair campground store foundation		$150,000						1
West Side	North Chalone Peak Fire Lookout – stabilize		$120,000						1
	North Chalone Peak Fire Lookout – hazmat clean-up of surrounding area				$300,000				1
	Improve Chaparral picnic area*		$120,000						1
Wilderness	Construct South Wilderness trail connection between the South Chalone Peak trail and South Wilderness trail*						$150,000		2
	Total Priority 1 Projects:	**$4,880,000**	$690,000	$1,010,000	$680,000	$2,500,000	$0	$0	
	Total Priority 2 Projects:	**$8,490,000**	$1,230,000	$80,000	$0	$6,780,000	$400,000	$0	
	Total Costs by Category:		**$1,920,000**	**$1,090,000**	**$680,000**	**$9,280,000**	**$400,000**	**$0**	
	TOTAL ONE-TIME COSTS:	**$13,370,000**							

Notes:

***** = Cost items that are common to all alternatives

- Projects are identified as either "Priority 1" or "Priority 2" projects. Priority 1 projects include deferred maintenance, natural and cultural resource protection, and the construction of some trails to provide visitor access to the new lands. Priority 2 projects include facility replacement, facility rehabilitation, removal of facilities and restoration of those areas, and additional trails.
- Costs include NPS Class C estimate mark-ups, including location factors, design contingency, construction management, and construction contingency.
- Trails have not been designed; descriptions include approximate length.

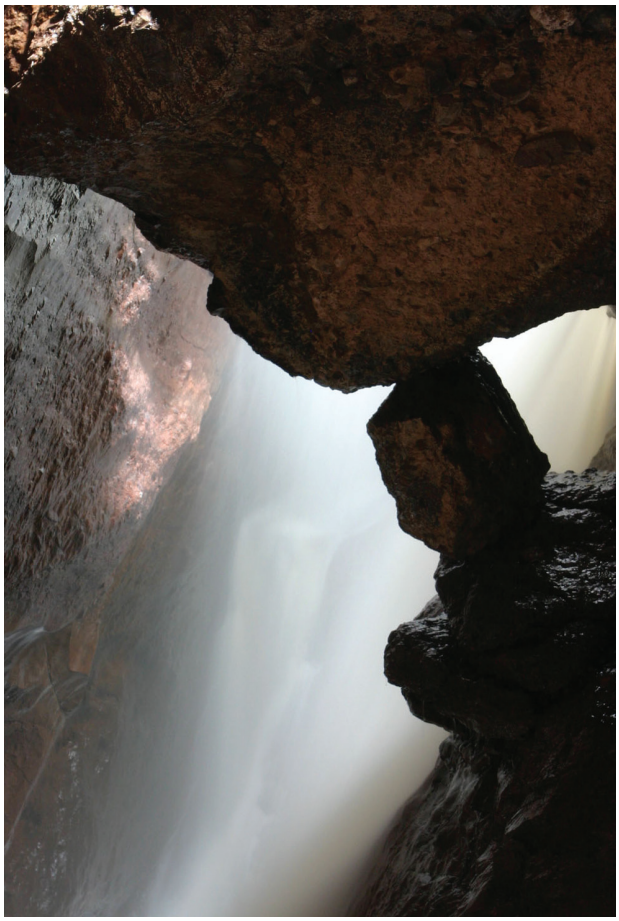
TABLE 4: ALTERNATIVE A SUMMARY OF COSTS

Annual Operational Costs	
Existing Annual Operational Costs	$3,600,000
Additional Staffing Costs (+9 FTE)*	$790,000
Additional Operations & Maintenance Costs Related to Capital Investments	$30,000
Total Annual Operational Costs	$4,420,000
One-time Capital Costs	
Facility Rehabilitation	
Priority 1 Projects**	$690,000
Priority 2 Projects	$1,230,000
Historic Preservation	
Priority 1 Projects	$1,010,000
Priority 2 Projects	$80,000
Natural Resource Restoration	
Priority 1 Projects	$680,000
Priority 2 Projects	$0
Facility / Infrastructure Replacement	
Priority 1 Projects	$2,500,000
Priority 2 Projects	$6,780,000
New Construction	
Priority 1 Projects	$0
Priority 2 Projects	$400,000
Facility Removal	
Priority 1 Projects	$0
Priority 2 Projects	$0
Total Priority 1 Projects	**$4,880,000**
Total Priority 2 Projects	**$8,490,000**
Total One-time Capital Costs	**$13,370,000**

Notes:

*The additional 9 FTE under alternative A are included in two OFS requests that been Regionally prioritized. The current staffing level is below the authorized level; the additional staffing would add 4 FTE to the authorized level of 43 FTE. The new staffing level would total 47 FTE.

**Priority 1 projects include deferred maintenance, natural and cultural resource protection, and the construction of some trails to provide visitor access to the new lands. Priority 2 projects include facility replacement, facility rehabilitation, removal of facilities and restoration of those areas, and additional trails.



Photos (top to bottom): 1. A waterfall inside Bear Gulch Cave. Photo by Paul G. Johnson. 2. Visitors hiking out of Bear Gulch Cave. NPS photo.

Alternative B: Emphasize Backcountry Experience

Concept

Pinnacles would provide visitors with high quality backcountry experiences, including solitude, quiet, and immersion in natural settings. Natural and cultural resources and visitor use opportunities would be managed in an integrated fashion for protection, restoration, and maintenance of natural and cultural resources and backcountry experiences, in cooperation with the surrounding communities and neighbors.

The key components of alternative B are as follows:

- Facilities would be minimized and located in existing developed areas. On the east side, facilities would be concentrated in the campground area. A small visitor center would be constructed to replace the current East Pinnacles Visitor Center/campground store when the current structure reaches the end of its useful life. There would be an emphasis on determining whether infrastructure located in the primitive zone should be removed. The Chaparral parking lot, North Chalone Peak, the bottomlands and riparian areas along Sandy Creek would be restored. The Moses Spring area would also be studied to determine how to improve natural functions.
- Visitors would be provided with a range of high quality backcountry experiences, including opportunities for solitude within natural settings. Visitor use would be dispersed. Existing recreational uses would continue. Some new trails would be built to provide access to new areas within the monument including the newly added lands. Small scale interpretive and educational facilities and guided programs would be provided. Formal interpretation and education about wilderness values would be enhanced.
- Natural resources protection would emphasize conserving and restoring natural functions, protecting watershed values, and protecting sensitive wildlife areas with a focus on providing visitors with a backcountry experience where natural processes predominate.
- Cultural resources would continue to be protected. Significant historic resources would be maintained, while some documented structures that do not contribute to the historical significance of the monument and are not being used for park operations could be removed.
- The preservation of wilderness character would be enhanced through the highest amount of acreage zoned "primitive," both within and outside of designated wilderness.
- Boundary adjustments - see *Common to All*.

View of the High Peaks from the North Wilderness Trail. NPS photo.

Management Actions for Alternative B:

VISITOR EXPERIENCE

Recreation

To provide visitors with a range of high quality backcountry experiences, including opportunities for solitude and experiences in natural settings, the monument would focus on dispersing visitor use and minimizing the amount of direct visitor management (i.e. fewer visitor facilities, signs, etc.). To reduce crowding, protect viewsheds, and minimize development, more of the monument would be zoned as "primitive" under this alternative. Existing uses such as hiking, climbing, and picnicking would continue. Developed camping would be provided at the east side campground. Construction of new trails would provide a range of experiences and would disperse visitors. New trails would provide connections in remote wilderness areas, between existing trails, and access to new areas in the monument. Trails leading from the campground to the bottomlands and surrounding canyons, including in McCabe Canyon, and a connector trail between the new west side facilities and Chaparral are proposed in this alternative. Future site planning for each trail would identify specific locations and footprints and would be subject to additional environmental analysis.

Small to medium-sized groups would be accommodated with the addition of some small walk-in picnic areas and the maintenance of existing group campsites and the amphitheater, but new facilities for large groups would not be built. To promote a sense of solitude throughout the monument, group size limits may be instituted, especially on wilderness trails.

New uses that require facilities and infrastructure, such as horseback riding and backcountry camping, would not be added.

Interpretation and Education

Interpretation and education within the monument would emphasize visitor self-reliance. Small-scale interpretive and educational facilities and guided programs would be limited. Formal interpretation and education about wilderness values would be enhanced and would be provided when possible outside the monument or at the monument's perimeter. Primary interpretive programming on cultural resources would also be developed. Education programs such as Camp Pinnacles would be provided under this alternative. The monument would avoid placing waysides, bulletin boards, and signs on trails and near wilderness areas. Existing waysides in wilderness areas would be removed.

FACILITIES

Under this alternative, the monument would minimize its development footprint. As noted above, structures that do not contribute to the historical significance of the monument and are not being used for park operations would be removed. Small new facilities would support visitor use and education.

East Side Facilities

Facilities would be concentrated in the campground area to locate visitor services and facilities away from the core of the monument. A small replacement East Pinnacles Visitor Center (approximately 1,500 sf) and a campground store would be constructed in a previously disturbed area in the campground to replace the current visitor center/campground store building when it reaches the end of its useful life. The current building was not designed for multiple functions occurring in the same space. It has structural deficiencies and public health concerns. A replacement east side entrance station would be constructed between the monument entrance and campground to replace the existing entrance station located at the previous monument boundary. Locating the replacement entrance station closer before visitors reach the main park sites and facilities would improve visitor orientation and circulation. Future site planning would identify specific locations and footprints for these structures and would be subject to additional environmental analysis. As in other alternatives, the campground area would be reconfigured to protect sensitive resources. In addition, a small picnic area would be added in the campground area. The amphitheater would be retained, but the swimming pool would be removed if it was determined to be no longer cost-effective to maintain.

The monument's headquarters would remain in Bear Gulch, although some functions could be moved to other facilities if needed. The Moses Spring parking area would be removed or reconfigured to improve natural hydrologic and habitat functions.

At the Ben Bacon Ranch Historic District, the Bacon House would be rehabilitated and used for storage. The Bacon Barn and other contributing structures in the Ben Bacon Ranch core would be stabilized and/or rehabilitated for improved storage or other adaptive reuses. The Butterfield Homestead would continue to be protected and both barns would be stabilized and/or rehabilitated.

Shuttle stops would be improved with minimal amenities where practicable, including shade structures and visitor information, and would be designed to blend with the environment.

West Side Facilities

The west side would be managed to retain a natural and quiet character, while providing for increased visitor services and safety, through the new facilities.

The Chaparral parking area, and the road from the overflow lot turn-off to the Chaparral parking area would be removed. The Chaparral picnic area would remain a walk-in facility and parking would be provided at the existing overflow lot. The entrance gate would continue to be closed at night and camping would not be provided. A connector trail between the new west side facilities and Chaparral would be constructed.

NATURAL RESOURCES

Natural resources protection would emphasize conserving and restoring natural functions, protecting watershed values, and protecting sensitive wildlife areas to provide visitors with a backcountry experience where natural processes predominate.

Much of the natural resources management under this alternative would mirror current actions or actions proposed in the other alternatives (See *Common to All* for more details on raptor monitoring, re-establishment of the California condor, removal of nonnative invasive species, vegetation, fire, wilderness, wildlife, air quality management, and hydrological and geological resources).

Formerly developed areas would be restored to a greater extent, especially sensitive areas. Emphasis would be on assessing and removing infrastructure located in the primitive zone. Structures that do not contribute to the historical significance of the monument and which are not being used for operations that could be removed include fencing, temporary housing structures in the bottomlands and McCabe Canyon, buildings 14, 7, and 207 in Bear Gulch, and the facilities being replaced at Chaparral. North Chalone Peak, the Chaparral parking lot, the bottomlands, Moses Spring, and riparian areas along Sandy Creek would be restored. A site plan for the Moses Spring parking and picnic area would evaluate opportunities to improve natural hydrologic conditions and habitat functions. The bottomlands would be restored to oak savanna, consistent with policy requirements within a designated cultural landscape. There would be more emphasis placed on detection and prevention of nonnative invasive species throughout the monument.

Research would continue to be encouraged, however monitoring stations and research apparatus would likely be encountered less frequently or would be less obtrusive in the field.

CULTURAL RESOURCES

Cultural resources would continue to be protected. Most cultural resource management actions would be the same as described in *Common to All* and as noted under *East Side Facilities*. The monument would enhance the cultural resource management program to expand understanding and guide management of the monument's cultural resources. The remote North Chalone Peak Fire Lookout, a structure eligible for listing on the National Register of Historic Places (NRHP), would be removed due to its poor condition, challenges with ongoing maintenance of the remote structure which requires access through private property, and environmental liability issues. Except for removal of the North Chalone Peak Fire Lookout, historic resources within the monument would be maintained. Structures that do not contribute to the historical significance of the monument and are not being used for park operations could be removed. These structures would be the same as those identified under *Natural Resources* above. A range of preservation treatments, including rehabilitation for compatible uses, could be applied to historic resources, depending on their significance.

COMMERCIAL SERVICES

The monument has an existing concession contract for camping, limited convenience and grocery items that expires in April 2018. After this contract expires, the monument would consider authorizing a new concession contract for camping, limited convenience and/or grocery items. The monument would also consider allowing some additional commercial activities consistent with the general management plan and NPS service-wide policies.

PARTNERSHIPS, REGIONAL COOPERATION, AND OUTREACH

Actions would be the same as described in *Common to All*, plus:

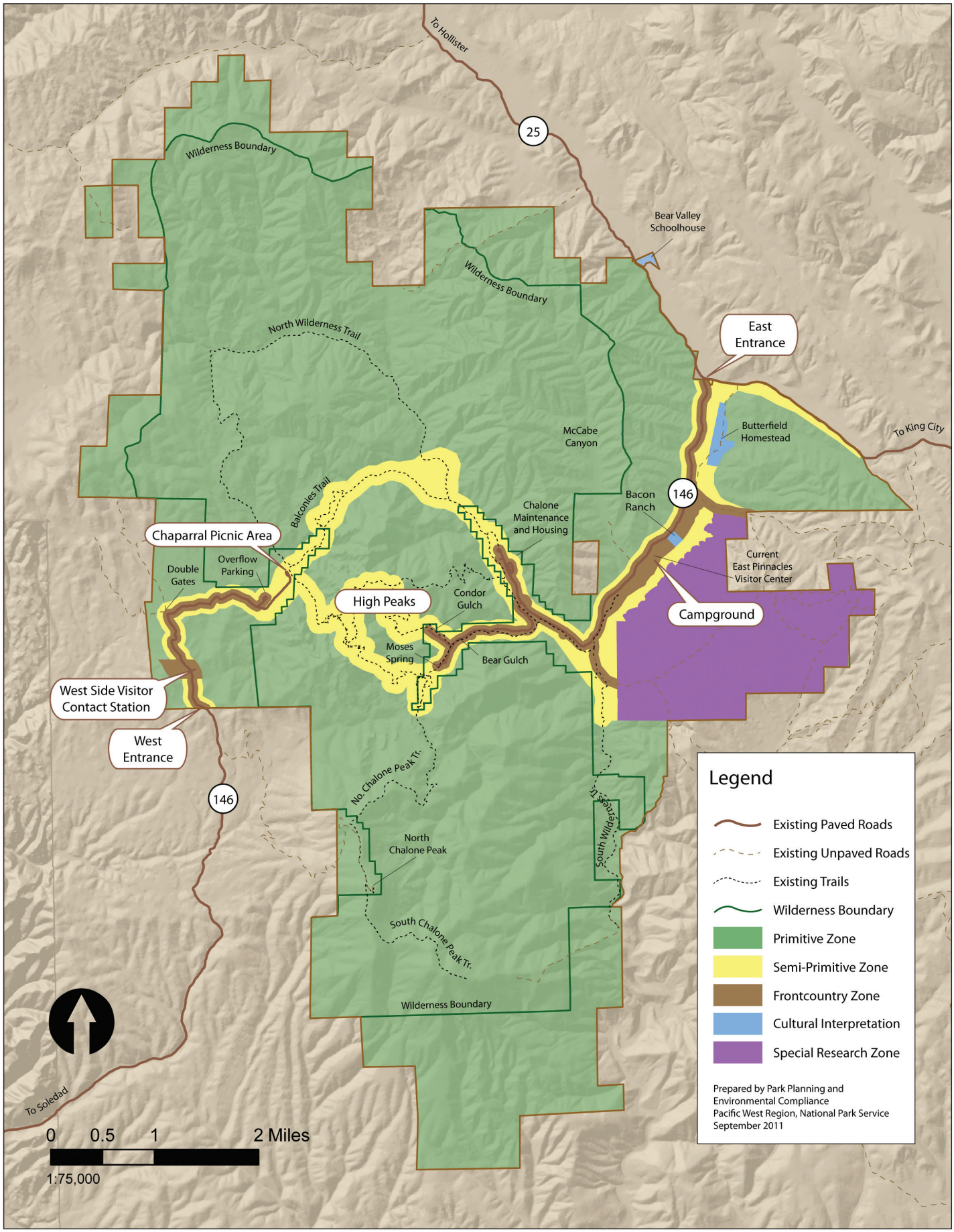
Outreach to communities would focus on providing more information regarding wilderness opportunities, stewardship, and wilderness values.

Management of Specific Areas

BOTTOMLANDS

The bottomlands would offer a variety of visitor use opportunities, including interpretation of natural and cultural resources and quality backcountry experiences. The natural ecosystem, including native plant communities and oak savanna, would predominate. Historic structures could be adaptively reused as noted above under *East Side Facilities*. Interpretation of the

Alternative B: Emphasize Backcountry Experience



cultural landscape would be focused on the Ben Bacon Ranch core and Butterfield Homestead. A road would provide administrative vehicle and public nonmotorized access to the former ranch sites and canyons from the campground. Visitor facilities at the bottomlands would be developed only after park managers have determined that there would be little or no risk of spread of nonnative invasives from the bottomlands into uninfested areas of the monument from visitor activity (See *Common to All* for further guidance).

EAST SIDE CAMPGROUND DEVELOPED AREA

As in other alternatives, the campground area would be reconfigured to protect sensitive resources. Visitor experiences would be improved at the campground. The small replacement visitor center would allow for more interpretive space and would minimize conflicts with sales areas. A new day use area would create more picnicking opportunities. New trail connections from the campground to remote areas would allow for visitor dispersal and new visitor use opportunities in the backcountry.

WEST SIDE

The west side would be managed to retain a natural and quiet character, while providing for increased visitor services and safety, through the new facilities. The Chaparral parking area, and the road from the overflow lot turn-off to the Chaparral parking area would be removed. The Chaparral picnic area would remain a walk-in facility and parking would be provided at the existing overflow lot. As in alternative A, there would be no camping and the area would be available for day use only. A connector trail between the new west side facilities and Chaparral would be constructed. Visitor information, interpretive exhibits, and interpretive activities would be provided at the visitor contact station.

BEAR GULCH, CONDOR GULCH, AND CHALONE

As described under *East Side Facilities*, headquarters would remain in Bear Gulch, although some functions could be moved to other facilities. The Moses Spring area would be reconfigured to improve natural hydrologic and habitat functions. Visitor information and a small number of exhibits would continue to be provided at the Bear Gulch Nature Center. Condor Gulch would continue to be used for storage. As in alternative A, the Chalone area would be used for maintenance, emergency operations, and staff housing.

HIGH PEAKS

This core visitor activity area would be actively managed to provide ample opportunities for solitude, including indirect management (adding trails for greater visitor dispersal, wilderness values education, etc.) and direct management (group size controls, use permits, etc.), if necessary.

MCCABE CANYON

A trail would connect the campground to McCabe Canyon ridge. Visitors would experience solitude and

Moses Spring parking area. NPS photo.

enjoy an additional long-distance wilderness hiking opportunity to a previously inaccessible area. Small, focused interpretation and education programs at McCabe Canyon would be developed in cooperation with traditionally associated people to interpret resources important to people of the past and present.

BEAR VALLEY SCHOOL

The Bear Valley School building would be rehabilitated for meeting space and minimal external interpretive features would be added. Community use opportunities would be available. See *Common to All* for further guidance. If San Benito County develops a plan for a regional system of trails including connections to the monument, a trail connection from Bear Valley to McCabe Canyon would be considered.

Management Zones

The management zones for alternative B would be applied to monument lands to identify an area's predominant use and desired future conditions. Specific boundaries of the management zones are provided in the map for alternative B. The management zones are explained in further detail in Table 2. The following description identifies the locations and details for the application of management zones in alternative B.

PRIMITIVE ZONE

Under alternative B, the predominant zone applied to the monument is the primitive zone. The primitive zone would include the following areas:

- Most of the wilderness areas to provide visitors ample opportunities to experience solitude, natural sounds, and a sense of remoteness. However, portions of heavily used trails within wilderness in the core of the monument would be excluded from this zone.
- Remote areas beyond the wilderness boundary extending to the park boundary.
- The majority of the upland area east of the bottomlands to provide quality backcountry experiences for visitors, including on trails.

SEMI-PRIMITIVE ZONE

The semi-primitive zone would include the following areas:

- The bottomlands, but excluding the Butterfield homestead. This area would extend northeast along the Highway 25 boundary to the ridgeline along the northeast edge. The eastern boundary would follow the park road but would allow for a 500 foot buffer adjacent to the road.
- Bear Gulch, Condor Gulch, and Chalone with 1,000 foot corridors centered on existing paved and unpaved roads, trails, and parking.
- A 500 foot wide corridor paralleling the Highway 146 frontcountry area on the east side.
- A 1,000 foot corridor centered on popular trails including Juniper Canyon, Rim, Condor Gulch, Bear Gulch, Bench, Old Pinnacles, High Peaks, Balconies trails, and the North Wilderness Trail from the Old Pinnacles Trail intersection to Willow Spring. The Hawkins Peak area would be excluded.
- West side lands surrounding developed areas and other potential high use areas to allow for trails in these areas.
- A 1,000 foot corridor centered on the South Wilderness Trail extending to the base of slopes to the west and into Grassy Canyon after the intersection with the Condor Area road.

FRONTCOUNTRY ZONE

The frontcountry zone would include the following areas:

- A 500 foot corridor centered on Highway 146 on the east side.
- The existing developed footprint of the campground, lands northeast excluding the Bacon house (area includes 1000 feet east from road), and north to the existing unpaved road access to the Regan property.
- A 500 foot corridor centered on existing paved roads and structures in the Bear Gulch, Condor Gulch, and Chalone areas
- A 500 foot corridor centered on Hwy 146 on the west side from the park entrance to the overflow lot, and including other paved roads and structures.
- A 500 foot corridor along the South Wilderness trail/administrative road to junction with the road from the condor exclosure area, then following the road to the exclosure area boundary.

CULTURAL INTERPRETATION ZONE

The cultural interpretation zone would include the following areas:

- The Ben Bacon Ranch core and Butterfield Homestead areas. These two areas have concentrated historic and archeological resources. The Butterfield Homestead includes the barns, windmill, and previously tilled land. The Ben Bacon Ranch core includes the Bacon house, barn, and other historic structures. The zoned

area would start east of the park road at the Bacon driveway, extend 500 feet along the roadway and then approximately 700 feet to the toe of the slope.

- The Bear Valley School area.

SPECIAL RESEARCH ZONE

The special research zone would include the area managed for condor research and other areas landlocked by this area, extending west to the semi-primitive zone.

User Capacity

Monument staff would monitor social and resource indicators, evaluate current conditions against standards, and take appropriate steps to ensure the monument's user capacity is not exceeded (See user capacity section later in this chapter for indicators, standards, and management and monitoring strategies that would be followed).

Estimated Costs

Cost estimates for alternative B are identified below in Table 6. The costs shown here are not for budgeting purposes; rather, they are only intended to show a relative comparison of costs among the alternatives.

Implementation of the approved plan will depend on future funding. The approval of this plan does not guarantee that the funding and staffing needed to implement the plan would be forthcoming. Full implementation of the actions in the approved general management plan would likely take many years.

ONE-TIME CAPITAL COSTS

Alternative B would consist of the improvements to facilities and structures described previously in *Facilities*. There would be projects related to preservation of historic structures, restoration of natural areas, and improvements to visitor facilities and construction of new visitor facilities as well. Under this alternative, one-time capital costs include new trails, visitor facilities (small replacement East Pinnacles Visitor Center), facility improvements, facility removal (including North Chalone Peak Fire Lookout and Chaparral parking lot), and restoration of those areas, and other habitat improvements and resource protection measures (livestock fencing of remote lands).

Projects that involve replacement of infrastructure and other facilities, removal of facilities, and stabilization and rehabilitation of historic structures would address deferred maintenance. Under this alternative, examples of these projects include replacement of the

Hiker on the High Peaks Trail. NPS photo.

Bear Gulch sewer system (common to all), replacement of the East Pinnacles Visitor Center, removal of the North Chalone Peak Fire Lookout, removal of parking, road, and comfort station at Chaparral, and stabilization and rehabilitation of cultural resources in the Ben Bacon Ranch Historic District, and Condor Gulch historic structures.

Projects are identified as either Priority 1 or Priority 2. Priority 1 projects include deferred maintenance, natural and cultural resource protection, and the construction of some trails to provide visitor access to the new lands. Priority 1 projects total $4,910,000. Priority 2 projects include facility replacement, facility rehabilitation, removal of facilities and restoration of those areas, and additional trails. Priority 2 costs total $16,400,000. The estimated one-time capital cost in 2011 dollars is approximately $21,310,000 (see table 5). This cost includes the common to all costs ($12,500,000) described under alternative A.

STAFFING

Implementation of alternative B would require additional staffing for increased restoration efforts, additional cultural resources program needs, new interpretive and educational programming, and additional maintenance needs.

New research and resource management programs proposed in alternative B would require three new FTE

(one FTE is one person working 40 hours per week for one year, or the equivalent). A full-time physical scientist would assist with restoration efforts proposed under this alternative, help maintain or restore ecological processes, assist with climate change initiatives and monitoring, and would provide technical expertise to inform interpretation. A full-time cultural resources specialist would manage the cultural resources program, implement compliance requirements as the NHPA 106 coordinator, monitor historic districts and archeological sites, ensure that baseline inventories and reports are conducted, advise on DOI standards for historic structures, coordinate with law enforcement, and provide technical expertise to inform interpretation. A half-time museum technician would maintain collections at Pinnacles and would provide public access to collections under the direction of a Curator of Record located in the San Francisco Bay Area Network. A part-time GIS specialist would maintain Pinnacles GIS data and produce maps and GIS analysis as needed. A part-time archeology technician would complete and update archeological site condition assessments (surveys), NEPA compliance, and would provide input on proposed projects, and follow the Secretary of the Interior's standards.

Additional interpretation and education staff (4.63 FTE) would be needed to meet additional visitor services needs and to provide additional interpretive opportunities. A full-time interpreter would focus on non-personal programming. A full-time educator would provide greater outreach to schools and would develop and conduct new education programs. Additional visitor use assistants/park guides would be needed on both sides of the monument to meet additional visitor needs. In addition, a part-time/seasonal interpretive ranger would provide technical expertise to inform interpretation.

New trails, a replacement East Pinnacles Visitor Center, and additional facility needs would require additional staff for the facilities division (3 FTE). A maintenance worker would be added to assist with the construction and maintenance of new trails. A maintenance worker/custodian would provide maintenance for the east side facilities, including the visitor center, Ben Bacon Ranch historic resources, and the Bear Valley School building. A maintenance worker would provide maintenance of the west side facilities.

A full time wilderness ranger would patrol the wilderness and other backcountry areas of the monument.

All fire suppression activities within the monument would continue to be managed in Unified Command with California Department of Forestry and Fire Protection (CDF) and NPS.

Four FTE would be needed to meet additional park administration needs. A budget technician, administrative support technician, and information technology specialist would provide additional support to monument staff. A part-time planner/ compliance specialist would lead planning efforts and a part-time volunteer coordinator would manage the volunteer program.

Proposed New Staffing in Alternative B:

- Research and Resource Management – 3 FTE: physical scientist, cultural resources specialist, and other part-time/shared positions including a museum technician, GIS specialist, and archeology technician
- Interpretation and Education – 4.63 FTE: interpreter, educator, visitor use assistants/park guides, and part-time/shared/seasonal positions including a park ranger for cultural programs interpretation, and additional part-time/seasonal visitor use assistants
- Facilities – 3 FTE: a trails worker, custodian, and maintenance worker
- Law Enforcement and Emergency Services – 1 FTE: wilderness ranger
- Administration / Superintendent – 4 FTE: budget technician, administrative support assistant, IT specialist, and part-time volunteer coordinator

Total Staffing = 63 FTE. Staffing includes the 47 FTE described under alternative A plus 15.63 new FTE.

ANNUAL OPERATING COSTS

This alternative would be implemented with the current staffing levels plus additional staff identified in OFS requests under alternative A, and 15.63 additional FTEs for resource management and protection, interpretation, facility maintenance, administration, and research. The addition of these positions would add approximately $1,100,000 to the operating base for Alternative B. Additional operations and maintenance costs related to capital investments would be $100,000. The total annual operating costs for alternative B would be approximately $5,590,000 per year (in 2011 dollars).

TABLE 5: SUMMARY OF ONE-TIME COSTS FOR ALTERNATIVE B: EMPHASIZE WILDERNESS EXPERIENCE

Location	Infrastructure, Facility, and Resource Projects	Facility Rehabilitation	Historic Preservation	Natural Resource Restoration	Facility / Infrastructure Replacement	New Construction	Facility Removal	Priority
Ben Bacon Ranch Historic District	Preserve (stabilize or rehabilitate) Ben Bacon Ranch core historic structures*		$280,000					1
	Bacon House – rehabilitate historic structure for use as improved storage		$50,000					1
	Preserve and rehabilitate Butterfield Homestead historic resources for adaptive reuse*		$330,000					1
	Bottomlands area – manage invasive nonnative species*			$380,000				1
Bear Gulch	Replacement of sewer system*				$2,500,000			1
	Rehabilitate Bear Gulch Road to improve drainage*				$3,710,000			2
	Replace telecommunications and electric lines in Bear Gulch*				$3,070,000			2
	Chief Ranger House (Bldg #2) - adaptively reuse for office space	$10,000						2
	Remove four noncontributing structures in Bear Gulch headquarters area						$160,000	2
	Remove unused pipes at Pinnacles Dam (Bear Gulch Dam) and restore cave and canyon areas			$30,000				2
Pinnacles Campground	Construct East Pinnacles Visitor Center				$1,270,000			2
	Construct replacement campground store and concession office (remove concession trailer)				$470,000			2
	Reconfigure campsites to protect riparian areas			$40,000				1
	Remove swimming pool			$40,000				1
	Install bikeracks at campground, nature center and trailheads					$30,000		1
Bear Valley	Stabilize historic school building*		$400,000					1
Chalone	Remove / replace east side entrance station				$440,000			2
	Construct accessible Bench trail improvement					$250,000		1
	Construct accessible Valley Oak interpretive loop trail					$440,000		2
Condor Gulch	Rehabilitate Historic Gas House Building and Horse Barn		$80,000					2
McCabe Canyon	Construct trail along McCabe Canyon ridge					$390,000		2
	Restore disturbed areas to improve hydrology			$30,000				1
Moses Spring	Reconfigure or remove road and parking to restore natural processes			$100,000				2

Location	Infrastructure, Facility, and Resource Projects		Facility Rehabilitation	Historic Preservation	Natural Resource Restoration	Facility / Infrastructure Replacement	New Construction	Facility Removal	Priority
West Side	North Chalone Peak Fire Lookout – remove fire lookout							$370,000	2
	Improve Chaparral picnic area*		$120,000						1
	Remove Chaparral facilities (including parking, road section, comfort station, vault tanks) and restore hydrologic functions							$5,260,000	2
	Expand day use parking, create trailhead at overflow parking, and add vault toilets (relocate day use facilities from Chaparral)					$300,000			2
	Construct connector trail – link West Side visitor contact station						$180,000		1
Wilderness	Construct South Wilderness trail connection between the South Chalone Peak trail and South Wilderness trail*						$150,000		2
	Remove weather stations, roads, scrapes, and fencing and restore areas				$150,000				1
Parkwide	Picnic/group sites: Improve existing picnic areas; construct new picnic sites at Bottomlands, west side, and hike-in sites; construct picnic pavilion						$120,000		1
	Improve shuttle stops		$100,000						2
	Construct additional waysides / interpretive exhibits						$50,000		2
	Construct fencing for remote areas		$10,000						1
	Total Priority 1 Projects:	**$4,910,000**	$130,000	$1,060,000	$640,000	$2,500,000	$580,000	$0	
	Total Priority 2 Projects:	**$16,400,000**	$110,000	$80,000	$130,000	$9,260,000	$1,030,000	$5,790,000	
	Total Costs by Category:		**$240,000**	**$1,140,000**	**$770,000**	**$11,760,000**	**$1,610,000**	**$5,790,000**	
	TOTAL ONE-TIME COSTS:	**$21,310,000**							

Notes:

***** = Cost items that are common to all alternatives

- Projects are identified as either "Priority 1" or "Priority 2" projects. Priority 1 projects include deferred maintenance, natural and cultural resource protection, and the construction of some trails to provide visitor access to the new lands. Priority 2 projects include facility replacement, facility rehabilitation, removal of facilities and restoration of those areas, and additional trails.
- Costs include NPS Class C estimate mark-ups, including location factors, design contingency, construction management, and construction contingency.
- Trails have not been designed; descriptions include approximate length.

TABLE 6: ALTERNATIVE B SUMMARY OF COSTS

Annual Operational Costs	
Existing Annual Operational Costs	$3,600,000
Additional Staffing Costs: +9 FTE (alternative A) +15.63 FTE (alternative B)	 $790,000 $1,100,000
Additional Operations & Maintenance Costs Related to Capital Investments	$100,000
Total Annual Operational Costs	$5,590,000
One-time Capital Costs	
Facility Rehabilitation	
Priority 1 Projects	$130,000
Priority 2 Projects	$110,000
Historic Preservation	
Priority 1 Projects	$1,060,000
Priority 2 Projects	$80,000
Natural Resource Restoration	
Priority 1 Projects	$640,000
Priority 2 Projects	$130,000
Facility / Infrastructure Replacement	
Priority 1 Projects	$2,500,000
Priority 2 Projects	$9,260,000
New Construction	
Priority 1 Projects	$580,000
Priority 2 Projects	$1,030,000
Facility Removal	
Priority 1 Projects	$0
Priority 2 Projects	$5,790,000
Total Priority 1 Projects	**$4,910,000**
Total Priority 2 Projects	**$16,400,000**
Total One-time Capital Costs	**$21,310,000**

Notes:

*The additional 9 FTE under alternative A are included in two OFS requests that been Regionally prioritized. The current staffing level is below the authorized level; the additional staffing would add 4 FTE to the authorized level of 43 FTE.

**Priority 1 projects include deferred maintenance, natural and cultural resource protection, and the construction of some trails to provide visitor access to the new lands. Priority 2 projects include facility replacement, facility rehabilitation, removal of facilities and restoration of those areas, and additional trails.

Photos (top to bottom): 1. Search and Rescue (SAR) cache at Chalone. 2. Juniper Canyon Trail. 3. View of the Chaparral parking and day use area from the High Peaks. NPS photos.

Alternative C: Expand Visitor Experiences

Concept

Pinnacles would provide an expanded array of visitor use opportunities, including recreation, interpretation, and education, consistent with the NPS mission and regional needs. Opportunities would be provided on the new lands and other areas that receive lower visitor use. Diverse types of activities and groups would be encouraged.

The key components of alternative C are as follows:

- Facilities would be focused on supporting an expanded array of visitor use opportunities. A larger East Pinnacles Visitor Center would be constructed between the campground and Highway 25 entrance to replace the current visitor center/campground store when the current structure reaches the end of its useful life. On the east side, most visitor facilities would be concentrated in the campground area.
- Pinnacles would reach out to a broad audience by offering a wider range of recreational opportunities and learning experiences. New visitor uses like equestrian use and backcountry camping would be provided where such uses do not detract from resource or social values. New trails would be built to provide a wide variety of experiences. Additional interpretive and educational facilities and guided programs would also be provided.
- Natural resources protection would emphasize the importance of a natural setting and resource integrity for the visitor experience.
- Cultural resources would be protected and managed with a focus on providing visitors with opportunities to experience the broader history of the region.
- Boundary adjustments and wilderness - see *Common to All*.
- The monument would increase partnership efforts and outreach programs focused on visitor use opportunities.

Management Actions For Alternative C:

VISITOR EXPERIENCE

Recreation

To reach out to a broad audience, the monument would offer a wider range of recreational opportunities, including new uses like horseback riding and backcountry camping where such uses do not detract from resource or social values. Compared to alternative B, more of the monument would be zoned as "semi-primitive" and "frontcountry" to encourage a wider variety of uses, group sizes, and visitor activities in more locations.

As in other alternatives, existing uses such as hiking, climbing, and picnicking would continue. Developed camping would be provided at the east side campground.

Construction of new trails would provide a wide variety of experiences, from remote wilderness connections to short accessible loops and interpretive trails, and would disperse use from the core of the monument. New trails would provide connections between existing trails and access into new areas in the monument where opportunities are limited, including the bottomlands and McCabe Canyon on the east, and connections from the new west side visitor contact station. Future site planning for each trail would identify specific locations and footprints and would be subject to additional environmental analysis.

Bicycling would be allowed on unpaved roads outside of wilderness. Bike racks would also be placed at east-side trailheads to encourage bicycle use on paved roads.

Equestrian use, compatible with the historic landscape, would be allowed on designated roads and trails in the bottomlands only after park managers have determined that there would be little or no risk of spread of nonnative invasives from the bottomlands into uninfested areas of the monument. It is likely that some priority invasive species may be controlled in certain areas of the bottomlands before others. Consequently, partial opening or seasonal equestrian use may also be employed if selected areas of the bottomlands suitable for equestrian use have been determined to have high priority invasive species under control. Seasonal equestrian use could also be possible during times when priority invasive plant seeds or other plant propagules are less likely to be dispersed. For example, yellow star-thistle seeds are most easily dispersed from July-October, but other times of the year, seeds are less likely to be dispersed from equestrian use, especially if the use is limited to dirt roads or other similar wide trails.

A small number of backcountry campsites would be established on a trial basis if suitable locations could be identified. Backcountry campsites could be located in primitive or semi-primitive zones. Upon establishment, backcountry campsites would be closely monitored to determine whether unacceptable impacts on resource or social values were occurring. Pending this evaluation, backcountry camping could continue after the trial period if impacts were adequately mitigated. If identified within wilderness, the location of backcountry campsites, along with their specifications, would be decided in a Wilderness Stewardship Plan. Future site planning would identify specific locations and footprints and would be subject to additional environmental analysis.

A small walk-in campground (up to 10 sites) would be added on the west side to replace a former campground destroyed by flooding in Chaparral. Future site planning would identify specific locations and footprints and would be subject to additional environmental analysis. The campground would likely contain site markers, fire rings, picnic tables, and vault toilets.

Interpretation and Education

The monument would emphasize serving multiple audiences through a wide variety of media and programming, including interactive displays, more waysides on trails, additional interpretive materials and more opportunities for visitor involvement in science and stewardship projects. Educational programming would focus on significant resources of the monument and the broader regional history. Interpretation and research would focus on the interrelationships between natural resources and the layers of human history in the region. Additional facilities for interpretation and education would be provided on both sides of the monument.

FACILITIES

Under this alternative, new facilities would be focused on supporting an expanded array of visitor use opportunities.

East Side Facilities

A larger visitor center (approximately 6,000 sf) would be built between the Highway 25 entrance and the campground in a previously disturbed area to replace the current East Pinnacles Visitor Center/campground store building when it reaches the end of its useful life. As described in alternative B, the current building was not designed for multiple functions occurring in the same space. It has structural deficiencies and public health concerns. A new picnic area, as well as a covered picnic structure for groups, would be provided. The visitor center and picnic area would be designed to provide better separation between day use visitors and campers, improving visitor experience. A replacement east side entrance station would be constructed between the park entrance and the East Pinnacles Visitor Center to improve visitor orientation and circulation. Future site planning would identify specific locations and footprints for these structures and would be subject to additional environmental analysis. The campground area would be reconfigured to protect sensitive resources. Reconfiguration could include removal of campsites from sensitive areas and adding replacement campsites in more suitable areas. Group sites would be improved and could also be used for environmental education programs such as Camp Pinnacles. A replacement campground store would be constructed and the amphitheater and swimming pool would be retained.

Additional parking would be constructed to meet the needs of the campground, visitor center, and day use sites.

As in alternatives A and B, the monument's headquarters would remain in Bear Gulch, although some functions could be moved to other facilities if needed. Parking capacity in Bear Gulch would remain unchanged.

At the Ben Bacon Ranch Historic District, the Bacon House would be rehabilitated for adaptive reuse as office space. Other historic structures (barn, etc.) could also be adaptively reused. The Butterfield Homestead would offer a cultural resource-focused visitor experience, including possible "living farm" use. Facilities for equestrian use, such as staging areas, would be provided. As in alternative B, structures that do not contribute to the historical significance of the monument and are not useful for park operations would be removed.

Enhanced small-scale amenities would be provided at shuttle stops where practicable, including shade structures, visitor information, and water availability. Shuttle stop facilities would be designed to blend with the park environment.

West Side Facilities

The west side would be managed to retain a natural and quiet character, while providing for increased visitor services and safety.

New trail connections would be developed, including a trail to link the new visitor contact station with the existing trail system. Improved picnic sites would include shade structures. A small (up to 10 sites) walk-in campground would be provided (possibly at Jawbone Canyon, across from the overflow parking

McCabe Canyon. NPS photo.

area). The campground would likely contain site markers, fire rings, picnic tables, and vault toilets. As with other development projects, archeological surveys would be completed to help determine appropriate siting of these facilities. Future site planning would identify specific locations and footprints and would be subject to additional environmental analysis.

At Chaparral, the existing parking lot, picnic area, comfort station, and road, which currently are located in flood-prone areas, would be removed and relocated to appropriate areas within the frontcountry zone. The relocation areas could include the overflow parking area and the area near the new visitor contact station.

West side facilities would be designed to accommodate potential shuttle service.

NATURAL RESOURCES

Natural resources protection would emphasize the importance of a natural setting and resource integrity for the visitor experience. Ample opportunities to experience ecological communities and geologic features would be provided.

Much of the natural resources management under this alternative would mirror current actions or actions proposed in the other alternatives (See *Common to All* for more details on raptor monitoring, re-establishment of the California condor, removal of nonnative invasive species, vegetation, fire, wilderness, wildlife, air quality management, and hydrological and geological resources).

The monument would emphasize nonnative invasive plant removal alongside trails and scenic areas where these species may spread into new park areas and/or detract from the visitor experience of the natural environment. Equestrian use of the bottomlands would only be allowed when nonnative invasive weeds are under control. Where appropriate in the cultural landscape, native alternatives would first be sought, such as using perennial native grasses instead of cultivated barley. Nonnative non-invasive agricultural vegetation could be used in the bottomlands. Visitors and volunteers would be actively engaged in natural resource service learning opportunities such as wildlife monitoring or habitat restoration. These projects would promote public engagement with Pinnacles' research, as well as with science in general.

CULTURAL RESOURCES

Under this alternative, cultural resources would be protected and managed to provide visitors with opportunities to experience the broader history of the region.

Except for those actions associated with new interpretive opportunities, most cultural resource management actions would be the same as *Common to All.*

The monument would enhance the cultural resource management program to expand understanding and guide management of the monument's cultural resources.

Actions associated with historic structures on the east side would be the same as noted under *East Side Facilities*. Structures that do not contribute to the historical significance of the monument and are not useful for operations that could therefore be removed include fencing, temporary housing structures in the bottomlands and McCabe Canyon, buildings 14, 7, and 207 in Bear Gulch, and the facilities being replaced at Chaparral. The North Chalone Peak Fire Lookout would be rehabilitated and adaptively reused for administrative purposes and/or visitor interpretation and education.

Additional opportunities would be available to connect visitors to significant cultural resources within and outside the monument through immersion in historic settings. These would include increasing interpretation

of historic resources, including the Bear and Condor Gulch structures built by the CCC, Native American history, homesteading resources, and historic mining resources, as well as increased efforts to share cultural resources research information with the public and partners. There would also be possible "living farm" use of the Butterfield Homestead and equestrian use staged from the bottomlands. Visitor access to collections would be increased through development of interpretive museum displays in the replacement East Pinnacles Visitor Center.

COMMERCIAL SERVICES

The east side campground would remain (See *East Side Facilities* for more details). The monument has an existing concession contract for camping, limited convenience and grocery items that expires in April 2018. After this contract expires, the monument would consider authorizing a new concession contract for camping, limited convenience and/or grocery items, firewood sales, rental of bicycles, climbing gear sales, wireless internet services and any other recreational activities consistent with the GMP and NPS service-wide policies.

The monument would also consider allowing commercial interpretive tours consistent with the GMP and NPS service-wide policies.

PARTNERSHIPS, REGIONAL COOPERATION, AND OUTREACH

In addition to actions described in *Common to All*, outreach would focus on providing information regarding recreational opportunities in the monument. Pinnacles would participate in efforts to work with government agencies, ranchers, cattleman's associations, land trusts, rangeland conservation coalitions, and citizens to support common objectives for open spaces that provide habitat connectivity, dark night skies, clean air, and livelihoods for its neighbors. More community events would be provided at the monument. The monument would partner with gateway communities and other agencies to provide better signage and interpretation. A volunteer coordinator would seek local community involvement in management actions and issues. The monument would seek to increase tribal involvement.

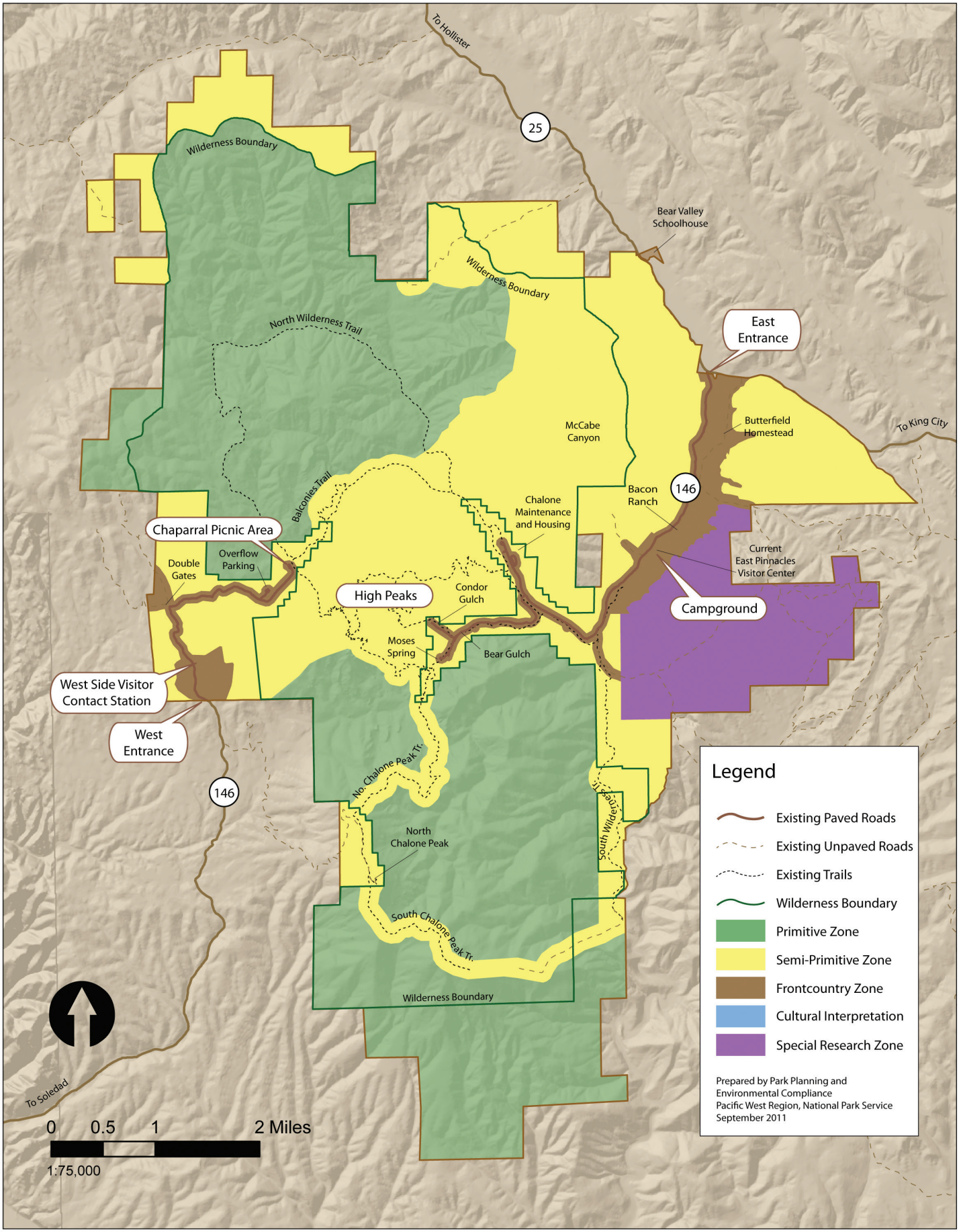
Management of Specific Areas

BOTTOMLANDS

The bottomlands would be managed for visitor use opportunities consistent with the cultural landscape and to explore the interrelationships between natural resources and multiple layers of human history and culture, ranging from homesteading to Native American traditional practices. The natural ecosystem, including native plant communities and oak savanna, would predominate. Visitor facilities at the bottomlands, including those associated with equestrian use,

Photos (left to right): 1. Amah Mutsun tribal members and UC Santa Cruz visit cooperative habitat restoration research site. Photo by Chuck Striplen. 2. A volunteer restoration crew pulls exotic plants, with the High Peaks in the background. NPS photo.

Alternative C: Expand Visitor Experiences



would be developed only after park managers have determined that there would be little or no risk of spread of nonnative invasives from the bottomlands into uninfested areas of the monument from visitor activity (See *Common to All* for further guidance). Visitor facilities would be provided for group use, equestrian use, and trails designed for varying physical abilities and recreational interests. New trails would connect the campground to the bottomlands and the canyons to the east. Historic structures could be adaptively reused as noted above under *East Side Facilities*. The Butterfield Homestead would offer a new visitor experience, including interpretation, possible "living farm" use. Structures that do not contribute to the historical significance of the monument and are not being used for park operations would be removed.

EAST SIDE CAMPGROUND DEVELOPED AREA

The east side campground developed area would provide a wide range of new visitor experiences, including a new day use area to serve groups and a larger replacement visitor center built in a previously disturbed area between Highway 25 and the campground to replace the current East Pinnacles Visitor Center/campground store when the current structure reaches the end of its useful life. Future site planning would identify specific locations and footprints and would be subject to additional environmental analysis. As in other alternatives, the campground area would be reconfigured to protect sensitive resources. Current campground amenities would be retained. New trails for hiking, bicycling, and equestrian use would improve visitor dispersal and provide new visitor use opportunities.

WEST SIDE

The west side would be managed to retain a natural and quiet character, while providing for increased visitor services and safety. At Chaparral, the existing parking lot, picnic area, comfort station, and road, which currently are located in flood-prone areas, would be removed and relocated to appropriate areas within the frontcountry zone. Former facility footprints would be restored. New trail connections would be developed. Improved picnic sites would include shade structures. A small (approximately 10-site) walk-in campground would be added. The campground would likely contain site markers, fire rings, picnic tables, and vault toilets. Interpretive opportunities and programs would be provided.

BEAR GULCH, CONDOR GULCH, AND CHALONE

As in alternative B, headquarters would remain in Bear Gulch, although some functions could be moved to other facilities. Condor Gulch would be rehabilitated for use as office space. New opportunities to experience the CCC cultural landscape would be implemented, possibly including passive external interpretation of the Condor Gulch structures or some Bear Gulch structures. Visitor information would also continue to be provided at the Bear Gulch Nature Center. As in alternatives A and B, the Chalone area would continue to be used for maintenance, emergency operations, and staff housing.

HIGH PEAKS

Visitor use activities in this area would remain essentially unchanged, although more of the area would be zoned semi-primitive (versus primitive in alternative B, to allow for higher use levels by individuals and groups while maintaining wilderness values. To help disperse use from the High Peaks, new trails in other areas of the monument would also be constructed.

MCCABE CANYON

This watershed would be managed to promote understanding of the canyon's natural and cultural resources, as well as its traditional use by California Indian people. Park staff could work with associated tribes to incorporate traditional ecological knowledge into resource management, in conjunction with other management techniques. Interpretation and education, developed in cooperation with traditionally associated people, could be provided and could include waysides. Visitor access would be provided through new trail(s).

BEAR VALLEY SCHOOL

The Bear Valley School building would be rehabilitated and used for educational/interpretive purposes although as in Alternatives A and B, it could also include compatible community use. Facilities such as a small new comfort station, day use parking area, picnic area, and utilities could be constructed but would be designed and sited so as not to detract from the significance of the historical setting. A small picnic/gathering area could also be added. See *Common to All* for further guidance.

Management Zones

The management zones for alternative C would be applied to monument lands to identify an area's predominant use and desired future conditions. Specific boundaries of the management zones are provided in the map for alternative C. The management zones are explained in further detail in Table 2. The following description identifies the locations and details for the application of management zones in alternative C.

PRIMITIVE ZONE:

The primitive zone would include the following areas:

- The remote portions of designated wilderness where visitors can experience solitude, natural sounds, and a sense of remoteness. Portions of more heavily used trails that are within wilderness in the core of the monument would be excluded and would be zoned semi-primitive.
- Most of the southern half of the monument, except for the North Chalone Peak trail, South Chalone Peak trail, South Wilderness trail, North Chalone Peak area, and the area east of the South Wilderness trail.

SEMI-PRIMITIVE ZONE:

The semi-primitive zone would include the following areas:

- The upland area east of the bottomlands to provide trails, other recreational opportunities, including periodic high use.
- The McCabe Canyon watershed, lands between the eastern boundary of the watershed and Hwy 25 (with a 500 foot corridor west of Hwy 146), the area along the pig fence to the end of the unpaved road, and the Willow Spring drainage and all lands south to the park road to provide visitor use opportunities and a transition between pristine and developed areas.
- Northwestern and western sections beyond designated wilderness that include unpaved roads.
- On the west side, lands surrounding developed areas and other potential high use areas. There could be trails in these areas.
- In the Bear Gulch, Condor Gulch, and Chalone areas, the semi-primitive zone would exclude 1,000 foot corridors centered on existing paved and unpaved roads, trails, and parking.
- Popular trail areas in the High Peaks core area, including trails and lands between the core trail system with a 1,000 foot corridor centered on Juniper Canyon, Rim, Condor Gulch, Bear Gulch, Bench, Old Pinnacles, and Balconies trails.
- The North Wilderness Trail section from Old Pinnacles intersection to Willow Spring, North Chalone Peak, South Chalone Peak and the South Wilderness Trail.
- The North Chalone Peak area and areas west to the park boundary.
- The area south of the condor exclosure area and east of the South Wilderness trail to the park boundary.

FRONTCOUNTRY ZONE:

The frontcountry zone would include the following areas:

- A 500 foot corridor centered on Highway 146 on the east side, but with a 1,000 foot corridor for the first 400 feet from the park entrance.
- The Ben Bacon Ranch Historic District except only extending 1,000 feet up each drainage, the campground existing developed footprint, the area east to the existing unpaved road access to private property, the campground bench area west of Hwy 146, and the entrance of McCabe Canyon from Hwy 146, through the development in the bottom of McCabe Canyon to approximately 1,200 feet from the park road, to allow for flexibility for siting facilities and a range of visitor opportunities, including cultural interpretation and recreation activities such as trails and horseback riding.
- The Bear Valley School area would be zoned as frontcountry.
- A 500 foot corridor centered on existing paved roads and structures in the Bear Gulch, Condor Gulch, and Chalone areas.
- A 500 foot corridor centered on Highway 146 from the west side park entrance to the overflow lot. The area would also include other paved roads, and structures.
- A 500 foot corridor along existing unpaved roads including the land between the roads in the Double Gates area and the ridges along Jawbone Canyon would to allow for a small walk-in campground on the west side.
- A 500 foot corridor along the South Wilderness trail/administrative road to the junction with the road from the condor exclosure area and up to the exclosure boundary.

Hikers rest on the High Peaks Trail. NPS photo.

Photos (left to right) 1. Bear Gulch in 1929 showing original camping cabins. This view is from point in middle of present parking lot, looking toward Nature Center. Flag pole would be in center of view, or slightly to the left. Photo by Asst. Engineer A. van V. Dunn to Hommon, PINN Coll., RG 79, Entry 7, Box 607, National Archives and Records Administration, College Park, MD. 2. Bear Gulch Nature Center from a similar viewpoint in the present day. NPS photo.

CULTURAL INTERPRETATION ZONE

There are no areas zoned cultural interpretation under this alternative.

SPECIAL RESEARCH ZONE:

The area managed for condor research would be zoned as special research. Other areas landlocked by the enclosure area extending west to the semi-primitive zone would also be within this zone.

User Capacity

Monument staff would monitor social and resource indicators, evaluate current conditions against standards, and take appropriate steps to ensure the monument's user capacity is not exceeded (see user capacity section later in this chapter for indicators, standards, and management and monitoring strategies that would be followed).

Estimated Costs

Cost estimates for alternative C are identified in Table 8. The costs shown here are not for budgeting purposes; rather, they are only intended to show a relative comparison of costs among the alternatives.

The implementation of the approved plan would depend on future funding. The approval of this plan does not guarantee that the funding and staffing needed to implement the plan would be forthcoming. Full implementation of the actions in the approved general management plan would likely take many years.

ONE-TIME CAPITAL COSTS

Alternative C would consist of the improvements to facilities and structures described previously in *Facilities*. There would be projects related to preservation of historic structures, restoration of natural areas, and improvements to visitor facilities and construction of new visitor facilities as well. One-time capital costs include new trails, visitor facilities (replacement East Pinnacles Visitor Center, covered picnic area, equestrian facilities, and walk-in campground on the west side), facility improvements, removal of underused structures and restoration of those areas, and other habitat improvements and resource protection measures.

Projects that involve replacement of infrastructure and other facilities, removal of facilities, and stabilization and rehabilitation of historic structures would address deferred maintenance. Under this alternative, examples of these projects include replacement of the Bear Gulch sewer system (common to all), replacement of the East Pinnacles Visitor Center, removal of parking, road, and comfort station at Chaparral, and stabilization and rehabilitation of cultural resources in the Ben Bacon Ranch Historic District, historic Bear Valley School building, North Chalone Peak Fire Lookout, and Condor Gulch historic structures.

Projects are identified as either Priority 1 or Priority 2. Priority 1 projects include deferred maintenance, natural and cultural resource protection, and the construction of some trails to provide visitor access to the new lands. Priority 1 projects total $6,580,000. Priority 2 projects include facility replacement, facility rehabilitation, removal of facilities and restoration of

those areas, and additional trails. Priority 2 costs total $27,810,000. The estimated total one-time capital cost in 2011 dollars is approximately $34,390,000 (see table 7). This cost includes the common to all costs described under alternative A.

STAFFING

Implementation of alternative C would require additional staffing for increased visitor use opportunities, increased monitoring, increased cultural resources program needs, new interpretive and educational programming, and additional maintenance needs.

New research and resource management programs proposed in alternative C would require 3.25 FTE. Two new full-time staff positions (FTEs - one FTE is one person working 40 hours per week for one year, or the equivalent) and several seasonal or part-time/shared positions. A physical scientist and cultural resources specialist would conduct programs similar to those described in alternative B. A half-time museum specialist would manage the museum collections at Pinnacles. Other part-time staff (GIS specialist and archeology technician) would have roles similar to those described in alternative B.

Additional interpretation and education staff (6 FTE) would be needed to meet expanded visitor services and provide additional opportunities. An interpreter and an educator would have roles similar to described in alternative B. Another park ranger would provide technical expertise for interpretation focused on cultural resources. Three visitor use assistants/park guides would be needed on both sides of the monument to meet additional visitor needs.

Similar to alternative B, new trails, a replacement East Pinnacles Visitor Center, and additional facility needs would require additional staff (4 FTE) for the facilities division. Two maintenance workers would be needed to construct and maintain trails. A maintenance worker/custodian would provide maintenance for the east side facilities, including the visitor center, Ben Bacon Ranch historic resources, and the Bear Valley School building. A maintenance worker would provide maintenance of the west side facilities. Another part-time or seasonal maintenance worker would provide additional services on the east side.

Wilderness rangers (1 full-time and 1 seasonal) would patrol the wilderness and other backcountry areas of the monument.

All fire suppression activities within the monument would continue to be managed in Unified Command with California Department of Forestry and Fire Protection (CDF) and NPS.

Four new full-time positions would be needed to meet additional park administration needs. A budget technician, administrative support technician, and information technology specialist would provide additional support to monument staff. A volunteer coordinator would manage the monument's volunteer program.

Proposed New Staffing in Alternative C:

- Research and Resource Management – 3.25 FTE (a physical scientist, cultural resources specialist, and 3 part-time/shared positions including a museum technician, GIS specialist, and archeology technician)
- Interpretation and Education – 6 FTE: an interpreter, educator, visitor use assistants/park guides, a park ranger for cultural programs interpretation
- Facilities – 4.5 FTE: trails workers, custodian, and maintenance worker, and a an additional half-time custodian
- Rangers – 1.5 FTE: a wilderness ranger and an additional seasonal ranger)
- Administration / Superintendent – 4.5 FTE: a budget technician, administrative support assistant, an IT specialist, and a volunteer coordinator

Total Staffing = 67 FTE. Staffing includes the 47 FTE described under alternative A plus 19.75 new FTE.

ANNUAL OPERATING COSTS

This alternative would be implemented with an additional 9 FTE identified in OFS requests under alternative A and additional 19.75 FTE for resource management and protection, interpretation, facility maintenance, visitor protection, and administration. The additional staffing would add approximately $1,400,000 to the operating base for Alternative C. Additional operations and maintenance costs related to capital investments would be $250,000. The total annual operating costs for alternative C would be approximately $6,040,000 per year.

TABLE 7: SUMMARY OF ONE-TIME COSTS FOR ALTERNATIVE C: EXPAND VISITOR EXPERIENCES

Location	Infrastructure, Facility, and Resource Projects	Facility Rehabilitation	Historic Preservation	Natural Resource Restoration	Facility / Infrastructure Replacement	New Construction	Facility Removal	Priority
Ben Bacon Ranch Historic District	Preserve (stabilize or rehabilitate) Ben Bacon Ranch core historic structures*		$280,000					1
	Bacon House – preserve historic structure and adaptively reuse for office space		$340,000					1
	Preserve and rehabilitate Butterfield Homestead historic resources for adaptive reuse*		$330,000					1
	Bottomlands area – manage invasive nonnative species*			$380,000				1
	Bottomlands area – provide interpretation of cultural resources (including living farm)	$10,0000						1
	Construct foot and equestrian trail along historic road alignment and provide minimal facilities for equestrian use					$300,000		1
Bear Gulch	Replacement of sewer system*				$2,500,000			1
	Rehabilitate Bear Gulch Road to improve drainage*				$3,710,000			2
	Replace telecommunications and electric lines in Bear Gulch*				$3,070,000			2
Pinnacles Campground	Construct East Pinnacles Visitor Center				$2,575,000	$5,785,000		2
	Construct replacement campground store and concession office (remove concession trailer)				$470,000			2
	Install bike racks at campground, nature center and trailheads					$30,000		1
Bear Valley	Stabilize historic school building		$400,000					1
Chalone	Remove / replace east side entrance station				$670,000			2
	Construct accessible Bench trail improvement					$250,000		1
	Construct accessible Valley Oak interpretive loop trail					$440,000		2
Condor Gulch	Rehabilitate Historic Gas House Building and Horse Barn		$80,000					2
	Historic Gas House Building and Horse Barn – adaptive reuse as office space, including trenching utilities	$2,000,000						2
McCabe Canyon	Construct loop trail, including portion of ridge					$60,000		1
Mount Defiance	Construct backcountry trail connecting North Chalone Peak trail to South Wilderness, Bench, and new Valley Oak trails					$500,000		2

Location	Infrastructure, Facility, and Resource Projects		Facility Rehabilitation	Historic Preservation	Natural Resource Restoration	Facility / Infrastructure Replacement	New Construction	Facility Removal	Priority
West Side	North Chalone Peak Fire Lookout – stabilize; rehabilitate and adaptively reuse contingent upon funding			$2,560,000					2
	Improve Chaparral picnic area*		$120,000						1
	Remove Chaparral facilities (including parking, road section, comfort station, vault tanks) and restore hydrologic functions							$5,260,000	2
	Expand day use parking, create trailhead at overflow parking, and add vault toilets (relocate day use facilities from Chaparral)					$300,000			2
	Construct connector trail – link West Side visitor contact station						$680,000		1
	Construct west side walk-in campground						$410,000		1
Wilderness	Construct South Wilderness trail connection between the South Chalone Peak trail and South Wilderness trail*						$150,000		2
	Develop minimal backcountry campsites						$10,000		1
	Remove weather stations, roads, scrapes, and fencing and restore areas				$150,000				1
Parkwide	Picnic/group sites: Improve existing picnic areas; construct new picnic sites at Bottomlands, west side, and hike-in sites; construct picnic pavilion						$330,000		1
	Construct additional waysides / interpretive exhibits						$60,000		2
	Improve shuttle stops		$180,000						2
	Total Priority 1 Projects:	**$6,580,000**	$130,000	$1,350,000	$530,000	$2,500,000	$2,070,000	$0	
	Total Priority 2 Projects:	**$27,810,000**	$2,180,000	$2,640,000	$0	$10,795,000	$6,935,000	$5,260,000	
	Costs by Category:		**$2,310,000**	**$3,990,000**	**$530,000**	**$13,295,000**	**$9,005,000**	**$5,260,000**	
	TOTAL ONE-TIME COSTS:	**$34,390,000**							

Notes:

***** = Cost items that are common to all alternatives

- Projects are identified as either "Priority 1" or "Priority 2" projects. Priority 1 projects include deferred maintenance, natural and cultural resource protection, and the construction of some trails to provide visitor access to the new lands. Priority 2 projects include facility replacement, facility rehabilitation, removal of facilities and restoration of those areas, and additional trails.
- Costs include NPS Class C estimate mark-ups, including location factors, design contingency, construction management, and construction contingency.
- Trails have not been designed; descriptions include approximate length.

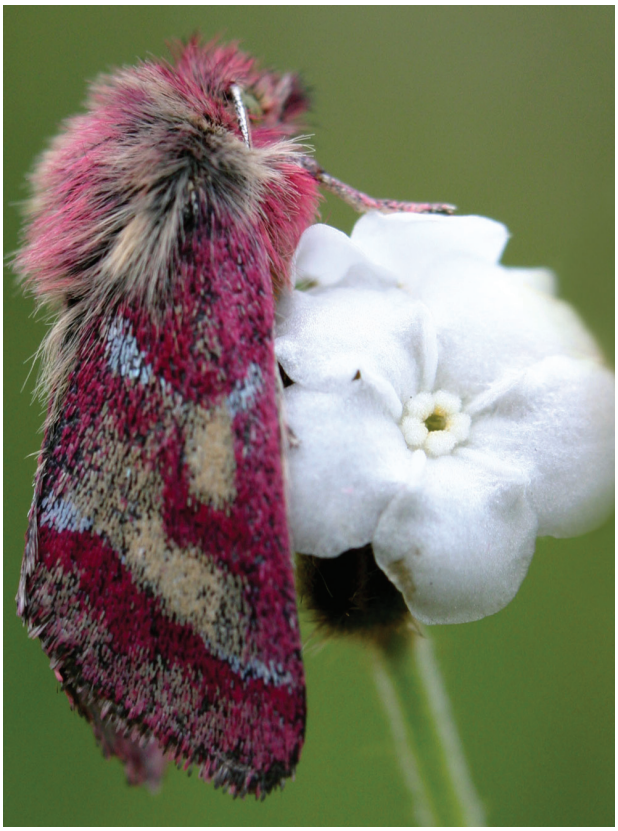
TABLE 8: ALTERNATIVE C SUMMARY OF COSTS

Annual Operational Costs	
Existing Annual Operational Costs	$3,600,000
Additional Staffing Costs: +9 FTE (alternative A)* +20 FTE (alternative C)	 $790,000 $1,400,000
Additional Operations & Maintenance Costs Related to Capital Investments	$250,000
Total Annual Operational Costs	$6,040,000
One-time Capital Costs	
Facility Rehabilitation	
Priority 1 Projects**	$130,000
Priority 2 Projects	$2,180,000
Historic Preservation	
Priority 1 Projects	$1,350,000
Priority 2 Projects	$2,640,000
Natural Resource Restoration	
Priority 1 Projects	$530,000
Priority 2 Projects	$0
Facility / Infrastructure Replacement	
Priority 1 Projects	$2,500,000
Priority 2 Projects	$10,795,000
New Construction	
Priority 1 Projects	$2,070,000
Priority 2 Projects	$6,935,000
Facility Removal	
Priority 1 Projects	$0
Priority 2 Projects	$5,260,000
Total Priority 1 Projects	**$6,580,000**
Total Priority 2 Projects	**$27,810,000**
Total One-time Capital Costs	**$34,390,000**

Notes:

*The additional 9 FTE under alternative A are included in two OFS requests that been Regionally prioritized. The current staffing level is below the authorized level; the additional staffing would add 4 FTE to the authorized level of 43 FTE.

**Priority 1 projects include deferred maintenance, natural and cultural resource protection, and the construction of some trails to provide visitor access to the new lands. Priority 2 projects include facility replacement, facility rehabilitation, removal of facilities and restoration of those areas, and additional trails.



Photos (top to bottom): 1. A Common Flower Moth rests on a popcorn flower during a rain storm. Photo by Paul G. Johnson. 2. Camp Pinnacles performs a skit about condors. NPS photo.

Alternative D: Link People and Resources (Preferred Alternative)

Concept

Pinnacles would engage a broad range of visitors in the enjoyment, understanding, and stewardship of natural and cultural resources and values of the Gabilan Mountains ecoregion. Pinnacles would focus on ways to connect diverse audiences and resources, to acknowledge the interrelationship between natural and cultural resources, and to protect, preserve, and restore ecological communities and processes.

The key components of alternative D, the preferred alternative, are as follows:

- Facilities would be used to support increased visitor understanding of natural and cultural resources and/or would serve management, operational, and administrative functions. A replacement East Pinnacles Visitor Center would be built in the vicinity of the existing visitor center to replace the current visitor center/campground store when the current structure reaches the end of its useful life. On the east side, most visitor facilities would be concentrated in the campground area.
- Pinnacles would connect visitors, communities, and resources in a variety of ways. New opportunities, such as backcountry camping, would be provided where such uses do not detract from resource or social values. New trails could be built to provide a wide variety of experiences. Interpretation and education would focus on science and history learning. There would be opportunities to learn about the significant resources of the monument and the monument's broader context in the Gabilan Mountains ecoregion. The monument could participate in developing and staffing regional visitor and interpretation centers.
- Natural resources would be protected to a high degree and natural ecosystem functions would be restored when practicable and beneficial. Natural resources protection would be enhanced by a strong education and research emphasis.
- Cultural resources would be managed to protect and interpret their significance, connect those resources within their broader regional history, and to provide visitors with opportunities to experience and learn about the interrelationship between humans and the environment.
- Boundary adjustments and wilderness - see *Common to All*.
- The monument would increase partnership efforts and outreach programs focused on regional protection of significant resources, habitat connectivity, and open rural working landscapes.

Management Actions for Alternative D:

VISITOR EXPERIENCE

Recreation

Because this alternative emphasizes connecting visitors, communities, and resources, the monument would provide more opportunities for individuals and groups, including schools and families.

As in other alternatives, existing uses such as hiking, climbing, and picnicking would continue. Developed camping would be provided at the east side campground.

Construction of new trails would provide a wide variety of experiences as in alternative C. These would range from remote wilderness connections to short accessible loops and interpretive trails, and to disperse use from the core of the monument. New trails would provide connections between existing trails and access into new areas in the monument where opportunities are lacking, including the bottomlands, McCabe Canyon, and the west side. Future site planning for each trail would identify specific locations and footprints and would be subject to additional environmental analysis.

Picnic areas (new and improved facilities) would be provided on both sides of the monument near visitor service areas including restrooms, parking, and drinking water.

As in alternative C, a small number of backcountry campsites would be established on a trial basis if suitable locations could be found. Backcountry campsites could be located in primitive or semi-primitive zones. If identified within wilderness, the location of backcountry campsites, along with their specifications, would be decided in a Wilderness Stewardship Plan. Future site planning would identify specific locations and footprints and would be subject to additional environmental analysis.

A small walk-in campground (up to 10 sites) would be added on the west side as described in alternative C. Future site planning would identify specific locations and footprints and would be subject to additional environmental analysis.

Interpretation and Education

Interpretation and education would focus on science and history under this alternative. Interpretation of significant park resources would continue through an increase in formal programs, informal interpretation, waysides, and brochures both within and outside of the monument. For example, passive interpretation, such as waysides, could be provided at the Butterfield homestead site, McCabe Canyon, and the West Side mining district. The monument could also participate in developing and staffing regional visitor and information centers. An expanded environmental education program, including Camp Pinnacles, would be developed.

A range of "outdoor classroom" opportunities, including programming and curriculum development for a variety of audiences and locations, would provide opportunities for visitors to learn about monument resources and the park's broader context.

Opportunities for visitor involvement in science and stewardship projects would be emphasized.

FACILITIES

Under this alternative, new facilities would be used to support increased visitor understanding of natural and cultural resources, while other facilities would continue to serve management, operational, and administrative functions in the monument.

East Side Facilities

A replacement East Pinnacles Visitor Center (approximately 3,800 sf) and a replacement campground store would be built in a previously disturbed area in the vicinity of the current visitor center/campground store building to replace the structure when it reaches the end of its useful life. As described in alternatives B and C, the current building was not designed for multiple functions occurring in the same space. It has structural deficiencies and public health concerns. The replacement visitor center and a picnic area would be designed to provide better separation between day use visitors and campers, improving visitor experience. A replacement entrance station would be constructed along Route 146 between the park entrance and visitor center to improve visitor orientation and circulation. Future site planning would identify specific locations and footprints for these structures and would be subject to additional environmental analysis. As in all alternatives, the campground area would be reconfigured to protect sensitive resources. Reconfiguration could include removing campsites from sensitive areas and adding new campsites in more suitable areas. Group sites would be improved and could also be used for environmental education programs. The swimming pool would be retained. The amphitheater would be relocated to a location that would be accessible, appropriate for group use, and away from sensitive habitat.

Construction of additional parking to meet the needs of the campground, visitor center, and day use would be considered in facility and site plans.

The monument's headquarters would remain in Bear Gulch, although some functions would be moved to other facilities (e.g. the Bacon House). Parking capacity in Bear Gulch would remain unchanged. As in alternative B, a site plan would be prepared for the Moses Spring parking and picnic area to improve natural hydrologic conditions and habitat functions.

At the Ben Bacon Ranch Historic District, the Bacon House would be adaptively reused as office space for park staff and/or researchers. Other historic structures (such as the barn, etc.) could also be adaptively reused. The Butterfield Homestead would be preserved and managed for cultural landscape values that showcase the historic homesteading period. Rehabilitation for historically compatible modern use would also be possible.

Enhanced small-scale amenities would be provided at shuttle stops where practicable, including shade structures, visitor information, and water availability. Shuttle stop facilities would be designed to blend with the park environment.

West Side Facilities

Actions would be the same as Alternative C.

NATURAL RESOURCES

Natural resources, including ecological communities, watershed values, sensitive wildlife populations, geologic features, water quality, air quality, natural quiet, and natural darkness, would be protected to a high degree and natural ecosystem functions would be restored when practicable and beneficial. Natural resources protection would be enhanced by a strong education and research emphasis. Resource management would acknowledge that humans and the landscape are inseparable; that the environment has been shaped for thousands of years by human use. This knowledge would inform restoration actions where appropriate.

Much of the natural resources management under this alternative would mirror current actions or actions proposed in the other alternatives (See *Common to All* for more details on raptor monitoring, re-establishment of the California condor, removal of nonnative

invasive species, vegetation, fire, wilderness, wildlife, air quality management, and hydrological and geological resources).

Restoration would include removal of structures that do not contribute to the historical significance of the monument and are not useful for park operations. These could include fencing, temporary structures in the bottomlands and McCabe Canyon, buildings 14, 7, and 207 in Bear Gulch, and the facilities being replaced at Chaparral. As mentioned above, the site plan for the Moses Spring parking and picnic area would evaluate opportunities to improve natural hydrologic conditions and habitat functions.

This alternative would provide a greater degree of restoration of natural processes, compared to alternatives A and C. Priority would be given to areas likely to receive the greatest ecological benefit, including the bottomlands and riparian areas along Sandy Creek. Nonnative invasive vegetation would continue to be treated or removed in the bottomlands. Under this alternative, revegetation would occur using native species.

This alternative would link people to park resources through a strong science / resource communication program that would enhance public and staff understanding of significant park resources. Increased cooperation with universities and other scientific and educational institutions and organizations would boost research opportunities and information sharing, as well as allow better integration of knowledge in monument resource protection actions. As available, facilities would be provided for scientists and other researchers to work collaboratively with the monument. Maintaining relationships with communities and neighbors to find common ground would be a priority for expanded preservation and protection of regional geologic, watershed, and open space resources.

CULTURAL RESOURCES

Cultural resources would be managed to protect and interpret their significance and to connect these resources to a broader regional history, and provide visitors with opportunities to experience and learn about the interrelationship between humans and the environment.

Most cultural resources management actions would be the same as described in *Common to All*.

East Pinnacles Visitor Center and campground store. NPS photo.

In addition, the monument would enhance the cultural resource management program to expand understanding and guide management of the monument's cultural resources, which include: Native American archeological and ethnographic resources; archeological, structural and landscape resources representing exploration and homesteading by Spanish and American colonizers and settlers; development of the park by NPS and Depression era programs such as the CCC; later NPS Mission 66 buildings and structures; archives and museum collections; and other resources. The program would provide greater professional care and management of museum archives.

Actions associated with historic structures on the east side would be the same as noted under *East Side Facilities*. As in other action alternatives, structures that do not contribute to the historical significance of the monument and are not being used for park operations could be removed. These structures would be the same as those identified in alternative C and under Natural Resources above. The North Chalone Peak Fire Lookout would continue to be stabilized and rehabilitation for administrative adaptive reuse could occur contingent upon funding. If funding for rehabilitation cannot be found five years after the GMP has been approved, the monument would plan for the removal of the fire lookout. Interpretation of its significance would be provided at North Chalone Peak.

Historic mining resources would be protected and interpreted in the Chaparral / West Side area.

Visitor access to collections would be increased through development of interpretive museum displays.

COMMERCIAL SERVICES

Actions would be the same as alternative C.

PARTNERSHIPS, REGIONAL COOPERATION, AND OUTREACH

Pinnacles would participate in efforts to work with government agencies, ranchers, cattleman's associations, land trusts, rangeland conservation coalitions, and citizens to support common objectives for open spaces that provide habitat connectivity, dark night skies, clean air, and livelihoods for its neighbors. For sites outside the monument that are related to the purpose and significance of Pinnacles, new partnerships/agreements with schools, affiliated tribes, surrounding agencies, and gateway communities would be developed to increase regional resource protection and to provide new educational and interpretive opportunities. The monument would partner with gateway communities and other agencies to provide wayfinding and interpretation. The monument could participate in developing and staffing regional visitor and interpretive centers. A volunteer coordinator would seek local community involvement in management actions and issues. The monument would seek to increase interagency cooperation and tribal involvement in resource protection and restoration. (See also *Common to All*).

Management of Specific Areas

BOTTOMLANDS

The bottomlands would be managed to explore the interrelationships between natural resources and multiple layers of human history and culture, ranging from homesteading to Native American traditional practices. The natural ecosystem, including native plant communities such as oak savanna, would predominate. Historic structures could be adaptively reused as noted above under East Side Facilities. The bottomlands would offer a variety of visitor use opportunities, including immersion in the historic and natural settings, interpretation of historic resources, and service learning. A range of trail experiences, lengths, and accessibility would be provided, including between the campground and the Butterfield Homestead. Road access between the campground and the bottomlands would serve hikers and bicyclists. Visitor facilities at the bottomlands would be developed only after park managers have determined that there would be little or no risk of spread of nonnative invasives from the bottomlands into uninfested areas of the monument from visitor activity (See *Common to All* for further guidance).

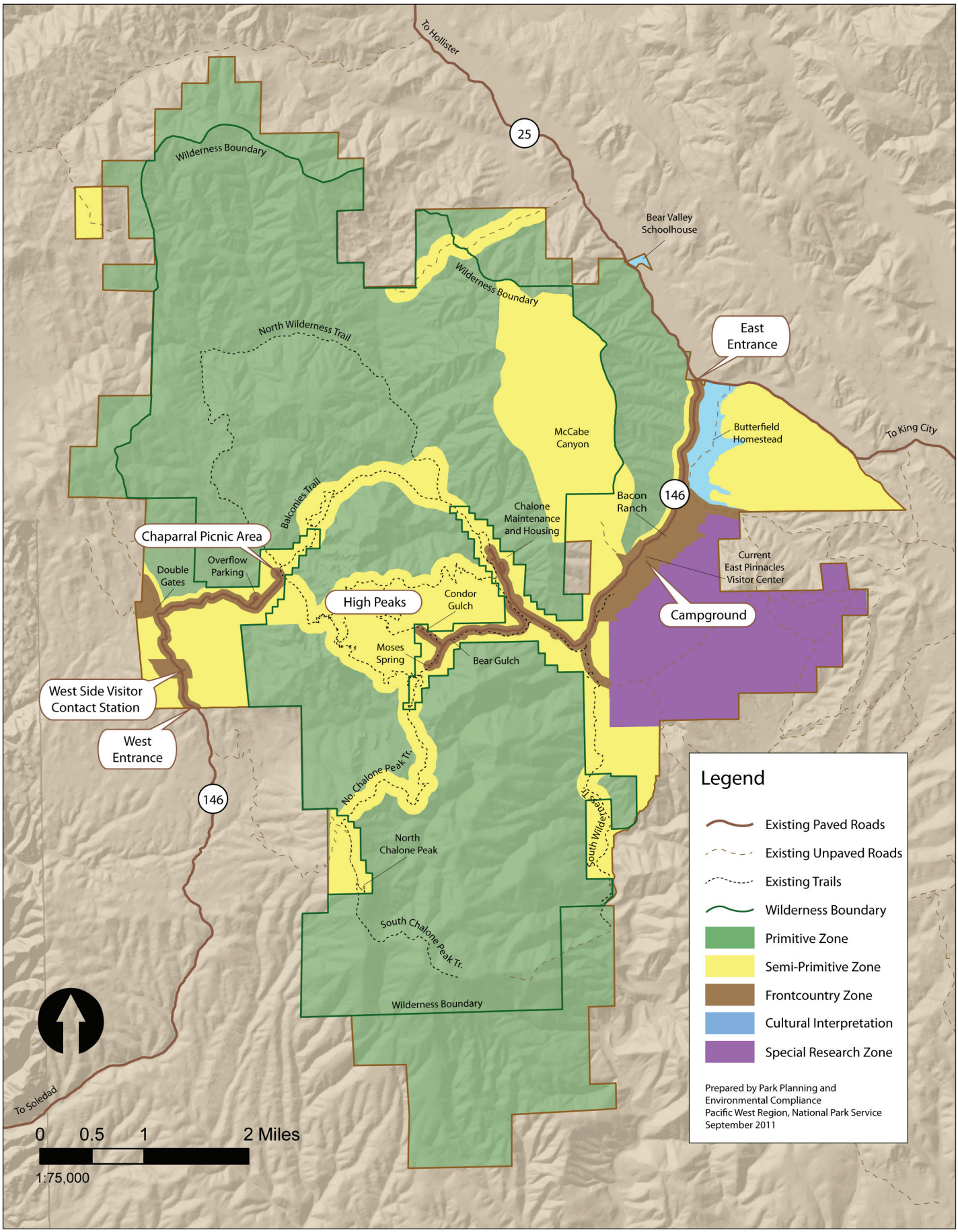
EAST SIDE CAMPGROUND DEVELOPED AREA

The east side campground developed area would provide a wide range of new visitor experiences including a replacement East Pinnacles Visitor Center when the current building reaches the end of its useful life. A new day use area and facilities to serve groups would be developed. As in other alternatives, the campground area would be reconfigured to protect sensitive resources. Campground amenities would be retained including replacement of the campground store. Future site planning would identify specific locations and footprints and would be subject to additional environmental analysis. New trails would improve visitor dispersal and provide new opportunities to experience these areas.

WEST SIDE

Actions would be the same as in alternative C.

Alternative D: Link People and Resources (Preferred Alternative)



BEAR GULCH, CONDOR GULCH, AND CHALONE

Actions would be the same as in alternative C, except Condor Gulch structures would be used as storage instead of office space. In addition a site plan for the Moses Spring parking and picnic area would evaluate opportunities to improve natural hydrologic conditions and habitat functions.

HIGH PEAKS

Visitor use activities would remain essentially unchanged. High Peaks trails would be zoned semi-primitive to allow for periodic higher use by individuals and groups while maintaining wilderness values. New trails throughout the monument would help disperse use from the High Peaks.

MCCABE CANYON

The watershed would be managed to promote natural processes, research, long-term monitoring, education and interpretation, and ethnobotanical practices. Education and interpretation would focus on the interrelationships between natural resources and layers of human history and prehistory. New trails would be provided away from sensitive resources. Park staff could work with traditionally associated people to provide interpretation and incorporate traditional ecological knowledge into resource management, in conjunction with other management techniques.

BEAR VALLEY SCHOOL

Using donated funds to the extent possible, the Bear Valley School building would be rehabilitated as a partnership project for education/interpretation purposes and compatible community use. External interpretive features would be added. Facilities such as a small new comfort station, day use parking area, picnic area, and utilities could be constructed but would be designed and sited so as not to detract from the significance of the historical setting. A small new building for office space for partners or agency staff could also be constructed. See *Common to All* for further guidance.

Photos (top to bottom): 1. Jawbone Canyon. 2. Camping at the east side campground. 3. Visitors participate in a ranger-led hike. 4. Ben Bacon House. NPS photos.

Management Zones

The management zones for alternative D would be applied to monument lands to identify an area's predominant use and desired future conditions. Specific boundaries of the management zones are provided in the map for alternative D. The management zones are explained in further detail in Table 2. The following description identifies the locations and details for the application of management zones in alternative D.

PRIMITIVE ZONE:

The primitive zone would include the following areas:

- The designated wilderness areas where visitors can experience solitude, natural sounds, and a sense of remoteness.
- The area between Highway 146 and McCabe Canyon and north of the canyon excluding a 1,000 foot corridor centered on an unpaved road in the northern part of the monument.
- Remote lands in the northwestern portion of the monument landlocked by wilderness except for a small isolated area in the northwest corner of the monument that includes unpaved road access.
- Popular trails that are within wilderness in the core of the monument would be excluded. A 1,000 foot corridor centered on these trails would be excluded from this zone.
- Most of the southern half of the monument, except for the North Chalone Peak trail, North Chalone Peak area, portions of the South Wilderness trail, and the area east of the South Wilderness trail.

SEMI-PRIMITIVE ZONE:

The semi-primitive zone would include the following areas:

- The upland area east of the bottomlands to provide trails and other recreation opportunities.
- The McCabe Canyon watershed to provide visitor use opportunities, including trails.
- Unpaved roads, including a 1,000 foot corridor centered on an unpaved road in the northern part of the monument and a small isolated section of the monument in the northwest corner that includes unpaved road access.
- A 250 foot corridor west of the Highway 146 frontcountry zone.
- Popular trails in the core of the monument, including a 1,000 foot corridor centered on Juniper Canyon, Rim, Condor Gulch, Bear Gulch, Bench, Old Pinnacles, and Balconies trails.
- Other trails including the North Wilderness Trail section from Old Pinnacles intersection to Willow Spring, North Chalone Peak, South Chalone Peak and South Wilderness Trail.
- All areas near Bear Gulch, Condor Gulch, and Chalone outside wilderness.
- Lands surrounding developed areas on the west side and other potential high use areas, including areas outside designated wilderness.
- A 500 foot corridor north of the double gates and overflow parking areas that would be zoned frontcountry.
- Chaparral areas not zoned frontcountry to provide visitor opportunities including trails.
- The North Chalone Peak area and surrounding area outside wilderness.
- The area south of the condor exclosure area and east of the South Wilderness trail outside wilderness.

FRONTCOUNTRY ZONE:

The frontcountry zone would include the following areas:

- A 500 foot corridor centered on Highway 146 on the east side.
- The lower portion of the Ben Bacon Ranch Historic District, the area east to the existing unpaved road access to private property, the campground and bench area west of Highway 146, and the entrance of McCabe Canyon (includes the development in the bottom of McCabe Canyon to approximately 1,200 feet from the park road). This area would allow for flexibility for siting facilities and a range of visitor use opportunities, including cultural interpretation and recreation, such as trails.
- A 500 foot corridor centered on existing paved roads and structures in the Bear Gulch, Condor Gulch, and Chalone areas.
- A 500 foot corridor centered on Highway 146 on the west side from park entrance to overflow lot, and other paved roads and structures.
- The double gates area, including a 500 foot corridor along existing unpaved roads, and Jawbone Canyon ridges to allow for a small walk-in campground on the west side.
- A 500 foot corridor along the South Wilderness trail/administrative road trail to junction with the road from the condor exclosure area, and up to the exclosure area boundary.

CULTURAL INTERPRETATION ZONE:

The cultural interpretation zone would include the following areas:

- The northern half of the Ben Bacon Ranch Historic District extending 1,000 feet up each drainage.
- The Bear Valley School area.

SPECIAL RESEARCH ZONE:

The area managed for condor research is zoned as special research. Other areas landlocked by this area extending west to the semi-primitive zone are also within this zone.

User Capacity

Monument staff would monitor social and resource indicators, evaluate current conditions against standards, and take appropriate steps to ensure the monument's user capacity is not exceeded (See user capacity section later in this chapter for indicators, standards, and management and monitoring strategies that would be followed under this alternative).

Estimated Costs

Cost estimates for alternative D are identified below in Table 10. The costs shown here are not for budgeting; rather, they are only intended to show a relative comparison of costs between the alternatives.

The implementation of the approved plan will depend on future funding. The approval of this plan does not guarantee that the funding and staffing needed to implement the plan will be forthcoming. Full implementation of the actions in the approved general management plan would likely take many years.

ONE-TIME CAPITAL COSTS

Alternative D would consist of the improvements to facilities and structures described previously in *Facilities*. There would be projects related to preservation of historic structures, restoration of natural areas, and improvements to visitor facilities and construction of new visitor facilities. One-time capital costs include new trails, visitor facilities (includes replacement East Pinnacles Visitor Center and walk-in campground on the west side), facility improvements, removal of underused structures (including west side facilities at Chaparral) and restoration of those areas, and other habitat improvements and resource protection measures.

Projects that involve replacement of infrastructure and other facilities, removal of facilities, and stabilization and rehabilitation of historic structures would address deferred maintenance. Under this alternative, examples of these projects include replacement of the Bear Gulch sewer system (common to all), replacement of the East Pinnacles Visitor Center, removal of parking, road, and comfort station at Chaparral, rehabilitation or removal of the North Chalone Peak Fire Lookout, and stabilization and rehabilitation of cultural resources in the Ben Bacon Ranch Historic District, historic Bear Valley School building, and Condor Gulch historic structures.

Projects are identified as either Priority 1 or Priority 2. Priority 1 projects include deferred maintenance,

Photos (left to right): 1. A ranger assists with parking while visitors line up for the park shuttle. 2. Amphitheater. NPS photos.

natural and cultural resource protection, and the construction of some trails to provide visitor access to the new lands. Priority 1 projects total $6,350,000. Priority 2 projects include facility replacement, facility rehabilitation, removal of facilities and restoration of those areas, and additional trails. Priority 2 costs total $19,650,000. The estimated total one-time capital cost in 2011 dollars is approximately $26,000,000 (see table 9). This cost includes the common to all costs described under alternative A.

STAFFING

Implementation of alternative D would require additional staffing for increased research and restoration efforts, additional cultural resources program needs, new interpretive and educational programming, and additional maintenance needs. In particular, several staff would be needed on the west side for resource protection and visitor needs.

New research and resource management programs proposed in alternative D would require staffing similar to that as proposed in alternative C, including two new full-time staff (physical scientist and cultural resources specialist) and several seasonal or part-time/shared staff (museum technician, GIS specialist, and archeology technician). One full-time position (FTE) is one person working 40 hours per week for one year, or the equivalent.

Interpretation and education staff would be similar to alternative C to meet additional visitor services and provide additional opportunities. In addition to the positions in alternative C, a seasonal interpreter would staff a "visitor information center" in surrounding communities.

Additional staff for the facilities division would be similar to alternative C. New trails, a replacement East Pinnacles Visitor Center, and additional facility needs would require additional trails workers and custodians.

Staffing for wilderness rangers would be the same as in alternative C.

All fire suppression activities within the monument would continue to be managed in Unified Command with California Department of Forestry and Fire Protection (CDF) and NPS.

Four new full time positions would be needed to meet additional park administration needs similar to alternative C.

Proposed New Staffing in Alternative D:

- Research and Resource Management – 3.25 FTE: a physical scientist, cultural resources specialist, and 3 part-time/shared positions including a museum technician, GIS specialist, and archeology technician)
- Interpretation and Education – 6.16 FTE: an interpreter, educator, visitor use assistants/park guides, 2 part-time or seasonal park rangers for cultural programs interpretation and to staff a visitor information center in the surrounding community)
- Facilities – 3.5 FTE: a trails worker, custodian, maintenance worker, and an additional half-time custodian)
- Protection Rangers – 1.5 FTE: a wilderness ranger and an additional seasonal ranger)
- Administration / Superintendent – 4.5 FTE: a budget technician, administrative support assistant, an IT specialist, and a volunteer coordinator)

Total Staffing = 66 FTE. Staffing includes the 47 FTE described under alternative A plus 19 new FTE.

ANNUAL OPERATING COSTS

This alternative would be implemented with additional staff identified in OFS requests under alternative A and additional 19 FTE for resource management and protection, interpretation, maintenance, visitor protection, and administration. The addition of these positions would add approximately $1,350,000 to the operating base for Alternative D. Additional operations and maintenance costs related to capital investments would be $200,000. The total annual operating costs for alternative D would be approximately $5,940,000 per year.

TABLE 9: SUMMARY OF ONE-TIME COSTS FOR ALTERNATIVE D: LINK PEOPLE AND RESOURCES (PREFERRED ALTERNATIVE)

Location	Infrastructure, Facility, and Resource Projects	Facility Rehabilitation	Historic Preservation	Natural Resource Restoration	Facility / Infrastructure Replacement	New Construction	Facility Removal	Priority
Ben Bacon Ranch Historic District	Preserve (stabilize or rehabilitate) Ben Bacon Ranch core historic structures*		$280,000					1
	Bacon House – adaptively reuse for office space		$340,000					1
	Preserve and rehabilitate Butterfield Homestead historic resources for adaptive reuse*		$330,000					1
	Bottomlands area – manage invasive nonnative species*			$380,000				1
Bear Gulch	Replace sewer system*				$2,500,000			1
	Rehabilitate Bear Gulch Road to improve drainage*				$3,710,000			2
	Replace telecommunications and electric lines in Bear Gulch*				$3,070,000			2
	Chief Ranger House (Bldg #2) - adaptively reuse for office space	$10,000						2
Pinnacles Campground	Construct East Pinnacles Visitor Center				$2,575,000	$2,575,000		2
	Construct replacement campground store and concession office (remove concession trailer)				$470,000			2
	Install bike racks at campground, nature center and trailheads					$30,000		1
Bear Valley	Stabilize historic school building*		$400,000					1
Chalone	Remove / replace east side entrance station				$440,000			2
	Construct accessible Bench trail improvement					$250,000		1
	Construct accessible Valley Oak interpretive loop trail					$440,000		2
Condor Gulch	Rehabilitate Historic Gas House Building and Horse Barn*		$80,000					2
McCabe Canyon	Construct loop trail, including portion of ridge					$120,000		1
	Restore disturbed areas to improve hydrology			$30,000				1
Moses Spring	Prepare site plan for Moses Spring parking and picnic area to improve natural hydrologic conditions			$100,000				2

Location	Infrastructure, Facility, and Resource Projects		Facility Rehabilitation	Historic Preservation	Natural Resource Restoration	Facility / Infrastructure Replacement	New Construction	Facility Removal	Priority
West Side	North Chalone Peak Fire Lookout – rehabilitate or remove:								
	Rehabilitate and adaptively reuse contingent upon partnership funding (This cost is the same as alternative C)**		*$2,560,000*						2
	Remove fire lookout							$370,000	2
	Improve Chaparral picnic area*		$120,000						1
	Remove Chaparral facilities (including parking, road section, comfort station, vault tanks) and restore hydrologic functions							$5,260,000	2
	Expand day use parking, create trailhead at overflow parking, and add vault toilets (relocate day use facilities from Chaparral)					$300,000			2
	Construct connector trail – link West Side visitor contact station						$680,00		1
	Construct west side walk-in campground						$410,000		1
Wilderness	Construct South Wilderness trail connection between the South Chalone Peak trail and South Wilderness trail*						$150,000		2
	Develop minimal backcountry campsites						$10,000		1
Parkwide	Picnic/group sites: Improve existing picnic areas; construct new picnic sites at Bottomlands, west side, and hike-in sites; construct picnic pavilion						$440,000		1
	Construct additional waysides / interpretive exhibits						$30,000		1
	Improve shuttle stops		$100,000						2
	Total for Priority 1 Projects:	**$6,350,000**	$120,000	$1,350,000	$410,000	$2,500,000	$1,970,000	$0	
	Total for Priority 2 Projects:	**$19,650,000**	$110,000	$80,000	$100,000	$10,565,000	$3,165,000	$5,630,000	
	Costs by Category:		**$230,000**	**$1,430,000**	**$510,000**	**$13,065,000**	**$5,135,000**	**$5,630,000**	
	TOTAL ONE-TIME COSTS:	**$26,000,000**							

Notes:

***** = Cost items that are common to all alternatives

** = Under alternative D, there are two treatment options for North Chalone Peak Fire Lookout (rehabilitate contingent upon external funding or remove the fire lookout. The cost for removal is used for the total cost for this alternative, as rehabilitation would only occur with external (partnership) funding.

- Projects are identified as either "Priority 1" or "Priority 2" projects. Priority 1 projects include deferred maintenance, natural and cultural resource protection, and the construction of some trails to provide visitor access to the new lands. Priority 2 projects include facility replacement, facility rehabilitation, removal of facilities and restoration of those areas, and additional trails.
- Costs include NPS Class C estimate mark-ups, including location factors, design contingency, construction management, and construction contingency.
- Trails have not been designed; descriptions include approximate length.

TABLE 10: ALTERNATIVE D SUMMARY OF COSTS

Annual Operational Costs	
Existing Annual Operational Costs	$3,600,000
Additional Staffing Costs: +9 FTE (alternative A)* +19 FTE (alternative D)	 790,000 $1,350,000
Additional Operations & Maintenance Costs Related to Capital Investments	$200,000
Total Annual Operational Costs	$5,940,000
One-time Capital Costs	
Facility Rehabilitation	
Priority 1 Projects**	$120,000
Priority 2 Projects	$110,000
Historic Preservation	
Priority 1 Projects	$1,350,000
Priority 2 Projects	$80,000
Natural Resource Restoration	
Priority 1 Projects	$410,000
Priority 2 Projects	$100,000
Facility / Infrastructure Replacement	
Priority 1 Projects	$2,500,000
Priority 2 Projects	$10,565,000
New Construction	
Priority 1 Projects	$1,970,000
Priority 2 Projects	$3,165,000
Facility Removal	
Priority 1 Projects	$0
Priority 2 Projects	$5,630,000
Total Priority 1 Projects	**$6,350,000**
Total Priority 2 Projects	**$19,650,000**
Total One-time Capital Costs	**$26,000,000**

Notes:

*The additional 9 FTE under alternative A are included in two OFS requests that been Regionally prioritized. The current staffing level is below the authorized level; the additional staffing would add 4 FTE to the authorized level of 43 FTE.

**Priority 1 projects include deferred maintenance, natural and cultural resource protection, and the construction of some trails to provide visitor access to the new lands. Priority 2 projects include facility replacement, facility rehabilitation, removal of facilities and restoration of those areas, and additional trails.

Photos (top to bottom): 1. Climbing and hiking advisory signs on the west side. 2. View of the overflow parking area. NPS photos.

User Capacity

Overview

General management plans (GMPs) for national park system units are required by law to identify and address implementation commitments for user capacity, also known as carrying capacity. The National Park Service (NPS) defines user capacity as the types and levels of visitor use that can be accommodated while sustaining the quality of park resources and visitor experiences consistent with the purposes of the park. Managing user capacity in national parks is inherently complex and depends not only on the number of visitors and the sensitivity of park resources, but also on where the visitors go, what they do, and the "footprints" they leave behind. In managing for user capacity, park staff and partners rely on a variety of management tools and strategies rather than relying solely on regulating the number of people in a park area. In addition, the ever-changing nature of visitor use in parks requires a deliberate and adaptive approach to user capacity management.

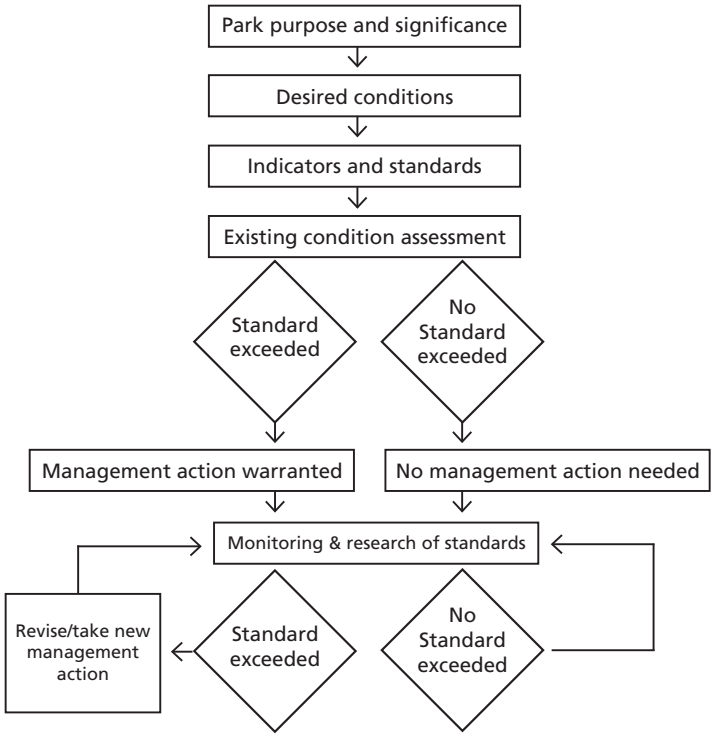
The foundations for making user capacity decisions in this GMP are the purpose, significance, special mandates, and management zones associated with the park. The purpose, significance, and special mandates define why the park was established and identify the most important resources, values, and visitor use opportunities that would be protected and provided for. The management zones in each action alternative describe the desired resource conditions and visitor experiences, including appropriate types of activities and general use levels, for different locations throughout the park. The zones, as applied in the alternatives, are consistent with, and help the NPS achieve, its specific purpose, significance and special mandates. As part of the NPS's commitment to implement user capacity, park staff would abide by these directives for guiding the types and levels of visitor use that would be accommodated while sustaining the quality of park resources and visitor experiences consistent with the purposes of the park.

In addition to these important directives, this plan includes indicators and standards for Pinnacles National Monument. Indicators and standards are measureable variables that would be monitored to track changes in resource conditions and visitor experiences. The indicators and standards help the NPS ensure that desired conditions are being attained, supporting the fulfillment of the monument's legislative and policy mandates. The GMP also identifies the types of management actions that would be taken to achieve desired conditions and related legislative and policy mandates.

Table 11 includes the indicators, standards, and potential future management strategies, allocated by management zones, that would be implemented as a result of this planning effort. The planning team considered many potential issues and related indicators that would identify impacts of concern, but those described below were considered the most important, given the unique characteristics and vulnerability of the resource or visitor experience affected by visitor use. The planning team also reviewed the experiences of other parks with similar issues to help identify meaningful indicators. Standards that represent the minimum acceptable condition for each indicator were then assigned, taking into consideration the qualitative descriptions of the desired conditions, data on existing conditions, relevant research studies, staff management experience and expertise, and scoping related to public preferences.

User capacity decision making is a form of adaptive management (see figure 1) because it is an iterative process in which management decisions are continuously informed and improved. Indicators are monitored, and adjustments are made as appropriate based on a thorough problem analysis. As monitoring of conditions continues, managers may decide to modify or add indicators if better ways are found to measure important changes in resource and social conditions. Information on the NPS monitoring efforts, related visitor use management actions, and any changes to the indicators and standards would be available to the public.

FIGURE 1: USER CAPACITY FRAMEWORK



Resource Indicators and Standards

The priority *resource* indicators for Pinnacles National Monument are associated with the following issues:

- Disturbance to archeological and cultural sites
- Reports of intentional vandalism
- Changes in native plant communities from the introduction and spread of nonnative invasive plant species
- Visitor created trails
- Known entry into closed, sensitive areas of the monument
- Bare ground in high use riparian areas

The condition of these resources is already being monitored and managed in various ways, but the indicators described below would help the monument staff track specific influences to these resources as a result of visitor use.

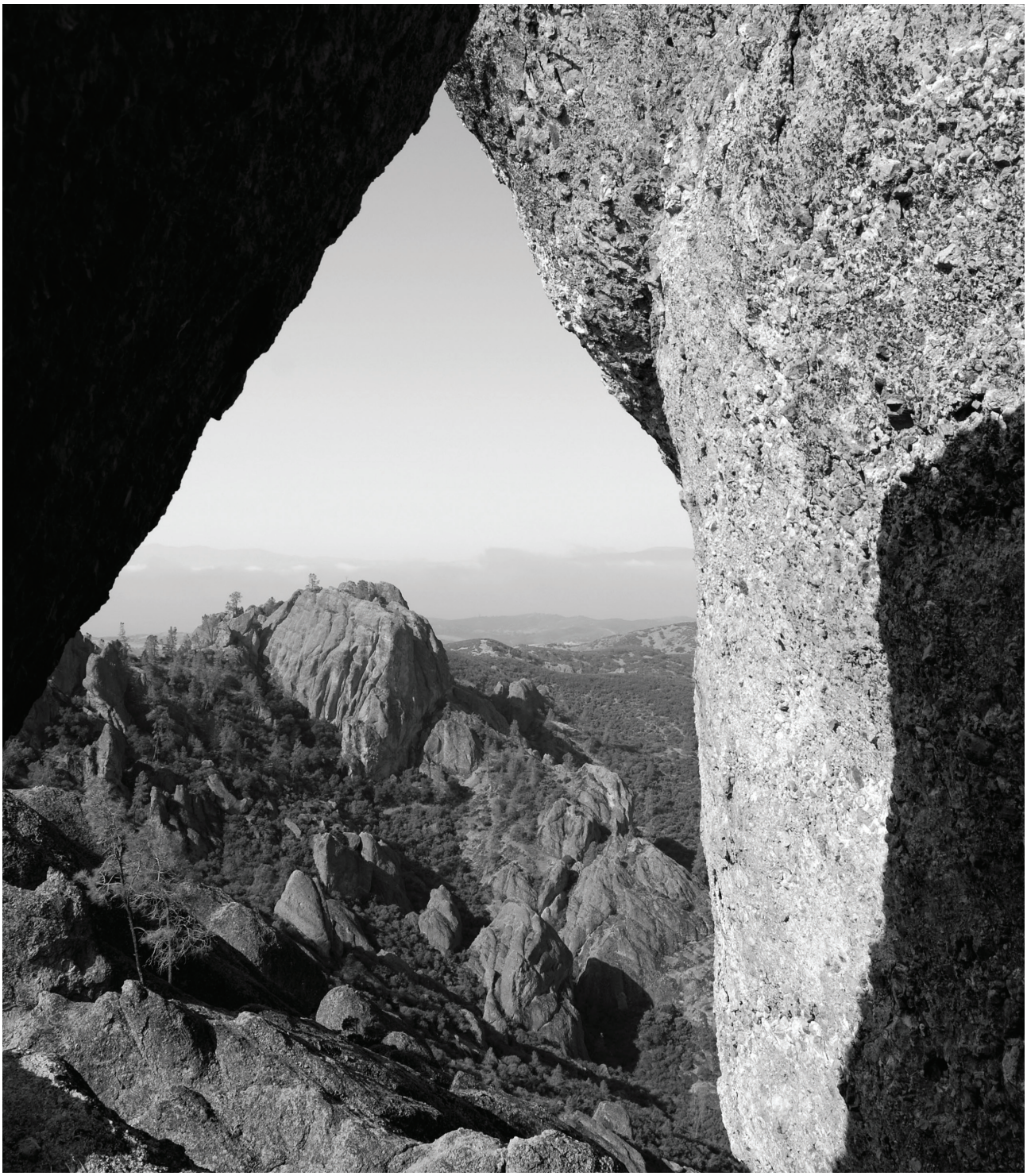
Disturbance to archeological and cultural sites: Visitor use impacts on archeological and cultural sites include wear on historic structures and unintentional disturbance to archeological resources and historic structures. Cultural resources are nonrenewable, so impacts, especially those resulting from disrespectful behavior, must be minimized to the extent possible. The monument staff is already using internal guidelines to monitor cultural resources. The indicator for human impacts to archeological and cultural sites is based on this existing monitoring protocol. Management efforts would be focused on maintaining the integrity and condition of all sites, so the standard has been set at no more than one observed disturbance per year. To ensure that this standard is maintained, visitor education and enforcement of park regulations would continue, and fencing or closure of particularly vulnerable areas would be considered.

Reports of intentional vandalism: Natural and cultural resources are also vulnerable to intentional acts of vandalism such as graffiti on rocks or historical structures, carving letters or symbols into trees, knocking down rock walls, scraping/ picking moss from boulders and rock wall surfaces, defacing signs, driving off-road, and building fires in the talus caves or anywhere outside designated areas in the campground. The monument staff is already tracking this visitor impact to cultural, historical and natural resources. The indicator for vandalism is based on this existing monitoring protocol. Management efforts would be focused on maintaining the integrity and condition of all sites by not allowing more than six incidences of intentional vandalism per year. To ensure that this standard is maintained, visitor education and enforcement of park regulations would continue, and a possible increase in surveillance and/or closure of particularly vulnerable areas would be considered.

Introduction and spread of nonnative invasive species: The spread of invasive species is one of the most pressing ecological issues facing public land managers today. Invasive species are also considered one of the major threats to biodiversity. Monument staff and the NPS inventory and monitoring program are already tracking the introduction and spread of invasive species. Linking the introduction and spread of invasive species to visitor use is often difficult. For this reason, monitoring would focus on new species/populations along the primary trail corridors and primary roads, and would be linked to existing inventory and monitoring protocols. One goal of existing management activities is to minimize the introduction of new and the spread of existing invasive nonnative species, so the standard was set at no more than two new priority invasive plant species appearing along high use trail corridors and primary roads within a three year period (See list of priority invasive plants in the *Affected Environment*). Also, to ensure that invasive species are not proliferating elsewhere in the monument, the standard was set at no more than three new distinct populations of priority species known to be elsewhere in the monument. Monument staff could provide visitors with related educational programs and/or materials and increase early detection monitoring of invasive species to make certain this standard is not exceeded.

Visitor created trails: Visitors leaving designated trails can cause impacts in areas adjacent to the trail, such as erosion, compaction of soils, and loss of vegetation. Disturbed areas are also prime habitat for invasive species. Visitor created trails often lead to precarious overlooks, areas of loose rock, and sensitive cultural and natural areas that are a concern for monument staff due to safety and resource impact issues. Monitoring the number of visitor created trails per year will allow monument staff to ensure that the resources adjacent to designated trails are not being adversely impacted. Within the High Peaks area, the standards of no more than a net increase of 4 visitor-created trails per year and no more than 25 visitor-created trails at any given time were chosen because of the flexibility in measuring several visitor impacts at once (e.g. erosion, compaction). Twenty-five is the baseline number of social trails allowed in the High Peaks area. The baseline condition for other areas in the monument will be determined as data become available. The monument could apply similar indicators and standards to the other areas in the future. These measures provide park managers with the

View from the High Peaks Trail. NPS photo.



flexibility to monitor these indicators when new trails are constructed in the monument. The net increase of social trails and the cap on the number of social trails may be adjusted if the park adds new trails to the official trail system. If the standard for this indicator were exceeded and if it is determined that unauthorized trails are caused by visitor use, the following management strategies are among those that could be used: temporary or permanent trail closures, visitor education, increased enforcement, improved delineation of designated trails and overlooks, redesign or relocation of trails or overlooks, revegetation / removal of unauthorized trails, formalization of unauthorized trails to accommodate visitor interest, the installation of temporary or permanent signage, and limiting or reducing levels of use.

Unauthorized entry into closed, sensitive areas of the monument: Pinnacles National Monument has several areas that are subject to closure because of the potential to affect certain sensitive species. Two species are the Townsend's big-eared bat (*Corynorhinus townsendii*), listed as a sensitive species by the state of California, and the California condor (*Gymnogyps californianus*), a federally endangered species. The monument has been a vital site for the protection of the California condor and continues to foster its recovery. Certain areas of the monument may be closed to visitation depending on where the birds choose to nest and raise their young. In addition, certain talus caves in the monument are important habitat for the bats. For this reason, the caves are fully closed from mid-May to mid-July while the bats are raising their young and in October with partial closures in other times of the year. These two examples demonstrate the importance of an indicator that measures the disturbance to sensitive species. The monument staff already monitors for unauthorized entries into these closed areas, and the standard will be set at no more than two unauthorized entries into these closed areas per year. This standard will help minimize disturbances and protect these sensitive species. Management strategies that address this indicator include education, the installment of barriers, more intensive monitoring and patrols of the sensitive areas, as well as the installation of sensors and/or cameras.

Bare ground in high use riparian areas: Riparian areas within the monument are sensitive to visitor use and thus use in these areas has the potential to cause greater impacts than in other areas. As with social trails, impacts such as an increase in bare ground, a loss of vegetation, soil compaction, and erosion are all possible outcomes of visitor use in the monument's riparian areas. A few areas are especially vulnerable to impacts because they accommodate a high number of visitors. The campground has several campsites located in a sensitive riparian area and the picnic area at Bear Gulch, adjacent to the riparian area, gets a great deal of day use. Adhering to the standard of no more than a 10% increase in bare ground for the monument's riparian areas will help to maintain the riparian areas in as pristine a condition as possible while accommodating a reasonable amount of visitor use. When evaluating this indicator and standard, monument staff would need to consider natural events, such as floods that may also contribute to an increase in the overall bare ground. If the monitoring of the percent of bare ground in riparian areas starts to trend upward, management strategies such as education of visitors, re-routing of trails, strategic fencing, reduction of the number of available opportunities in the riparian areas, moving campsites to a less sensitive location and temporary closure of highly impacted areas may be used.

Visitor Experience Indicators and Standards

The priority *visitor experience* indicators for Pinnacles National Monument would be associated with the following issues:

- Crowding and use conflicts
- Wait times at parking areas
- Visitor participation in park programs and activities

Similar to the resource indicators, visitor use opportunities and related experiences in the monument are already being monitored and managed in various ways, but the indicators described below would help the monument staff track these specific issues more systematically to ensure that desired conditions are being achieved.

Many people visit Pinnacles National Monument seeking a wilderness experience and solitude. Crowding and conflicts can be of particular concern for such visitors. A study conducted in 2003 found that 77% of visitors felt wilderness was extremely to very important; 91% of visitors felt natural sounds/quiet was extremely to very important; 72% felt that experiencing solitude was extremely to very important (NPS 2003). To protect these values that visitors have stated are important to them, an indicator of the number of people at one time was identified as an important measure of crowding. The monument is currently expanding its efforts to collect more detailed visitor use information to further develop this indicator and standard. Given the importance of this issue to the visitor experience and the need to strategically and

Visitors cool off during summer at the east side campground swimming pool. NPS photo.

comprehensively manage visitor activities during high use times, the monument staff believes that a more thorough analysis of this issue is necessary and prudent prior to establishing the indicator and standard. This assessment was in progress at the time of publication of this plan. When the standard is developed, it will help reduce the influences of crowding on visitor use opportunities to experience solitude or natural sounds. If management action is deemed necessary, then monument staff can provide educational programs to help disperse use, impose group size limitations, conduct soundscape monitoring, administer permits, or require a reservation system.

Maintaining high levels of visitor satisfaction with park experiences is an important management goal. Because of the high levels of use that occur at the monument during peak use times, visitors often have to drive around looking for a parking spot, are unable to park near the main attractions, have to wait for a shuttle to get to the main attractions, or are unable to get in to the park. Those that cannot get into the monument often have to wait until a parking space opens, or on rare occasions, they park outside the monument and walk in. The monument staff has established that current wait times to enter the park at peak times are generally considered unacceptable and may be detracting from visitors' experiences and overall satisfaction with their visit. Parking outside the monument boundary and walking into the park along the main road poses a safety hazard both to those driving and those walking along the road. To track this issue over the long term, an indicator for wait times to enter the park would be monitored. A preliminary standard of no more than a 20-45 minute wait to park during peak use times is proposed. The low end of this standard is within the recommended wait time proposed in a 2008 transportation study conducted at the monument (Nelson/Nygaard Consulting 2008). Research is underway to determine wait times to enter the monument, however, and further evaluation and validation of this standard is needed. If management action is deemed necessary, education about peak use times, real time information about current use, additional enforcement and potentially a reservation system would help park staff maintain desired conditions during peak use times.

The monument's interpretive and outreach programs are intended to educate visitors and local community members about what makes Pinnacles National Monument unique and worthy of conservation. The number of visitors participating in interpretive programs and the time monument staff spends participating in outreach activities is part of a current monitoring protocol. The standard will be no less than 6% of total visitation per year participates in monument programs and activities, which is consistent with current participation rates. If participation rates begin to trend downward, then monument staff would evaluate the effectiveness of current program offerings, provide more opportunities for outreach and interpretation, or increase community engagement programs.

Long-term Monitoring

The monument staff would continue monitoring use levels and patterns, including user capacity indicators, throughout the monument. The rigor of monitoring the indicators (e.g., frequency of monitoring cycles, amount of geographic area monitored) might vary considerably depending on how close existing conditions are to the standards. If the existing conditions are far from exceeding the standard, the rigor of monitoring might be less than if the existing conditions are close to or trending toward the standard.

Initial monitoring of the indicators would determine if the indicators are accurately measuring the conditions of concern and if the standards truly represent the minimally acceptable condition of the indicator. Monument staff might decide to modify the indicators or standards and revise the monitoring program if better ways are found to measure changes caused by visitor use. Most of these types of changes should be made within the first several years of initiating monitoring. After this initial testing period, adjustments would be less likely to occur. Finally, if use levels and patterns change appreciably, the monument staff might need to identify new indicators to ensure that desired conditions are achieved and maintained. This iterative learning and refining process, a form of adaptive management, is a strength of the NPS user capacity management program.

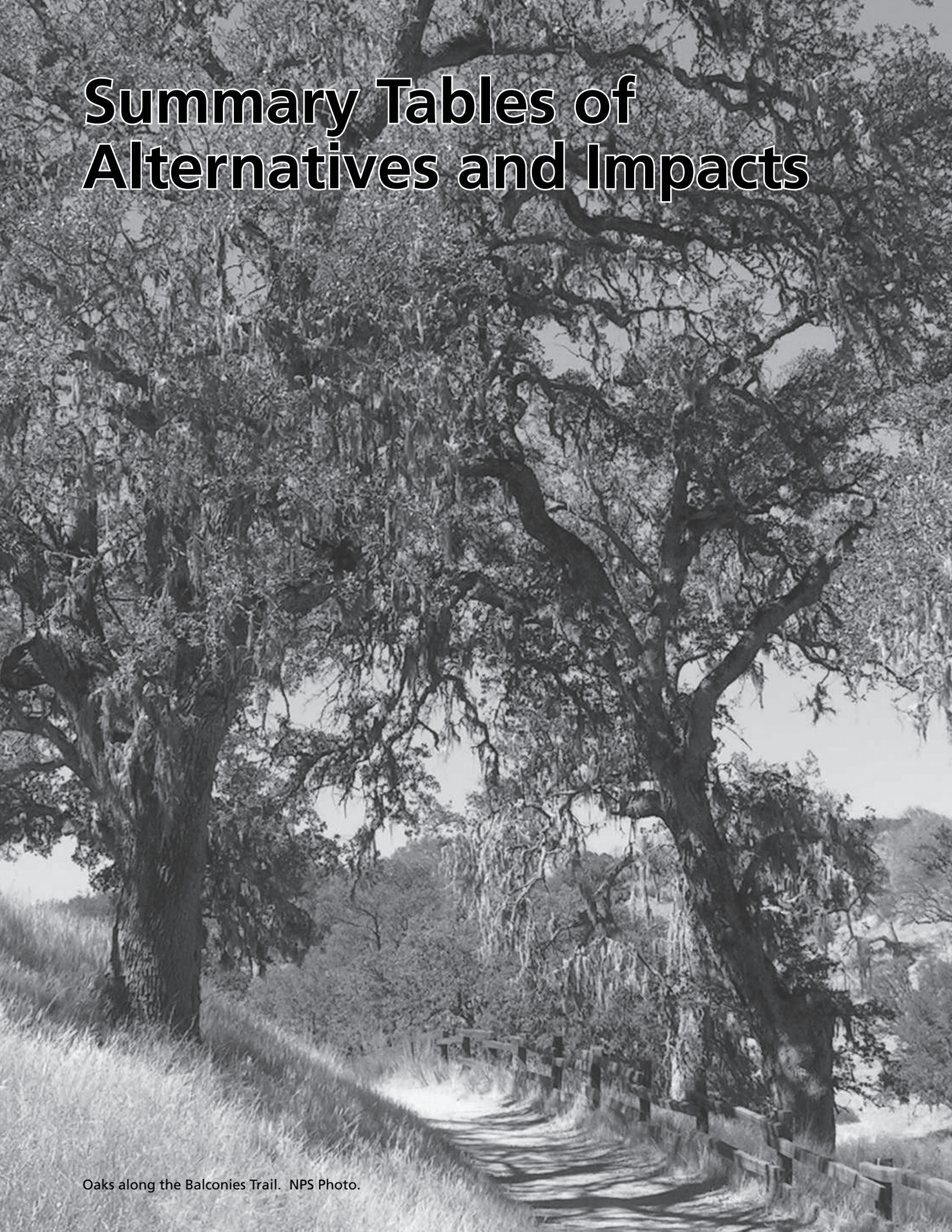
TABLE 11: SUMMARY OF USER CAPACITY INDICATORS, STANDARDS, AND POTENTIAL MANAGEMENT STRATEGIES

Indicators	Standards	Management Strategies
# of observed disturbances to archeological and cultural sites.	No more than 1 observed disturbance per year.	• Take appropriate law enforcement action • Consultation of park cultural resource specialist on preservation strategies • Outreach/education/waysides • Signage (e.g. stay on trails) • Increased monitoring of sites • Fencing of areas • Repair/rehab of sites • Rerouting of a trail to avoid area • Make more impervious to visitor use by hardening the site • Remote sensors to monitor activity • Closure of a site
# of incidences of reported intentional vandalism.	No more than 6 incidences of intentional vandalism per year.	• Take appropriate law enforcement action • Visitor education • Community outreach • Signage • Community patrols • Ranger patrols • Increase surveillance • Rehabilitation of affected site • Limit access • Site closures
Increase in new species/ populations along high-use trail corridors and primary roads.	No more than 2 new priority invasive nonnative plant species detected within a 3 year period along high use trails and primary roads. Additionally, no more than 3 new distinct populations of priority species known to be elsewhere in the monument.	• Education to increase preventative measure • Increase early detection monitoring • Trail and/or road closures
1. Net increase in visitor-created trails per year (rate) in the High Peaks area. 2. Number of visitor-created trails at any given time (cap) in the High Peaks area.	1. No more than a net increase of 4 visitor-created trails per year in the High Peaks area. 2. No more than "25" visitor-created trails at any given time (25 = baseline) in the High Peaks area.	• Take appropriate law enforcement action • Education • Signs • More monitoring • Barriers • Guided hikes/access limitations • Removal/rehabilitation of trails • Reroute of trail • Expansion of existing trails • Permits
Number of unauthorized entries into closed areas per year.	No more than 2 unauthorized entries into closed areas per year.	• Education • Additional barriers • Additional monitoring • More patrols • Installation of sensors

Indicators	Standards	Management Strategies
% of bare ground in riparian areas in high use areas.	No more than 10% overall increase (over the current baseline) in area that is bare ground in riparian areas.	• Take appropriate law enforcement action • Education • Signs • Barriers • More monitoring • Guided hikes/access limitations • Permits • Removal/rehab of bare ground • Reroute of trail • Reduce number of visitor facilities/experiences • Temporary closures • Relocation of visitor services
Number of people at one time at a destination (excluding frontcountry).	The amount of people at a destination at one time will be managed to sustain the desired visitor experience* *The exact metric and associated standard will be determined through additional research.	• Education to disperse use • Interpretive programs designed to disperse use • Signs/wayfinding • More monitoring • Guided hikes/access limitations • Group size limitations • Alternative parking strategies • Time restrictions • Temporary closures • Reroute of trail • Soundscape monitoring • Permits • Reservation
Wait time for parking during peak use periods.	Visitors will not wait more than 20-45 minutes for a parking space during peak use periods* * The exact metric and associated standard will be determined through additional research.	• Redirect visitors to other destinations • Trip planning/education about off peak times/ Additional signage • Electronic sign on the HWY • Additional shuttles inside park • Shuttle from outside the park • Reservation system
% of annual visitors participation in monument programs and activities.	6% of annual visitors will participate in monument programs and activities	• Evaluation of current programs • Advertise programs • Enhance education and outreach • Increase community engagement

Wildflowers of Pinnacles. Clockwise from top left: California Buckeye, Indian Paintbrush, Sticky Monkeyflower, Mariposa Lily, Foothill Penstemon, Chamise, Venus Thistle, Elegant Clarkia. NPS Photos.

Summary Tables of Alternatives and Impacts



Oaks along the Balconies Trail. NPS Photo.

TABLE 12: ALTERNATIVES SUMMARY

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Concept			
This alternative provides a baseline for evaluating changes and impacts in other alternatives. Under this alternative, the NPS would continue to manage Pinnacles as it is currently managed, following existing management policies and programs.	Pinnacles would provide visitors with high quality backcountry experiences, including solitude, quiet, and views of natural settings. Resources and opportunities would be managed in an integrated fashion for protection, restoration, and maintenance of natural and cultural resources and backcountry experiences, in cooperation with the surrounding communities and neighbors.	Pinnacles would provide an expanded array of visitor use opportunities, including recreation, interpretation, and education, consistent with the NPS mission and regional needs. Opportunities would be provided on the new lands and other areas that receive lower visitor use. Diverse types of activities and groups would be encouraged.	Pinnacles would engage a broad range of visitors in the enjoyment, understanding, and stewardship of natural and cultural resources and values of the Gabilan Mountains ecoregion. Pinnacles would focus on ways to connect diverse audiences and resources, to acknowledge the interrelationship between natural and cultural resources, and to protect, preserve, and restore ecological communities and processes.
Visitor Experience			
Recreation - Common to All: Recreational opportunities would be dispersed to reduce congestion and improve visitor experience quality. Existing recreation activities such as hiking, climbing, and picnicking would continue. Developed camping would continue at the east side campground. Climbing use would continue in congruence with raptor advisory updates and voluntary closures. The monument would continue to work in close coordination with the climbing community, including the Friends of Pinnacles – an organization focused on climbing. A Climbing Management Plan would be developed. Existing bolted routes would be allowed where critical resources are not adversely affected. New recreational facilities may include additional trails. A South Wilderness Trail connection would be constructed.			
Recreation Visitor service levels would continue. A diversity of uses, including hiking, climbing, viewing scenery, developed camping, and picnicking would be provided.	***Recreation*** Provide high quality backcountry experiences by dispersing visitor use and minimizing direct visitor management. More areas would be zoned "primitive" to reduce crowding, protect viewsheds, and minimize development. To promote a sense of solitude, group size limits may be instituted, especially on wilderness trails.	***Recreation*** Reach out to a broad audience by offering a wider range of recreational opportunities, including horseback riding and backcountry camping when such uses do not detract from resource or social values. More areas would be zoned "semi-primitive" and "frontcountry" to encourage a wider variety of uses.	***Recreation*** Connect visitors, communities, and resources. A moderate portion of the monument would be zoned to allow for group uses.
The current trail system would be maintained.	Construction of new trails, including remote wilderness connections and trails on the bottomlands and surrounding canyons would provide a diversity of experiences and would disperse visitors.	Construction of new trails would provide a wide variety of experiences, from remote wilderness connections to short accessible loops and interpretive trails, and to disperse use from the core of the monument.	As in alternative C, construction of new trails would provide a wide variety of experiences, from remote wilderness connections to short accessible loops and interpretive trails, and to disperse use from the core of the monument.

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
A road for administrative vehicle use and visitor use for hiking and bicycling would connect the campground to the bottomlands with a section following an existing road alignment.	Same as alternative A.	A road for administrative vehicle use and visitor use for hiking, bicycling, and equestrian use would connect the campground to the bottomlands with a section following an existing road alignment.	Same as alternative A.
Bicycling opportunities at the campground and on paved roads would continue.	Same as alternative A.	Allow biking on dirt roads outside wilderness. Add bike racks at east-side trailheads.	Same as alternative A.
Current picnic and group facilities would remain. Minor improvements (such as adding shade) could be made.	Small to medium-sized groups would be accommodated, including the addition of some small walk-in picnic areas. No new facilities for large groups.	Picnic areas would be provided on both sides of the monument near visitor service areas.	Same as alternative C.
No horseback riding use by visitors.	Same as alternative A.	Allow equestrian use on designated roads and trails at the bottomlands to the extent that it is compatible with the historic landscape.	Same as alternative A.
No backcountry camping use by visitors.	Same as alternative A.	A small number of backcountry campsites would be established on a trial basis, if suitable locations could be identified. Future site planning would identify specific locations and footprints and would be subject to additional environmental analysis. If located in wilderness, the specifications of the backcountry campsites, would be decided in a Wilderness Stewardship Plan.	Same as alternative C.
No west side walk-in campground.	Same as alternative A.	Construct a walk-in campground (up to 10 sites) on the west side.	Same as alternative C.

Interpretation and Education - Common to All:

Continue to provide interpretive programs and media regarding monument significance.

Education programs such as Camp Pinnacles would continue.

The Comprehensive Interpretive Plan would be updated and would include new opportunities for education and interpretation of cultural resources.

The monument would consider multi-use options for the Bear Gulch nature center including administrative purposes and visitor orientation.

A virtual museum would be developed to provide public access to a portion of Pinnacles' museum collections.

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Interpretation and Education Provide current interpretive services. Continue limited education programs.	***Interpretation and Education*** There would be limited interpretive and educational facilities and guided programs.	***Interpretation and Education*** Serve multiple audiences through a wide variety of media and programming, including interactive displays, more waysides on trails, additional interpretive materials, and more opportunities for visitor involvement in science and stewardship projects. Education programming would focus on significant resources and the broader regional history.	***Interpretation and Education*** Focus on science and history learning. Interpret significant resources through an increase in formal programs, informal interpretation, waysides, and brochures. Emphasize visitor involvement in science and stewardship projects.
Current interpretation facilities would remain. Continue to provide visitor information at the east side entrance station (on weekends), Bear Gulch Nature Center, East Pinnacles Visitor Center, and West Pinnacles Visitor Contact Station.	Formal interpretation and education on wilderness values would be enhanced and would be provided when possible outside the monument or at the monument's perimeter.	Provide indoor space for interpretation and education on both sides of the monument.	"Outdoor classroom" opportunities, including programming and curriculum development, would provide visitors with opportunities to learn about significant resources and the monument's broader context.
Continue to provide non-personal interpretive information (waysides, internet information, trailhead and facility bulletin boards).	Avoid placing waysides, bulletin boards, and signs on trails and near wilderness areas. Remove existing waysides in wilderness.	As described above, a variety of media including displays, waysides and additional interpretive materials would be provided.	Passive interpretation (e.g. waysides) could be provided at the Butterfield homestead, McCabe Canyon, and the West Side mining district.
No staff for regional visitor and interpretation centers.	Same as Alternative A.	Same as Alternative A.	The monument could participate in developing and staffing regional visitor and interpretation centers.
Facilities			
Common to All: The monument would plan for the removal or relocation of facilities from flood prone areas that do not contribute to the historical significance of the monument and are not being used for park operations. Natural processes would be restored in these areas where feasible. Building footprints would be compact, by using previously disturbed areas where possible and minimizing impacts on ecological components and processes. Pinnacles would take measures to reduce energy use (carbon emissions) through monument operations and to increase energy and fuel efficiency using sustainable facility design and other means, such as by expanding shuttle use during peak visitation periods.			
Most facilities and trails would remain and continue to be maintained, including minor improvements to visitor facilities.	Minimize development footprint. Remove structures that do not contribute to the historical significance of the monument and are not being used for park operations.	Facilities would be focused on supporting an expanded array of visitor use opportunities.	Facilities would be used to support increased visitor understanding of natural and cultural resources and/or to serve management, operational, and administrative functions.

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
East Side Facilities - Common to All: The east side campground would be reconfigured to protect sensitive riparian areas, improve operations, and to improve visitor experience. An amphitheater and store would be retained in the campground. Headquarters would remain at Bear Gulch, but if Bear Gulch headquarters buildings are heavily damaged or lost (e.g. fire or flood), headquarters would be rebuilt outside of Bear Gulch in a suitable location in the frontcountry zone (for example, on the bench across the road from the Pinnacles campground). On the bottomlands, some historic structures would be stabilized and could also be adaptively reused (see "Cultural Resources"). Existing utilities would be replaced as needed, including the Bear Gulch sewer system. Most housing would continue to be located at Chalone and could be expanded if needed. Maintenance facilities would remain at Chalone. Existing roads would be maintained, except as noted in some alternatives and management zone maps. If administrative roads are no longer needed, they could be removed, re-contoured, or used as trails. McCabe Road would be used by administrative vehicles only. A public trail and administrative roads would provide access to the bottomlands. A shuttle service with stops at the East Pinnacles Visitor Center, Bear Gulch, campground, and other major sites would continue to be used to reduce congestion and carbon emissions from visitor vehicles. The monument would continue to pursue environmentally friendly shuttle vehicles and operations.			
East Side Facilities The visitor center would remain at the campground store.	***East Side Facilities*** A small replacement visitor center (approximately 1,500sf) and campground store would be constructed in the vicinity of the campground when the current structure reaches the end of its useful life.	***East Side Facilities*** A larger replacement visitor center (approximately 6,000sf) would be built between the Highway 25 entrance and the campground when the current structure reaches the end of its useful life. A replacement campground store would also be constructed in the campground.	***East Side Facilities*** A replacement visitor center (approximately 3,800sf) and campground store would be built in the vicinity of the campground when the current structure reaches the end of its useful life.
The day use/picnic area would remain.	A new picnic area would be constructed.	Construct a picnic area and a covered picnic structure for groups.	Same as alternative B.
The entrance station would remain in its current location just beyond the campground.	A replacement entrance station would be installed between the entrance and campground.	A replacement entrance station would be installed between the entrance and visitor center.	Same as alternative C.
The campground would be reconfigured to protect sensitive resources while maintaining a similar scale. Existing amenities (campground store and swimming pool) would be retained.	The campground would be reconfigured to protect sensitive resources and create a small picnic area. The swimming pool would be removed if determined to be no longer cost-effective to maintain.	The campground area would be reconfigured to protect sensitive resources. Replacement campsites (for those removed in sensitive areas) could be added in more suitable areas. The campground store, amphitheater, and swimming pool would be retained.	The campground would be reconfigured to protect sensitive resources. Replacement campsites (for those removed in sensitive areas) could be added in more suitable areas. The campground store and swimming pool would be retained.
The amphitheater would remain, and accessibility improvements would be made.	The amphitheater would be retained.	Same as alternative B.	The amphitheater would be relocated to a suitable location.

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Existing parking capacity on the east side would be retained.	Construction of additional parking to meet the needs of the campground, visitor center, and day use would be considered in those facility and site plans. As described below, the Moses Spring parking area could be removed.	Construction of additional parking to meet the needs of the campground, visitor center, and day use would be considered in those facility and site plans. Parking capacity in Bear Gulch would remain.	Same as alternative B.
Condor Gulch would continue to be used for storage. Visitor facilities at Moses Spring would be retained.	Some functions could be moved from headquarters in Bear Gulch to other facilities. Condor Gulch would continue to be used for storage. A site plan would be prepared to determine if the Moses Spring parking area should be removed to improve natural hydrologic and habitat functions.	Some functions could be moved from headquarters in Bear Gulch to other facilities. Condor Gulch would be rehabilitated for use as office space.	Some functions would be moved from headquarters in Bear Gulch to other facilities (e.g. the Bacon House). Condor Gulch would continue to be used for storage. A site plan would be prepared for the Moses Spring area to improve natural hydrologic and habitat functions.
No equestrian use or facilities.	Same as Alternative A.	Facilities for equestrian use, such as staging areas, would be provided in the bottomlands.	Same as Alternative A.
The shuttle service and current stops would remain.	Shuttle stops would have minimal amenities and would blend with the environment.	Enhanced small-scale amenities would be provided at shuttle stops, including shade, visitor information, and water. Shuttle stop facilities would be designed to blend with the environment.	Enhanced small-scale amenities would be provided at shuttle stops, including shade, visitor information, and water. Shuttle stop facilities would be designed to blend with the environment.
West Side Facilities - Common to All Restoration efforts started during construction of replacement West Side facilities (visitor contact station, entrance station, maintenance facility, and housing) would continue, including removing decommissioned facilities from flood-prone areas, as well as recontouring and revegetating former building footprints and other disturbed areas. Visitor facilities such as parking, picnicking, a comfort station, and trail access would continue to be provided. Picnic sites would be improved, including shade structures. Shuttle service could be provided.			
West Side Facilities At Chaparral, the parking lot, picnic area, comfort station, and road, which are located in flood-prone areas, would remain.	***West Side Facilities*** The Chaparral parking area and the road from the overflow lot turn-off to the parking area would be removed. The Chaparral picnic area would remain, as a walk-in facility, and parking would remain at the overflow lot.	***West Side Facilities*** The Chaparral parking lot, picnic area, comfort station, and road, located in flood-prone areas, would be removed and relocated to appropriate areas within the frontcountry zone.	***West Side Facilities*** Same as Alternative C.
Existing trails would remain.	A connector trail between the new visitor contact station to Chaparral would be constructed.	New trail connections would be developed.	Same as alternative C.
The entrance gate would be closed at night; camping would not be provided.	Same as alternative A.	A small (up to 10 sites) walk-in campground would be provided (possibly at Jawbone Canyon, across from the overflow parking area).	Same as alternative C.

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources

Wilderness

Common to All:

A wilderness stewardship plan would provide guidance for wilderness stewardship activities such as resource protection, day use activities, climbing, infrastructure removal, and backcountry camping (if applicable). This plan will follow the guidance recently developed and articulated in the NPS Wilderness Stewardship Planning Handbook and Director's Order 41.

Continue to follow other national wilderness requirements and policies (e.g. management interventions considered only when necessary to manage the site as wilderness, restricted use of aircraft or motorized vehicles, minimum tool analysis, Leave No Trace©, etc).

Protection of resource values within designated wilderness could continue to include restoration activities as are required for maintaining or recovering wilderness, including infrastructure removal, and fencing out nonnative species.

Natural and Cultural Resources: Combined Resource Management

Common to All:

Continue to follow existing laws, policies, guidelines, and approved monument plans in coordinating and balancing the management of natural and cultural resources.

Continue to implement and expand long-term monitoring programs, baseline studies, inventories, and research.

Increase involvement of traditionally associated peoples in research and protection of resources with traditional cultural meaning and value. Document and interpret the influences of traditionally associated peoples on the landscape.

Museum collections would be managed according to the Museum Management Plan.

Pinnacles would work cooperatively with surrounding neighbors, communities, local agencies, associated tribes, and organizations to protect the rural character and benefits of open working landscapes.

Visitor access in certain areas would continue to be managed, based on long term monitoring, to protect sensitive resources.

The monument would prepare a resource stewardship strategy (underway 2012).

Natural Resources

Common to All:

Pinnacles would continue existing natural resource management activities, including bat and raptor monitoring, re-establishment of the California condor, and removal of nonnative invasive species.

Visitor access in certain areas would continue to be managed, based on long-term monitoring, to protect sensitive resources.

Seasonal closures would continue at the talus caves and raptor nesting areas to protect threatened and sensitive species.

Visitor facilities, including trails, at the bottomlands would be developed only after park managers have determined that there would be little or no risk of spread of nonnative invasives from the bottomlands into uninfested areas of the monument from visitor activity. Consequently, partial opening or seasonal visitor use may be employed if selected areas of the bottomlands have been determined to have high priority invasive species under control or during times when priority invasive plant seeds or other plant propagules are less likely to be dispersed.

Extirpated native species, such as Foothill yellow-legged frogs, could be re-established at Pinnacles.

Continue to control nonnative species, including feral pigs and highly invasive plants.

Continue current efforts to protect and restore riparian areas, while considering other resources and monument needs.

Geologic resources and processes would continue to be highlighted and protected.

A natural resource condition assessment would be completed.

Continue to implement the monument's Fire Management Plan. Fires would be managed to protect structures, lives, property, and to achieve desired resource conditions; adaptive management would be used. Fire management activities would continue to be coordinated with cultural resource identification and protection.

Continue particulate, ozone, and visibility monitoring at the east entrance. Placement of additional air quality monitoring equipment could occur based on NPS Air Quality Division recommendations.

Climate Change

Pinnacles would continue to support, encourage, and conduct scientific research related to understanding the effects of climate change on monument resources and/or the broader region, including coordinating efforts with other agencies. The monument would strive to accomplish goals of the Climate Friendly Action Plan.

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Continue natural resources management activities (See *Common to All*).	Emphasize conserving and restoring natural functions, protecting watershed values, and protecting sensitive wildlife areas.	Emphasize importance of a natural setting for the visitor experience. Provide ample opportunities to experience ecological communities and geologic features.	Protect natural resources to a high degree and restore natural functions when practicable and beneficial. Resource management would acknowledge that humans and the landscape are inseparable; that the environment has been shaped for thousands of years by human use.
Continue restoration efforts, including enhancement of habitat areas in the bottomlands, McCabe Canyon, and in former facility locations at Chaparral.	Emphasize restoration and development removal in sensitive areas, especially in the primitive zone. Restore the bottomlands to oak woodland savanna. Emphasize detecting nonnative invasive species. Restore North Chalone Peak, Chaparral parking lot, the bottomlands, and riparian areas along Sandy Creek. Prepare a site plan for the Moses Spring parking and picnic area to improve natural hydrologic conditions and habitat functions.	Emphasize nonnative invasive plant removal alongside trails and scenic areas where these species may spread into new park areas and detract from visitor experience. Equestrian use of the bottomlands will only be allowed when weeds are under control.	Restore natural processes with priority on areas likely to receive the highest ecological benefit, including the bottomlands and riparian areas along Sandy Creek. Nonnative invasive vegetation would continue to be treated or removed in the bottomlands. Areas that could be restored include fencing, temporary housing structures in the bottomlands and McCabe Canyon, buildings in Bear Gulch, the facilities being replaced at Chaparral, and possibly the Moses Spring area.
Continue natural resources research and education efforts and partnerships. Provide facilities, as available, for researchers.	Continue research opportunities; however, there would be fewer or less obtrusive equipment in the field.	Visitors and volunteers would be actively engaged in natural resource service learning opportunities. These projects would promote public engagement with Pinnacles' research and science in general.	Natural resources protection would be enhanced by a strong education and research emphasis. Link people to park resources through a strong science / resource communication program to enhance public and staff understanding of significant resources. Increased cooperation with universities, scientific and educational organizations would boost research opportunities and information sharing. As available, facilities would be provided for scientists and other researchers to work collaboratively with the park. Expand preservation and protection of resources through maintaining relationships with communities and neighbors possessing associated resources.

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Cultural Resources			
Common to All: Cultural resources would be documented and assessed for significance in accordance with existing policy. Features / landscapes eligible for listing on the National Register of Historic Places would be nominated. Develop long-term treatment strategies for significant cultural resources (archeological sites, historic buildings, structures and landscapes). Appropriate treatments for cultural resources, including adaptive reuse of historic structures, would be applied. Policy-required baseline studies, such as an archeological overview and assessment, historic structures reports, and a historic resource study would be completed. Identification studies, site condition assessments, and long term preservation strategies would be developed. A traditional association (ethnographic) study would also be completed. Conduct regular monitoring of significant cultural resources for protection and preservation. This would include providing staff and volunteers with guidelines and training. Historic structures could be adaptively reused; the nature of the use may vary. Management of cultural landscapes would be balanced with natural resource objectives, monument operations needs, and visitor use. Prepare a determination of eligibility for listing the Bear Valley School building on the National Register of Historic Places. Prepare a Historic Structure Report to document the physical history of the building and determine appropriate preservation treatments. The Bear Valley School building would be rehabilitated and interpretation about its significance would be provided.			
Continue to lack in-park cultural resource expertise, resulting in continued dependence on NPS regional staff to assist in cultural resource management and compliance. Continue current level of cultural resources education, interpretation, and research would continue. Interpretation of cultural resources would likely remain limited.	Continue protection of cultural resources. Maintain significant historic resources. Protect historic resources through a range of preservation treatments. Rehabilitation of historic structures for compatible uses would be possible. Historic structures lost to fire or flood would not be rebuilt if not serving an operational function.	Protect and manage cultural resources to provide visitors with opportunities to experience the broader history of the region. Connect visitors to significant cultural resources within and outside the park through immersion in historic settings. Increase interpretation of historic resources as well as efforts to share information with the public and partners.	Manage cultural resources to protect and interpret their significance and to connect these resources to a broader regional history, and provide visitors with opportunities to experience and learn about the interrelationship between humans and the environment. Establish a cultural resource management program to expand understanding of the monument's cultural resources and to provide additional guidance for their management.
The Bacon house would be stabilized and used for storage. Other historic structures (such as the barn) would be stabilized. The Butterfield homestead area would continue to be protected and historic structures would be stabilized.	Same as alternative A, except the Bacon house would be rehabilitated for improved storage.	The Bacon House would be adaptively reused as office space. Other historic structures could also be adaptively reused. The Butterfield Homestead would offer a cultural resource-focused visitor experience.	The Bacon House would be adaptively reused as office space for park staff and/or researchers. Other historic structures could also be adaptively reused. The Butterfield Homestead would be preserved or rehabilitated and managed for cultural landscape values to reflect the historic homesteading period.

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
The Bear Valley School building would be rehabilitated and community use as a meeting space could be available. Passive interpretation about its significance would be provided.	Same as alternative A.	Same as alternative A, plus: The school building would also be used as a special interpretive program area, and could possibly be available for rental managed by a concession or partner organization. A small comfort station, day use parking, and a picnic area could be constructed but would be designed and sited so as not to detract from the significance of the historical setting.	Same as alternative C, plus: A small new building for office space for partners or agency staff could also be constructed.
Documented structures that do not contribute to the monument's significance and are not being used for operations could be removed.	Remove documented structures that do not contribute to the monument's significance and are not being used for operations.	Remove documented structures that do not contribute to the monument's significance and are not being used for operations. These could include fencing, temporary housing structures in the bottomlands and McCabe Canyon, buildings in Bear Gulch, and the facilities being replaced at Chaparral.	Remove documented structures that do not contribute to the monument's significance and are not being used for operations (See "Facilities" above).
The North Chalone Peak fire lookout would be stabilized.	Under alternative B, the fire lookout and road would be removed and the North Chalone Peak area would be restored. Interpretation of its significance would be provided at North Chalone Peak.	The fire lookout would be stabilized and rehabilitation for adaptive re-use would be contingent upon external funding.	The fire lookout would be stabilized and rehabilitation for adaptive re-use could be contingent upon funding. If funding for rehabilitation cannot be found five years after the GMP has been approved, the monument would plan for the removal of the fire lookout. Interpretation of its significance would be provided at North Chalone Peak.
Historic mining resources would be protected in the West Side area.	Same as alternative A.	Protect and interpret historic mining resources in the Chaparral / West Side area.	Same as alternative C.
Continue current level of museum displays	Same as alternative A.	Develop additional interpretive museum displays.	Same as alternative C.

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Commercial Services			
Common to All: Continue to work with a cooperating association to run the bookstore sales in the East Pinnacles Visitor Center.			
Continue to authorize a concession contract for camping, limited convenience and grocery items. Continue to authorize a concessioner to provide additional services. Other recreational concession activities may also be authorized with the approval by the Superintendent. The concessioner and a cooperating association would continue to operate in the shared East Pinnacles Visitor Center/ Campground General Store building.	Consider authorizing a concession contract for camping, limited convenience and/or grocery items. Consider allowing some additional commercial activities consistent with the general management plan and NPS service-wide policies.	Consider authorizing a concession contract for camping, limited convenience and/or grocery items. Consider allowing commercial interpretive tours consistent with the general management plan and NPS service-wide policies.	Same as Alternative C.
User Capacity			
Continue to manage visitation based on approved plans. Continue to respond to user capacity issues on a case-by-case basis, with facility capacity (including parking) largely setting the monument's user capacity. Continue to study user capacity issues to better manage visitors.	Monument staff would monitor social and resource indicators, evaluate current conditions against standards, and take appropriate steps to ensure the monument's user capacity is not exceeded.	Same as Alternative B.	Same as Alternative B.
Boundary Adjustments			
Common to All: Seek to acquire inholdings within the boundary if/when they become available from willing sellers. Consider administrative boundary changes to acquire lands from willing sellers adjacent to the boundary consistent with NPS *Management Policies* criteria. Prepare a comprehensive boundary study to identify park needs, inventory significant resources, and to determine minor boundary adjustment priorities.			

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Partnerships, Regional Cooperation, and Outreach			
Common to All: Continue to participate in community outreach activities including attending local meetings and special events. Engage communities, universities, Native American groups, Pinnacles Partnership friends group, and other organizations in resource protection, education, research, and interpretation. Community use opportunities of Bear Valley School could be available. Work cooperatively with surrounding neighbors, communities, local agencies, associated tribes, and organizations to protect regional resources (See also Combined Natural and Cultural Resource Management section). Pinnacles National Monument and Parque Nacional Quebrada del Condorito in Argentina would continue a sister park relationship to exchange information and resources regarding common themes at both parks.			
See *Common to All*	Actions would be the same as described in *Common to All*, plus: Outreach to communities would focus on providing information regarding wilderness opportunities, stewardship, and wilderness values.	Actions would be the same as described in *Common to All*, plus: Outreach would focus on providing information regarding recreational opportunities in the monument. More community events would be provided at the monument. The monument would partner with gateway communities and other agencies to provide better signage and interpretation. A volunteer coordinator would seek local community involvement in management actions and issues. Emphasize increased tribal involvement.	Actions would be the same as described in *Common to All*, plus: Participate in efforts to work with government agencies, ranchers, cattleman's associations, land trusts, rangeland conservation coalitions, and citizens to support common ground of open spaces that provide habitat connectivity, dark night skies, clean air, and livelihoods for our neighbors. For sites outside the monument that are related to the purpose and significance of Pinnacles, new partnerships/agreements with schools, affiliated tribes, surrounding agencies, and gateway communities would be developed to increase regional resource protection and to provide new educational and interpretive opportunities. A volunteer coordinator would seek local community involvement in management actions and issues. The monument would increase interagency cooperation and tribal involvement in resource protection and restoration.

TABLE 13: SUMMARY OF COSTS ASSOCIATED WITH THE IMPLEMENTATION OF THE ALTERNATIVES

	Alternative A	Alternative B	Alternative C	Alternative D
Annual Operational Costs				
Annual Operational Costs	$3,600,000	$3,600,000	$3,600,000	$3,600,000
Additional Staffing (FTE)	9 FTE would be added under alternative A. These FTE are included in OFS requests that have been Regionally prioritized.			
		+15.63 FTE	+20 FTE	+19 FTE
Additional Staffing Costs	$790,000	$1,890,000	$2,190,000	$2,140,000
Additional Operations & Maintenance Costs Related to Capital Investments	$30,000	$100,000	$250,000	$200,000
Total Annual Operational Costs	**$4,420,000**	**$5,590,000**	**$6,040,000**	**$5,940,000**
One-time Capital Costs				
Facility Rehabilitation				
Priority 1 Projects	$690,000	$130,000	$130,000	$120,000
Priority 2 Projects	$1,230,000	$110,000	$2,180,000	$110,000
Historic Preservation				
Priority 1 Projects	$1,010,000	$1,060,000	$1,350,000	$1,350,000
Priority 2 Projects	$80,000	$80,000	$2,640,000	$80,000
Natural Resource Restoration				
Priority 1 Projects	$680,000	$640,000	$530,000	$410,000
Priority 2 Projects	$0	$130,000	$10,795,000	$100,000
Facility / Infrastructure Replacement				
Priority 1 Projects	$2,500,000	$2,500,000	$2,500,000	$2,500,000
Priority 2 Projects	$6,780,000	$9,260,000	$10,160,000	$10,565,000
New Construction				
Priority 1 Projects	$0	$580,000	$2,070,000	$1,970,000
Priority 2 Projects	$400,000	$1,030,000	$6,935,000	$3,165,000
Facility Removal				
Priority 1 Projects	$0	$0	$0	$0
Priority 2 Projects	$0	$5,790,000	$5,260,000	$5,630,000
Total Priority 1 Projects	**$4,880,000**	**$4,910,000**	**$6,580,000**	**$6,350,000**
Total Priority 2 Projects	**$8,490,000**	**$16,400,000**	**$27,810,000**	**$19,650,000**
Total One-time Capital Costs	**$13,370,000**	**$21,310,000**	**$34,390,000**	**$26,000,000**

Notes:

- Projects are identified as either "Priority 1" or "Priority 2" projects. Priority 1 projects include deferred maintenance, natural and cultural resource protection, and the construction of some trails to provide visitor access to the new lands. Priority 2 projects include facility replacement, facility rehabilitation, removal of facilities and restoration of those areas, and additional trails.
- Construction gross costs include design contingency, construction management, and construction contingency.

TABLE 14: SUMMARY OF IMPACTS

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Visitor Experience			
Access and Circulation			
Existing parking areas, trails, and trailheads would continue to be available and many of these would continue to experience overcrowding during the peak season, leading to long-term, minor to moderate, adverse impacts. Public use of the Bear Valley School property would create minor to moderate adverse impacts due to poor vehicle turnout. Beneficial impacts include continuing maintenance and improvement of roads, sidewalks, parking areas, and trails.	Same as A, plus: Alternative B would have long-term benefits on access and circulation within the monument due to expansion of the trail system and increased trail crew staffing. Parking changes at Chaparral and Moses Spring would produce minor adverse impacts by relocating parking a short distance from the existing trailheads. Reconfiguration and design of the entrance station, East Pinnacles Visitor Center, Chaparral parking, and campground areas would result in improved traffic circulation, parking, and shuttle compatibility.	Same as B, except: Alternative C provides the greatest amount of parking, due to a larger replacement visitor center on the east side. Alternative C does not propose parking changes at Moses Spring. The provision of bicycle racks at trailheads would provide a small beneficial impact. Enhancement of shuttle stops through shade structures, drinking water, and visitor information could encourage more people to ride the shuttles which, in turn, would reduce congestion.	Same as C, except: Alternative D includes a site plan of the Moses Spring parking area to improve natural hydrologic conditions. If the parking area were to be removed, the potential impacts would be the same as described in alternative B. Providing staff to assist at regional information centers would benefit the public by disseminating traffic information before visitors reach the monument.

For the full text of Environmental Consequences and impacts, see Chapter 5.

Bear Valley School. NPS photo.

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Visitor Use Opportunities			
The existing spectrum of visitor opportunities would continue to provide for visitor enjoyment and recreation. The continuation of current management practices under alternative A would not result in substantial changes to visitor use and would continue to provide beneficial effects. Alternative A would have some long-term, minor to moderate, adverse impacts on the visitor experience, primarily from conflicts resulting from peak use of limited facilities, challenges resulting from changing demographic needs, limited accessibility, and limited staffing.	Alternative B would provide high quality wilderness-centered experiences, benefitting users who seek experiences typically associated with wilderness. As the existing spectrum of visitor opportunities would continue to be provided, adverse impacts to visitor experience and use would be minor, while many benefits would be realized for those seeking solitude. Other beneficial impacts would include the opening of trail access to new areas of the monument and improved visitor services through redesign and reconfiguration of the east side entrance station, visitor center, and campground areas. Additional trail crew staffing would lead to improved maintenance of existing and new trails, providing better access to remote areas. Some visitors would experience a minor to moderate adverse impact due to removal of the swimming pool.	Alternative C would provide a new, limited equestrian opportunity. Some beneficial impacts would be realized due to the addition of this previously unavailable opportunity. Minor adverse impacts, however, would also occur when equestrian use conflicts with other trail uses or when associated facilities detract from the experience of non-equestrian users. Alternative C would provide an increased diversity of recreational experiences and amenities, with beneficial impacts. New amenities would include camping on the west side, new backcountry camping opportunities, and improved picnicking opportunities. Adverse impacts on visitor experience and use would be minor to moderate, typically associated with short-term construction impacts, while many long-term benefits would be realized for a variety of visitor types. As in alternative B, visitors would benefit from trail access to new areas and additional trail crew staffing.	Same as C, except: Alternative D would not provide equestrian opportunities.
Interpretation and Education			
Education and interpretive programs under alternative A would continue to provide beneficial effects to monument visitors, school groups and teachers, local communities, and organizations. In the long-term, staffing and programmatic constraints would continue to result in minor to moderate, adverse cumulative impacts on education and interpretation, as current demand for services is not met.	The beneficial effects described in alternative A would continue under alternative B. More effective outreach and off-site educational programs would result in more informed students and local participants, with beneficial effects.	The beneficial effects described in alternatives A and B would continue under alternative C. The monument's capacity for providing interpretive and educational services, both within and outside of the monument, would be substantially increased through additional exhibit space, enhancement of education programs, and more indoor and outdoor spaces for programming, with beneficial effects.	Same as C, plus: Beneficial impacts from participation in regional visitor / interpretive centers.

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Wilderness Character			
Retention of the pig fence, reservoir, and other actions in alternative A would continue to have minor to moderate adverse impacts on the untrammeled quality of wilderness character. Existing infrastructure and facilities within wilderness include old roads and road traces, 32 miles of trails, the pig exclusion fence, Bear Gulch Reservoir, and various visitor aids such as handrails, signs, and steps on popular hiking trails. In addition, crowding, visitor use restrictions, visual impacts, and noise affect wilderness experiences. These existing facilities and conditions would continue to have a minor to moderate adverse effects on the undeveloped and solitude or primitive and unconfined recreation qualities of wilderness.	Same as A, plus: New trail development would have a negligible to minor adverse impact on the solitude or a primitive and unconfined type of recreation quality. Solitude and a primitive and unconfined type of recreation would be enhanced through actions related to restoration, the broadest application of primitive zoning among the alternatives, and minimization of the development footprint throughout the monument.	Same as A, plus: New trail development and backcountry camping would have a minor adverse impact on the solitude or a primitive and unconfined type of recreation quality.	Same as C, except: Alternative D contains slightly less semi-primitive zoning and slightly more primitive zoning, protecting the quality of solitude in more areas.
Natural Resources			
Air Quality			
Impacts on air quality are localized and short-term and arise from fires, barbeques, and vehicle use. Adverse impacts under all alternatives would be short-term, localized, and minor to moderate.	Same as A, plus: Additional short-term, localized, negligible to minor impacts associated with facility construction.	Same as A, plus: Some additional minor adverse impacts due to the addition of west side campfires. Some beneficial impacts due enhanced shuttle stops, if visitors drive less. Additional short-term, localized, minor to moderate impacts associated with facility construction.	Same as C

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Dark Night Skies			
Existing monument operations and visitor use would continue to have minor long-term adverse impacts on the monument's dark skies. No new developments would degrade night skies.	Existing monument operations and visitor use would continue to have minor long-term adverse impacts on the monument's dark skies. Alternative B would have the least adverse impact of the alternatives, due to the removal of structures and the most restrictive zoning outside of designated wilderness. Increased education and outreach efforts would have some beneficial effects.	Alternatives C and D would have the greatest impacts on the monument's dark night skies due to new development, including some areas on the bottomlands that have been unlit since acquisition by the monument. Impacts under these alternatives would be adverse, long-term, and minor. Increased education and outreach efforts would have some beneficial effects.	Same as C
Geological Resources			
Minor adverse impacts to geological resources would continue to occur, due to visitor activities, primarily near trails and climbing areas.	Same as A, plus: Higher potential for minor adverse impacts, due to greater trail development. Adding a physical scientist to the staff would have beneficial effects.	Same as B, plus: Slightly higher potential for minor impacts, due to greater trail development and camping opportunities that provide additional climber access.	Same as C
Soils			
Adverse impacts due to disturbance, compaction, and erosion near trails and visitor facilities would be negligible to minor.	Same as A, plus: Somewhat more potential for trail impacts in alternative B due to more new trail development. Short-term, minor to moderate impacts would occur during restoration of the Moses Spring, Chaparral, and North Chalone Peak areas, as well as construction, including the east side entrance station. Long-term beneficial effects would be produced through increased restoration and removal of social trails.	Same as A, plus: Greater impacts due to addition of equestrian use, additional trail development, backcountry campsites, and a walk-in west side campground. These adverse impacts would be minor to moderate and long-term in extent.	Same as C, except: Fewer minor to moderate adverse impacts due to lack of equestrian use. Long-term beneficial effects would be produced through increased restoration and removal of social trails.

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Hydrologic Systems and Processes			
Under Alternative A, no new structures are planned that would either affect stream flow or increase the amount of hardened surfaces in the monument, with the exception of a new South Wilderness Trail connection, with negligible to minor localized impacts.	Increased restoration efforts, including removal of floodplain development at Chaparral and Moses Spring would provide long-term beneficial effects. Some trail and recreation development would result in minor adverse impacts in localized areas.	Higher levels of development, including a new east side visitor center, a west side walk-in campground, and several new trails, would produce long-term, minor to moderate levels of adverse impact. Removal of floodplain development at Chaparral would provide long-term beneficial effects.	Same as C.
Water Quality			
Alternative A would continue to produce minor to moderate adverse impacts on water quality throughout the monument due to the continuing impacts of existing infrastructure and activities in and upstream of monument watersheds and streams, particularly the existing campground, Moses Spring parking, and Chaparral parking areas.	Same as A, except: Restoration of the Moses Spring and Chaparral parking areas would provide long-term benefits. New trails would have negligible to minor long-term effects. Construction of new and replacement facilities would have short-term minor adverse effects.	Alternative C would produce minor to moderate adverse impacts, primarily due to a higher level of hardened surfaces to support increased visitor services and equestrian use. Restoration of the Chaparral parking area would provide long-term benefits.	Same as C, plus: Increased outreach efforts could provide beneficial effects. Fewer adverse impacts due to the lack of equestrian use.
Natural Sounds			
Long-term adverse impacts under alternative A would be minor to moderate in intensity, due to ongoing impacts in developed areas, along popular trails, and in caves. Some negligible to minor short-term impacts would occur due to construction of the South Wilderness Trail connection.	New trails would open visitor access to previously unvisited areas, resulting in negligible to minor adverse impacts. New development or ground-disturbing activities, including construction of a replacement entrance station and replacement East Pinnacles Visitor Center, would have minor to moderate, short-term, adverse impacts. Some beneficial effects would be realized from the monument's interpretive programming focus on wilderness values and greater amounts of primitive zoning	Alternative C would have the greatest potential for minor to moderate adverse impacts due to trail access into more areas, equestrian use, greater visitor use of the bottomlands, and short-term construction impacts.	Same as C, except: Fewer localized, adverse impacts due to the lack of equestrian use.

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Vegetation			
Ongoing vegetation impacts would include damage to or loss of native vegetation due to maintenance activities, minor modifications to developed areas, recreational use, including trampling and soil compaction, and the spread of non-native species. Stabilization or rehabilitation of historic structures, trail maintenance and construction, recreational use (including social trails and trampling), and nonnative invasive plant introduction would continue to have minor to moderate adverse impacts. Current weed control and restoration efforts would continue to result in long-term beneficial effects.	Long-term, minor to moderate, adverse impacts would occur in local areas under alternative B, due to current visitor use levels, replacement of a visitor center and entrance station in previously developed areas, and the introduction of visitors to new areas. An emphasis on restoration efforts and decreased development footprint, however, would lessen this overall impact.	Alternative C would have minor to moderate, long-term, adverse impacts on native vegetation, primarily from equestrian use, visitor use in remote, previously inaccessible areas and new infrastructure. Higher levels of development, including a new entrance station, equestrian facilities, and a replacement visitor center, would produce long-term, minor to moderate levels of adverse impact, with these facilities being constructed on previously developed land. Other facilities in new areas, such as a west side walk-in campground, backcountry campsites, and new trails, would produce moderate, localized, adverse impacts.	Same as C, except: No impacts due to equestrian activities and facilities. Higher level of restoration.
Viewsheds and Scenic Resources			
Minor, long-term, adverse impacts on visual resources would continue, primarily from visible infrastructure both within and outside of the monument.	Same as A, plus: Minor adverse long-term impacts on viewsheds could occur with the replacement of the entrance station. Other new construction would not be readily visible from trails or visitor use areas, or would occur in already developed areas, resulting in negligible adverse impacts. A high percentage of primitive zoning would limit potential future development, resulting in beneficial impacts. Minor to moderate short-term impacts could occur due to construction of facilities.	Same as A, plus: Minor adverse long-term impacts on viewsheds could occur with the replacement of the entrance station. Other new construction would not be readily visible from trails or visitor use areas, or would occur in already developed areas, resulting in negligible to minor adverse impacts. Minor to moderate short-term impacts could occur due to construction.	Same as C, except: Slightly less facility development resulting in negligible to minor adverse impacts.

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Wildlife and Wildlife Habitat			
Existing resource management activities would continue to provide beneficial effects to wildlife and wildlife habitat. Trail construction and installation of shade structures at Chaparral would have negligible impacts.	Under alternative B, adverse impacts would be minor, mostly due to removal of the swimming pool, the reduction of wildlife-related education and research opportunities, and increased visitor access into new areas. Beneficial impacts would be realized from removal of the Moses Spring parking area, the Chaparral parking area, and increased restoration efforts.	Minor to moderate adverse impacts would occur with increased use in the campground and bottomlands areas, camping on the west side, increased bicycle use, and new trails. New and replacement buildings would be sited in previously developed areas, producing minor adverse effects. Beneficial impacts would be realized from removal of the Chaparral parking area and increased restoration efforts.	Same as C, except: A higher level of visitor and citizen engagement in wildlife and habitat issues under alternative D, along with increased restoration efforts, would provide beneficial effects.
Federally Listed and State Listed Threatened and Endangered Species			
Existing natural resource management activities would be continued, including California condor recovery, raptor monitoring, removal of exotic species, and restoration efforts in the bottomlands. These activities would result in long-term beneficial effects on habitats for all listed species. There would continue to be long-term minor to moderate adverse effects on California red-legged frogs from the parking area and development at Moses Spring.	In alternative B, adverse impacts would be minor, mostly due to removal of the swimming pool. The entrance station, the new East Pinnacles Visitor Center, and the proposed new trails would be subject to further environmental analysis. Adverse impacts to California red-legged frogs would be minor to moderate. Increased restoration efforts would benefit listed species.	The entrance station, the new East Pinnacles Visitor Center, and the proposed new trails would be subject to further environmental analysis. Adverse impacts to California red-legged frogs would be minor to moderate. Increased restoration efforts would benefit listed species.	Same as C, plus: Additional beneficial effects from more widespread restoration and fewer adverse impacts due to fewer facilities.
Cultural Resources			
Archeology			
Lack of specialized staff limits the ability of the monument to adequately address archeological resource preservation, resulting in minor to moderate adverse, long-term impacts. Installation of shade structures at Chaparral could potentially create negligible to minor adverse impacts.	The addition of staffed cultural resource program would benefit resources overall. New trails would have the potential for minor to moderate adverse impacts. New and replacement construction, limited to existing developed footprints, would avoid adverse impacts through identified mitigation measures and require additional compliance.	Same as B, plus: Minor to moderate adverse impacts could occur due to opening new areas to visitors and the development of a walk-in campground on the west side.	Same as C.

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Cultural Landscapes and Historic Structures			
The monument's general ability to identify, inventory, conduct research and document cultural resource significance would continue to be limited by staffing constraints, with long-term, negligible to minor adverse effects. Some beneficial impacts would occur on historic structures and cultural landscapes, including stabilization and use of the Ben Bacon, Butterfield, and Bear Valley School structures, as well as ongoing restoration of the bottomlands area.	Implementation of alternative B would result in minor adverse effects and a Section 106 determination of "no adverse effect", with the exception of the North Chalone Peak fire lookout. Removal of the fire lookout would result in a major adverse effect (and an adverse effect determination under Section 106).	Implementation of alternative C would result in minor adverse effects and a Section 106 determination of "no adverse effect" on historic buildings, structures, and cultural landscapes. The North Chalone Peak fire lookout would benefit from rehabilitation and adaptive reuse.	Same as C, except: The North Chalone Peak fire lookout could be removed if funds are not available for rehabilitation. In this case, impacts would be the same as described for alternative B.
Values, Traditions, and Practices of Traditionally Associated Peoples			
Progress would continue to be made in documenting sites and resources significant to traditionally associated peoples, but this effort would rely on specific project funding. With the continuing loss of knowledge among traditionally associated peoples, the lack of sufficient staff and funding to document resources would result in moderate adverse impacts.	Establishment and staffing of a cultural resource program under alternatives B, C, and D would greatly benefit the protection, study, and knowledge of ethnographic resources in the monument. Minor adverse impacts could occur to ethnobotanical resources in McCabe Canyon due to improved visitor access to the area. Construction and design of McCabe Canyon trails, however, would be subject to additional environmental analysis to ensure protection of these resources.	Same as B, plus: Benefical impacts related to increased visitor awareness due to enhanced interpretive efforts.	Same as C.
Museum Collections			
Minor adverse impacts due to insufficient environmental controls would continue, although a portion of the monument's collections may be moved to a shared facility in the reasonably foreseeable future.	Same as A, plus: Alternatives B, C, and D provide needed program staffing, reducing the level of impact to the monument's ability to document, exhibit, and interpret resources.	Same as B, plus: The replacement East Pinnacles Visitor Center would be larger, with possible space to house or display additional collections at the monument, a beneficial impact.	Same as B

Alternative A: No Action (Continue Current Management)	Alternative B: Emphasize Backcountry Experience	Alternative C: Expand Visitor Experiences	Alternative D (Preferred): Link People and Resources
Monument Operations			
Alternative A would result in little immediate change to monument infrastructure or operations and would continue current levels of funding and staffing. Long-term, minor to moderate adverse impacts would continue.	Alternative B would result in few changes to operational infrastructure, but would increase staffing, resulting in long-term beneficial impacts on functional capacity, but minor to moderate adverse effects due to insufficient office capacity. Replacement of the East Pinnacles Visitor Center would benefit operations and maintenance.	Under alternative C, minor to moderate adverse operational impacts would occur from facility and utilities needs at the Bacon House and Bear Valley Schoolhouse, as well as increased maintenance needs associated with other facilities. Management of visitor activities, including equestrian use, backcountry camping, and west side camping, would result in minor adverse impacts. Alternative C would also have long-term beneficial impacts on monument operations, primarily by increasing and relocating staff, providing additional office space, and redesigning the visitor entry experience on the east side.	Same as C, except: A smaller replacement visitor center would provide less space for staff needs. Equestrian uses would not be permitted, requiring no administration. Less office space would be provided.
Socioeconomics			
Alternatives A and B would have long-term, minor adverse impacts on the local and regional socioeconomic landscape, due to a possible unintended shift in monument visitation associated with a lack of appropriate facilities or activities for older or ethnically diverse visitors. Existing NPS employment, amenities, and education, as well as non-local travel spending, would continue to produce benefits for local communities.	Same as A, plus: Additional beneficial effects from replacement of the East Pinnacles Visitor Center, and new opportunities for improved interpretation, education, and recreation. Additional NPS spending and employment would increase economic benefits to the local communities.	Alternative C would produce long-term beneficial impacts through new opportunities and amenities for previously underrepresented groups and accommodation of increased visitation. Increased visitation due to improved facilities and additional recreational opportunities, including increased camping, could benefit the local economy. Additional NPS spending and employment would increase economic benefits to the local communities.	Same as C, except: Slightly less NPS spending on construction and other projects.

Environmentally Preferable Alternative

The environmentally preferable alternative is defined as "the alternative that will promote national environmental policy as expressed in Section 101 of the National Environmental Policy Act." Section 101 states that it is the continuing responsibility of the federal government to . . .

1. fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
4. preserve important historic, cultural, and natural aspects of our national heritage; and maintain, wherever possible, an environment which supports diversity, and a variety of individual choices;
5. achieve a balance between population and resource use which would permit high standards of living and a wide sharing of life's amenities; and
6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The Council of Environmental Quality states that the environmentally preferable alternative is "the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources (46 FR 18026 – 46 FR 18038)." According to the NPS NEPA Handbook (DO-12), through identification of the environmentally preferred alternative, the NPS decision-makers and the public are clearly faced with the relative merits of choices and must clearly state through the decision-making process the values and policies used in reaching final decisions.

The environmentally preferable alternative for Pinnacles National Monument is Alternative B: Emphasize Backcountry Experience. This alternative best satisfies the national environmental goals—it provides the highest level of protection of natural and cultural resources while concurrently providing for a wide range of neutral and beneficial uses of the environment. This alternative maintains an environment that supports a diversity and variety of individual choices, and it integrates resource protection with an appropriate and preexisting range of visitor uses and understanding.

This alternative surpasses the other alternatives in realizing the full range of the Section 101 national environmental policy goals.

Alternative D, Link People and Resources, the preferred alternative, also meets many of the criteria. The enhancement of educational opportunities, research, and restoration of resources at the monument would result in a better understanding of the monument's resources, thus better equipping the monument in fulfilling criteria 3, 4, and 5.

Alternative A, No Action, while accurately describing the current management direction and the best efforts of the staff, fails to satisfy the NEPA requirements outlined above when compared to the action alternatives. A shortage of funding for staff, programs, facilities, and services limits the monument's effectiveness in achieving criteria 4 and 6.

West Side Visitor Center dedication event. NPS photo.

Alternative B, Emphasize Backcountry Experience would provide for more quality backcountry experiences and opportunities to restore resources. Restoration efforts, broader limitations on future development, a commitment to reduction of the development footprint, and the continuation and enhancement of all existing recreational opportunities best meet criteria 1, 2, 3, 5, and 6.

Alternative C, Expand Visitor Experiences would provide for a diverse range of visitor use opportunities, but there also would be a higher potential for more impacts to natural resources in comparison with the environmentally preferred alternative. For example, while alternative C provides a considerable amount of new visitor opportunities, these opportunities have more potential for increased visitor use in sensitive areas of the monument such as the West Side historic resource districts, the Ben Bacon Ranch Historic District, and McCabe Canyon.

Actions/Alternatives Considered But Dismissed From Detailed Consideration

The planning team originally developed four preliminary alternatives for public review. These preliminary alternatives included a "no action" alternative (Continue Current Management) and three action alternatives: Research and Learning, Backcountry Experience, and Expanded Visitor Experience.

The Choosing by Advantages method for identifying the preferred alternative resulted in the combination of alternative actions primarily from the Research and Learning and the Expanded Visitor Experience alternatives to create the preferred alternative, Link People and Resources. These actions best met the goals for the general management plan. Since many components from the former Research and Learning alternative were included in the preferred alternative and the public and planning team did not feel that the original concept was a strong stand-alone concept (most of the public suggested to merge elements of the Research and Learning concept with other alternatives), this alternative was ultimately dropped from consideration in the draft general management plan and environmental assessment.

Boundary Adjustments. Early in the alternatives development process, the planning team explored boundary adjustments as required by the National Parks and Recreation Act of 1978. After acquisition of the 2000-acre Pinnacles Ranch property in 2006, the park staff did not identify other major boundary modifications for the long-term, but indicated that minor boundary adjustments could be made. One boundary adjustment considered but eliminated from further detailed consideration was the addition of the **Rock Springs Ranch (RS-Bar property)**. In 2010, Congressman Sam Farr requested the National Park Service to consider the 18,000-acre Rock Springs Ranch property for addition to Pinnacles National Monument from a willing seller. The National Park Service agreed to evaluate Rock Springs Ranch as part of the ongoing general management plan and to provide the Congressman with a brief report in advance of the draft GMP. The advantages of this addition to the park would have included additional significant resources related to the purpose of the park, additional lands for visitor enjoyment, and lands for administrative use. This boundary adjustment would have included lands within the San Andreas fault zone which would have provided additional opportunities to interpret the geologic story of the broader region.

During the evaluation process, the National Park Service determined that the addition of Rock Springs Ranch to Pinnacles does not appear to be feasible and that management of Rock Springs Ranch would only appear to be necessary or superior to alternative management strategies if other conservation agencies and organizations are not able to protect its significant resources. Rock Springs Ranch appears to be appropriate for management by another public agency such as the Bureau of Land Management, or through conservation easement or partnership arrangements. Because the addition of Rock Springs Ranch to Pinnacles does not appear to be feasible, the National Park Service did not include this area as a boundary expansion recommendation in the draft general management plan. However, the National Park Service recognizes the importance of its significant resources, the area's complementary relationship to resources, stories, and values at Pinnacles National Monument, the value of preserving open space around the monument, and its potential for enhancing public enjoyment of Pinnacles National Monument and the region. In this draft general management plan, the National Park Service proposes that Pinnacles collaborate with current and future ranch owners and managers to achieve resource protection, visitor education and interpretation (if appropriate), and other conservation goals in congruence with existing uses such as ranching and hunting.

This analysis of Rock Springs Ranch has demonstrated the importance of systematic analysis of other lands and resources in the vicinity of Pinnacles. The general management plan recommends preparation of a comprehensive boundary study to identify park needs, inventory significant resources, and determine boundary adjustment priorities. (For further information about this boundary analysis, see appendix C.)

TABLE 15: FUTURE COMPLIANCE REQUIRED FOR IMPLEMENTATION OF SPECIFIC ACTIONS

Action	Compliance Requirement
Routine monitoring and stabilizing of archeological sites. Monitoring of cultural landscapes and historic structures to protect, preserve, maintain, and research them.	These items are programmatically excluded from future Section 106 review and SHPO consultation in accordance with the 2008 Programmatic Agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers.
Development of new visitor facilities including, trails, the east side visitor center and day use facilities, backcountry and walk-in campsites, campground improvements, and vault toilets. New habitat restoration efforts. Removal of existing facilities including west side facilities at Chaparral, North Chalone Peak Fire Lookout, Bear Gulch non-contributing structures, and Moses Spring parking and picnic area.	NEPA Compliance – Although some of the listed actions have been generally assessed in the environmental consequences of this document, many details have yet to be identified (e.g. precise location, design, and size of a facility). The monument is committed to avoiding significant impacts or affecting special status species in the implementation of these actions. Appropriate NEPA compliance would be completed before such actions are initiated to ensure that impacts to monument resources and values are not significant and that special status species are not affected. Future Section 7 compliance - Consultation with the U.S. Fish and Wildlife Service) would occur for restoration of monument habitat. Future Section 106 compliance review and SHPO consultation would likely be necessary and required before construction at the project implementation planning or design stages.

Local laborers constructing new Bear Gulch entrance road, 1932. NPS photo.

Implementation of the General Management Plan

Once the general management planning process is completed, the selected alternative would become the new management plan for the monument and would be implemented in phases. The monument's strategic plan, business plan, and annual work plans would help develop priorities that would determine how best to implement the general management plan.

Implementation of the actions and developments proposed within the management plan is dependent upon funding available at the time of need. The approval of this general management plan does not guarantee that the funding and staffing needed to implement the plan would be forthcoming.

In addition to funding, implementation of the preferred alternative also could be affected by other factors. More detailed planning and environmental documentation may be completed, as appropriate, before some of the actions would be carried out.

IMPLEMENTATION PLANS, STUDIES, AND DESIGN WORK WOULD INCLUDE:

Plans and Designs:

- Wilderness Stewardship Plan (may incorporate guidance for climbing)
- Climbing Management Plan
- Resource Stewardship Strategy (underway 2012)
- Comprehensive Interpretive Plan Update
- Continued Implementation of Museum Management Plan
- Continued Implementation of Fire Management Plan
- Various Trail Plans, including:
  - South Wilderness Trail Connection
  - Trail from Campground to Bottomlands
  - McCabe Canyon Trails
  - West Side Trails
- Backcountry Campground Site Plans
- West Side Walk-in Campground Site Plan
- West Side (Chaparral) Facility Removal and Relocation Site Plans
- Bottomlands Site Plan
- East Side Picnic Area Site Plan
- East Side Replacement Entrance Station Site Plan
- East Side Campground Reconfiguration Site Plan, including Amphitheater Relocation Site Plan
- East Side Shuttle Stop Site Plans
- Replacement East Pinnacles Visitor Center and Campground Store Site Plan
- Bear Valley Day Use Picnic Area Site Plan
- Moses Spring Site Plan
- North Chalone Peak Fire Lookout Plan
- Plans for Adaptive Reuse of Historic Structures, including:
  - Bear Valley School
  - Ben Bacon House
  - Butterfield Homestead
  - Bear Gulch Chief Ranger House (Building #2)

Studies and Data Needs:

- Comprehensive Boundary Study
- Watershed Condition Assessment
- Water Quality Monitoring
- Continued air quality monitoring
- Climate change vulnerability analysis
- Continued bat, raptor and California condor monitoring
- Continued non-native invasive species monitoring and removal
- Acoustical monitoring
- Traditional Association Study
- Historic Resource Study
- Long-term Preservation Strategies for Cultural Resources
- Historic Structures Reports, including Bear Valley School
- Bear Valley School Determination of Eligibility for listing on the National Register of Historic Places
- Prepare Nominations for Significant Cultural Resources
- Update List of Classified Structures
- Visitor Survey
- Visitor Capacity Metrics and Standards, including:
  - Number of people at a destination at one time
  - Wait time for parking during peak use periods

In addition policy-required baseline studies and updates of existing plans such as the Fire Management Plan, Comprehensive Interpretive Plan, and Museum Management Plan would be completed when needed.

4

Affected Environment

Upper Condor Gulch with winter snow. Photo by Gavin Emmons © 2011

Chapter 4: Affected Environment

Visitor Use and Opportunities

Access and Circulation

Pinnacles National Monument is accessed from State Route 25 on the east side, and State Route 146 on the west. State Route 25 (also known as Bolsa Road and the Airline Highway) is a two-lane road running from Peachtree Valley at State Route 198 in the south to U.S. Route 101 in Gilroy to the north. It parallels the San Andreas Fault, intersecting with Route 146, the entrance road to the east side of the monument. The nearest commercial air service is approximately 40 miles away in Monterey. The San Jose International Airport is approximately 80 miles away.

State Route 146 is located in Monterey and San Benito Counties, serving as an entryway to the Pinnacles National Monument from both the Salinas Valley on the west and off of State Route 25 on the east. Although both the eastern and western sections are part of Route 146, it is divided into two sections and does not go through the monument. The western part of Route 146 passes from U.S. Route 101 near Soledad to the west area of Pinnacles, terminating at west boundary of Pinnacles NM. The final 5 miles before ending at the monument boundary becomes narrow, winding and shrinking to one lane at some points. It is owned and maintained by the State of California. Lack of easements has prevented improvements such as widening shoulders or expanding parking areas outside of the monument boundary.

The eastern portion of Route 146 accommodates 70 percent of the vehicles coming to the monument on two 11-foot lanes with some portions of the road having no shoulders. This section of Route 146 is inside Pinnacles NM with a 90' right of way from Route 25 westward for approximately 4 miles to the existing cattleguard at the west end of Pinnacles Campground. Route 146 from Pinnacles National Monument to Route 25 in Bear Valley is eligible to be designated part of the California Scenic Highway System, and therefore has special protections under California law with respect to any planning and construction "to protect the scenic appearance of the scenic corridor (and) the band of land generally adjacent to the highway right-of-way" through regulation of development density, outdoor advertising, and the design of structures in the corridor.

Data on traffic volumes from a study in 2003 indicate that on both sides of the monument, traffic reaches a peak in the late morning (between 10:00 a.m. and noon) and falls steadily to zero by about 9:00 pm. Over 70% of vehicles are passenger cars, with very few vehicles over 22 feet long entering the monument; this is a likely reflection of the narrow winding roads, the difficulty in navigating larger vehicles, and visitors from the surrounding area being familiar with these conditions.

Because of its mountainous terrain, transportation to and through the monument is challenging. Pinnacles National Monument is divided into two separate districts (east and west). As noted above, although Route 146 enters the monument from both east and west, these segments do not connect. In between, hiking trails link the east and west districts. Several highway signs do not clearly identify the separation, and some visitors either arrive at the wrong destination or do not realize that there is no through road. The monument staff estimates that 99% of visitors arrive in cars, on motorcycles, or other vehicles, with a few arriving on bicycles, and a negligible amount arriving by foot. There is no public transit to the monument. The nearest towns are Soledad (8.5 miles west) on the west side, and Hollister (35 miles north) and King City on the east side. Transportation to and within the monument consists of vehicles on roads and a park-funded shuttle service. The high number of visitors during peak periods creates parking and road congestion problems, sometimes necessitating measures such as implementing a "one-in, one-out" system where no one can enter the monument until someone leaves. Previous studies have recommended various combinations of parking management strategies and implementation of a shuttle system.

Because there is no road through the monument, visitors choose to start and end their visits on either the east or west side of the monument. Road access is shown in the monument brochure, at information stations, and on the website.

The monument is open 24 hours a day. The east entrance gate is open continuously, while the west entrance is open from 7:30 a.m. until 6:00 p.m. (standard time) or 8:00 p.m. (daylight savings time). Seventy percent of visitors enter through the east entrance. While Pinnacles is open 24 hours a day, it is considered primarily a day-use park, with one camping area, Pinnacles Campground, on the east side.

The east side shuttle system is operated by monument personnel on peak weekends and holidays. There are two shuttle vehicles, an 18-passenger and 24-passenger (biodiesel) shuttle. The shuttle system is free to visitors accessing the monument facilities and trailheads.

The shuttles offer round-trip transportation every 30 minutes starting at the campground. Shuttle service typically starts on Presidents Day holiday weekend (February) and continues through Memorial Day holiday weekend (May). As funding permits, additional shuttle service is provided for Independence Day, Labor Day, Veteran's Day, and Thanksgiving holiday weekends. The shuttle starts at the Pinnacles Campground and goes to the Bear Gulch and Peaks View areas before returning to the campground. Round-trip typically takes 45 minutes. Bear Gulch Area provides access to seven trail routes (Condor Gulch, High Peaks, North Chalone, Bear Gulch Caves/ Reservoir, Rim, Moses Springs, and Bear Gulch), a picnic area, restrooms, water, interpretive wayside panels, and additional interpretive opportunities at the Nature Center. Peaks View Area provides access to five trail routes (Bench, South Wilderness, Bear Gulch, Hawkins Peak, and Old Pinnacles), picnic area, portable toilets, water, and interpretive wayside panels.

TRAFFIC VOLUMES

Traffic volumes are considered high on peak weekends and during late-winter, early-spring. Typically during these periods the east side parking areas are filled by 10 a.m. with the exception of the day use area at the campground. Generally there are eight to twelve times a year all parking in the east side is filled and wait times typically last one to two and a half hours.

On the west side of Pinnacles, the Chaparral parking typically fills by 10 a.m. during peak weekends and there are generally four to six times a year all parking is filled with wait times typically lasting one to two hours.

Whenever there becomes a time visitors must wait to enter the monument for a place to park, most visitors leave instead of waiting. For both sides of the monument, parking spaces generally start to become available around 3 p.m. with most all parking areas clearing by 9 p.m.

Monument Visitation

OVERVIEW

The Organic Act and NPS *Management Policies* 2006 direct the National Park Service to provide visitor enjoyment opportunities that are uniquely suited to the superlative natural and cultural resources found in the monument. Different aspects of visitation and enjoyment are evaluated: visitor use and characteristics; range of recreational opportunities; opportunities for solitude and getting in touch with nature; opportunities for orientation, education, and interpretation; visitor access, including access for visitors with disabilities; and regional recreational opportunities.

TABLE 16: PARKING

Parking Lot Locations	# Spaces
East Side	
East Pinnacles Visitor Center/ Campground Store	40
Pinnacles Day Use Area	52
Pinnacles Campground (Campsites)	94
Peaks View Picnic Area	25
Old Pinnacles Trailhead Parking	12
Fire Wayside Parking	10
Bear Gulch Nature Center	74
Moses Spring	15
Total East Side	322
West Side	
Chaparral Ranger Station	56
Overflow	75
Visitor Contact Station	40
Total West Side	171
Total Combined	**946**

VISITATION TRENDS

Until 2010, annual visitation to Pinnacles National Monument had remained fairly stable since the 1970s (Figure 2). The number of visitors to the monument is estimated based on data from traffic counters. Vehicles are counted using traffic counters at both the east and west entrances. Based on traffic counter data, approximately two-thirds of visitor use occurs on the east side and one-third on the west side of the monument. Between 1990 and 2010, visitation averaged 173,000. There was a major drop in visitation in 1998 due to flooding which caused the monument to close for a period. Peak visitation years were in the early 1990s and in 2010 when visitation nearly reached 250,000 – the highest recorded visitation for the monument. Factors likely to affect visitation rates in any particular year include the weather, the economy, school schedules, and the price of gasoline (Nelson and Nygaard 2007). Based on the long-term trends, and the surrounding region's population growth, it is likely that the monument's visitation will gradually increase over the next 25 years. The towns and cities in Monterey and San Benito counties are expected to grow substantially during that time frame. Pinnacles National Monument is visited heavily by the local and regional population, so increasing population growth will likely have a similar effect on visitation.

The typical peak periods of visitation at Pinnacles are during the spring months of March through May when temperatures are cooler, streams are flowing, and long

hikes in the backcountry become more desirable. In addition, by March, visitors see and photograph many annual wildflowers that brighten the landscape. The summer brings much higher temperatures, which reduces the amount of visitation and visitors' length of stay in the monument.

VISITOR SURVEY PROJECT

In 2002, a Visitor Services Project was completed for Pinnacles National Monument. The visitor study provided information on visitor demographics and patterns and identified visitor concerns and suggestions for future planning. The survey was conducted between March 30 and April 7, 2002. A total of 511 questionnaires were distributed to visitors. Of those, 394 questionnaires were returned resulting in a 77% response rate. The following discussion identifies the characteristics of visitors identified from that survey.

Demographics

The largest proportions of U.S. visitors were from California (93 percent), and Washington (1 percent), with the number of international visitors too small to evaluate reliably. Of these visitors, fifty-seven percent of visitors were in the 26-55 age group. Another 23% of visitors were 15 or younger.

Visitors were asked about their ethnic and racial backgrounds. Seven percent responded that they were of Spanish/Hispanic/Latino ethnicity. Most respondents (94 percent) said they were of White racial background, while 8 percent said they were Asian, 3 percent were American Indian or Alaska Native, 1 percent were Black or African American.

The majority of visitors surveyed were part of a group of two or more people. Forty-two percent of visitor groups consisted of two people, while another 26 percent consisted of three or four people. Fifty-one percent of visitor groups were made up of family members and 25 percent were people traveling with friends.

Most visitors (79%) had visited the monument once in the past 12 months. When asked about visits to two to five years ago, 47% said they had not visited, 19% had visited once and 34% had visited two or more times. Visitors obtained information about the monument from previous visits (57%), friends, relatives or word of mouth (47%), and the Pinnacles web site (33%).

Length of Visit and Overnight Use

Most visitors spend less than one day at Pinnacles, although 19% spent two or three days. For 89% of visitors, visiting Pinnacles NM was the primary reason they came to the area (University of Idaho Park Studies Unit 2002). Visitors that stay overnight at Pinnacles

Photos (top to bottom): 1. Camping at the Pinnacles campground. 2. Hiking on the Bench Trail. 3. Climbing. NPS photos.

stay at the Pinnacles Campground. Most overnight stays are tent campers. However, RVs also stay in the Pinnacles Campground.

Recreation Activities and Sites Visited

The most common recreation activities visitors participated in were hiking (93%), viewing scenery, sightseeing, scenic drive (80%), viewing wildflowers (78%), and viewing wildlife (57%). Fourteen percent of visitors participated in rock climbing. The most commonly visited places were Bear Gulch Nature Center (56%), Central High Peaks (42%), Balconies Cave (40%) and the Bear Gulch Reservoir (32%). The most used trailheads were Chalone Creek (18%) and Bear Gulch Trail (16%) and the most often hiked trails included High Peaks (20%) and Old Pinnacles (11%).

Visitor Services

Most visitor groups (91%) rated the overall quality of visitor services, facilities, and recreational opportunities at Pinnacles National Monument as "very good" or "good." One percent of visitor groups rated the overall quality as "very poor." The most used services/facilities by survey respondents were the restrooms (91%), the visitor center (91%), and the monument brochure/map (90%). The services/facilities that received the highest combined proportions of "extremely important" and "very important" ratings included campgrounds (92%) and restrooms (90%). The services/facilities that received the highest combined proportions of "very good" and "good" quality ratings were assistance from monument staff (93%) and the visitor center (93%).

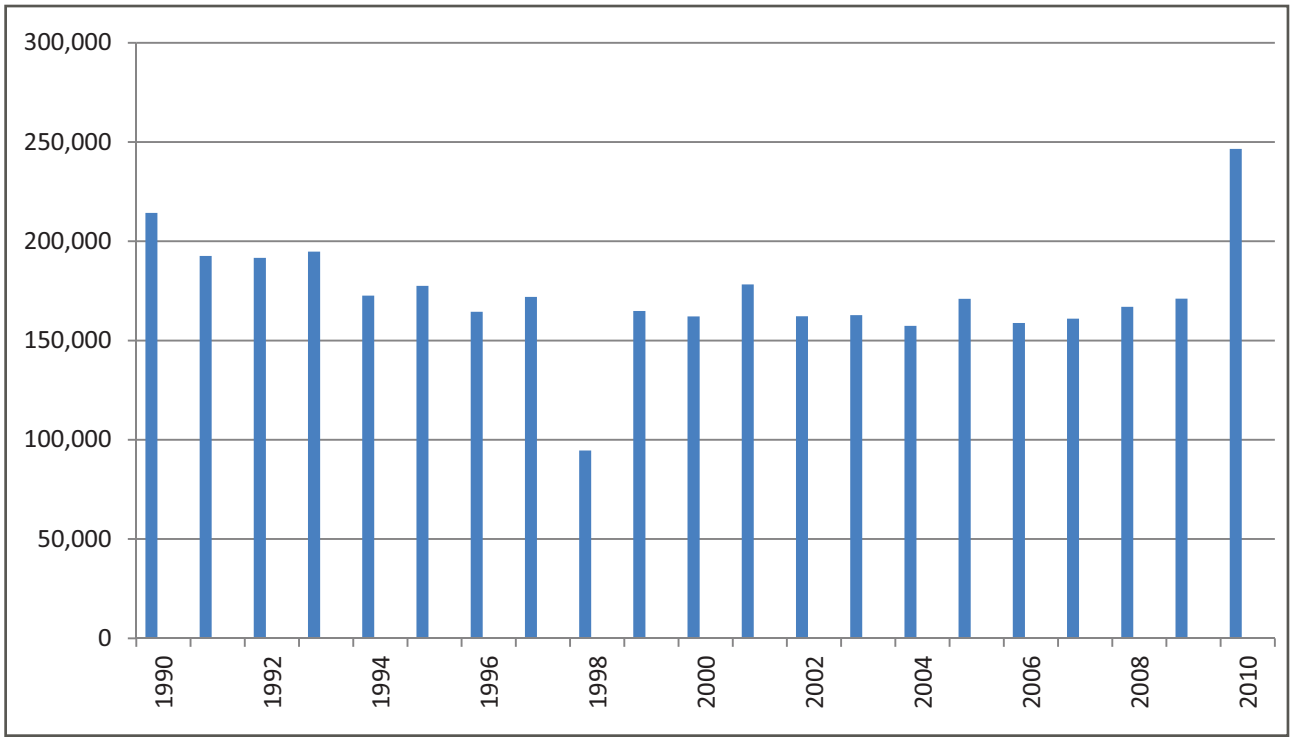
FEE COLLECTION

The current 7-day entry fee to Pinnacles National Monument is $5 per car or motorcycle, which covers all people in the vehicle, or $3 for those over 16 who enter by foot or bicycle. In 2005, the Recreational Fee Demonstration Plan was replaced by the Federal Lands Recreation Enhancement Act. One hundred percent of the fees collected at Pinnacles (average $90,000 annually) stay within the monument to fund improvements that directly benefit visitors. The monument's east side entrance station is located on Highway 146 just west of the campground. Entrance station staff collects fees, sells passes, and provides information and brochures to incoming visitors. The east side entrance station is open weekends on shoulder seasons and from Presidents Day to Memorial Day. Fees are also collected in honor boxes near the Bear Gulch Nature Center and East Pinnacles Visitor Center, when the entrance station or these facilities are closed. Fees are also collected at the new west side entrance station and West Pinnacles Visitor Contact Station.

Visitor Use Opportunities

Pinnacles National Monument provides a variety of visitor use opportunities and is an important recreation destination for the region. As indicated in the 2002

FIGURE 2: VISITATION 1990-2010



Visitor Survey, the most popular activities are hiking, viewing scenery, photography, camping, picnicking, rock climbing, and viewing wildflowers in the spring. The monument's hiking trails and technical rock climbing are internationally known. There are also a range of wilderness opportunities. Another draw to Pinnacles is the rare chance to see a California condor.

HIKING TRAILS

Pinnacles National Monument has a trail system that extends over 30 miles, ranging from easy, flat walks to more challenging, all-day hikes. These trails give visitors opportunities to experience geologic features, historic sites, scenic views, and wilderness. Several trails provide access between visitor facilities and popular areas within the monument. The monument's trails range from 1.7 to 9.7 miles in length. (See Visitor Access and Facilities Map). Trails include:

From Pinnacles Campground

- Bench Trail (East Pinnacles Visitor Center to Bear Gulch Day Use Area): 2.7 miles one way; portions are accessible.
- South Wilderness Trail: 1.0 mile to junction and up to 3.0 miles one way.
- East Pinnacles Visitor Center to Balconies Cave: 4.3 miles one way.

From Bear Gulch Day Use Area

- Moses Spring–Rim Trail Loop: 2.2 miles
- Condor Gulch–High Peaks Loop: 5.3 miles
- High Peaks–Bear Gulch Loop: 6.7 miles
- Bench Trail–Bear Gulch Trail: 2.3 miles one way
- Condor Gulch Trail: 1.7 mile one way
- Chalone Peak Trail: 8.6 miles round trip

From Old Pinnacles Trailhead

- Old Pinnacles Trail to Balconies Cave: 8.7 miles round trip
- South Wilderness Trail: 6.5 miles round trip

From West Side

- Balconies Cliffs–Balconies Cave Loop: 2.4 miles
- Juniper Canyon Loop: 4.3 miles
- North Wilderness Trail Loop: 9.7 miles
- High Peaks–Balconies Cave Loop: 8.4 miles

EXPLORING TALUS CAVES

There are two talus caves at Pinnacles: the Bear Gulch Cave and the Balconies Cave. The Bear Gulch Cave provides a home to a colony of Townsend's big-eared bats that and raise their young in the late spring and summer and overwinter there. A gate allows half of the cave to remain open for public access while protecting the colony of bats. A new trail begins near the middle

A group hikes along the Balconies Trail. NPS photo.

of the cave and connects with the Moses Spring Trail, which leads to the Bear Gulch Reservoir.

ROCK CLIMBING

Pinnacles National Monument offers a variety of climbing routes that range from easy top roping to the multi-pitch climbs along Machete Ridge. Climbing at Pinnacles has been popular since the 1930s, when first assents were recorded by noted climbers, such as David Brower. Over 800 routes have since been recorded with difficulty ratings up to 5.14 based on the system used by the National Association of Search and Rescue.

Although many of Pinnacles routes have ratings that show they are easy or intermediate, some of these routes can be run out or have aging bolts or other safety issues. Climbing is not allowed on routes where rock fall or dropped gear might injure people using established hiking trails. This does not apply to routes above climber access or social trails. No power drills may be used for bolting. By longstanding tradition, the first ascent ethic at Pinnacles is "ground up." Rappel placed bolts are not part of the Pinnacles first ascent ethic. Voluntary seasonal closures at some formations help to protect nesting falcons and eagles. Use of brown or gray webbing for anchors helps to reduce

the scenic damage caused when left behind. A climbing management plan would be developed as part of the implementation of the GMP.

CAMPING

The Pinnacles campground was privately owned until March of 2006, when it was acquired by the NPS. The campground is located on the east side of the monument and offers tent and group camping, along with RV sites. There are approximately 149 campsites. Each tent and group campsite has a picnic table and fire ring. Most RV campsites have electrical hookups and share community tables and barbecue pits. Water is located throughout the campground. Oak trees provide shade at many campsites. Showers and a dump station are also available. A convenience store is located by the campground entrance. This camp store also contains the East Pinnacles Visitor Center. The swimming pool, constructed as part of the campground when it was privately-owned, has been retained. On some busy spring weekends, the campground is full. During most of the year, there are many campsites available. Interpretive staff conducts campfire programs in the amphitheater, located in the campground, seasonally on weekends depending on staffing.

PICNICKING

Picnic facilities are located in several areas within the monument. Day use picnic facilities are located near the campground, Peaks View, Bear Gulch, Moses Spring, and Chaparral. A small day use area will also be constructed as part of the new west side visitor facilities.

WILDLIFE AND LANDSCAPE VIEWING AND PHOTOGRAPHY

Many visitors come to view and photograph wildlife and landscapes. Pinnacles supports healthy populations of numerous wildlife. It is a refuge for endemic species and listed and special status species. Pinnacles includes a high diversity of habitats. Miles of hiking trails traverse these habitat edges, offering great views of vegetation, wildlife, and geologic features.

WILDERNESS

Most of the land within Pinnacles National Monument including many areas accessed by the trail system are in the Pinnacles wilderness. Under the Wilderness Act, they are managed for greater protection from development and other "wilderness values." As defined by the Wilderness Act, "A wilderness, in contrast with those areas where man and his own works dominate the landscape is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain."

ACCESSIBILITY AND SPECIAL POPULATIONS

Pinnacles offers a few interpretive opportunities for those with impaired hearing, sight, mobility, and cognitive function, as well as people with difficulty understanding English. Park staff has made great strides in making orientation, information, and some interpretive materials available in Spanish, however the monument is far from multi-lingual. Some additional accommodations beyond what is currently available at Pinnacles may be required by NPS standards in the next few years so visitors of all abilities and backgrounds can fully access interpretive opportunities. As directed by the standards of the Interpretive Development Program, interpretive activities are modified to best meet the physical and cognitive abilities and knowledge base of each visitor to the greatest extent possible.

Because of the rugged volcanic terrain, most natural areas of Pinnacles are not easily accessible beyond developed areas to visitors with physical disabilities. A section of the Bench Trail has recently been hardened and graded for wheelchair access. This gently rolling trail passes through oak woodlands and offers views of the High Peaks rock formation. The trailhead begins at the Peaks View Picnic Area near the east entrance of the monument. The Chaparral area near the west entrance also offers views of Pinnacles' most spectacular geological formations from within or near the parking area. Wheelchair users can also access the Chaparral Picnic Area.

The visitor contact centers and restrooms on both the east and west sides of the monument are fully accessible. Parking areas have marked handicap spaces convenient to facilities. Picnic areas provide wheelchair access. Although the exhibits in the East Pinnacles Visitor Center include tactile displays, the only assistive material in Braille is the official park map and guide. As a result it is likely that a severely sight-impaired visitor would need assistance from a sighted person to fully experience the exhibits. This is especially true of non-personal interpretive services outside the nature center, including wayside exhibits, bulletin boards, and site bulletins, all of which depend entirely on two-dimensional images and written material.

Written interpretive materials throughout the monument and on the Internet benefit hearing-impaired visitors. In addition, NPS standards encourage sites to include assistive listening devices (headsets that narrate audio-visual programming at increased volume) as well as to provide interpreters fluent in sign language on request. Currently, neither of these services is available, and personal communication with hearing-impaired visitors occurs either through writing or a companion who knows sign language.

Pinnacles strives to provide appropriate informal interpretation to cognitively-impaired adults. Sometimes these visitors enjoy participating in the Junior Ranger program.

Pinnacles also receives moderate visitation from people for whom English is not their first language. Some of these visitors may know very little English. Spanish is the most common language next to English spoken by monument visitors. Pinnacles staff currently includes a few Spanish speakers, but efforts could be improved to increase staff Spanish language capability. There is a clear need for written materials to be translated into Spanish to enhance the interpretive experience as well as to provide for visitor safety. Bilingual information should also be available on the monument's website.

VISITOR FACILITIES

A variety of visitor facilities including a nature center, visitor center, trails, pull-outs and overlooks and a campground are available to monument visitors. Each district has visitor contact facilities.

East Side Campground Area

The campground was constructed in the 1970s and was operated by the previous landowner. The campground is currently operated by a National Park Service concessioner. Over the years, additional campgrounds within the monument have been removed by flooding or relocation (Moses Spring, Balconies Primitive Camp Area, Chalone Creek, and Chaparral Campgrounds). Visitor services previously provided at Bear Gulch Nature Center were relocated to the campground store in 2007. This location serves visitors more directly by providing wayfinding information nearer to the monument's east entrance. Though the area is similarly sized, there is less wall space for exhibits and current exhibits are substandard and/or obsolete. It also contains temporary exhibits designed to be used at outreach events. The monument's cooperating association, Western National Parks Association (WNPA), provides book sales.

Most visitors obtain information at the visitor center, including: personal assistance at the desk; maps, site bulletins, and information about Pinnacles and surrounding attractions. There are also daily loans of adventure packs for self-guided exploring and learning, exhibits, and other way-finding information. Most incoming public inquiries are also handled by visitor center staff.

Photos (top to bottom): 1. Bear Gulch Nature Center. 2. East Pinnacles Visitor Center. NPS photos.

Bear Gulch and Condor Gulch Area

The former Bear Gulch Visitor Center is now the Bear Gulch Nature Center. The Nature Center is open and operated by NPS, WNPA, and volunteers when staffing and funding permit. WNPA sales continue in the Nature Center. The building is outstanding, constructed of locally quarried rock by the Civilian Conservation Corps (CCC) in the 1930s and houses permanent and temporary exhibits that address the monument's primary interpretive themes. The nature center also contains a seismograph, touch table and other exhibits. This facility is the starting point for the majority of east side ranger guided walks and talks for visitors wishing to gain a greater insight and connection to monument resources.

West Side Visitor Facilities

The new west side visitor facility serves primarily as an orientation center; however, some space inside and outside the building is used for interpretation. The previous visitor contact station at Chaparral was deteriorating and exhibits needed replacement.

VISITOR INFORMATION

Prospective and virtual visitors can obtain information by accessing the monument's website. Information is also available via telephone, mail, and email requests. While basic information on rock climbing is available, there is currently no formal orientation program for climbers.

Education

CURRICULUM-BASED EDUCATIONAL PROGRAMS

Pinnacles began developing and presenting curriculum-based educational programs in 2002. The ability of Pinnacles to provide curriculum-based services for education groups has fluctuated over the past several years, in correlation with staff availability and the urgency of other priorities. Pinnacles offers one-day and multi-day programs. Each multi-day program consists of a pre-visit in the classroom, a visit to the monument, and a post-visit back in the classroom. Both programs are based on California State Content Standards for students in 4th through 8th grades.

For the one-day program, Pinnacles' education specialist collaborates with individual teachers to devise a program that is specifically tailored for the class. Using the park's resources as a guide, ateacher can choose a topic for their class visit focus. Typical topics include: Geology, Wildflowers, Botany, Caves and Bats, Cultural History, Condors, and their interconnectedness.

Teachers may also bring their class to Pinnacles and lead it themselves. An entrance fee waiver for school groups is available by application. All ranger-led programs contain a stewardship message and encourage awareness of the mission of the NPS.

Teachers are involved to a limited degree in the development and update of educational services at Pinnacles, through informal feedback and comment forms. Teacher involvement in the Pinnacles Education Program is well below expectations set by Director's Order # 6 and the Centennial Renaissance Action Plan. Increasing efforts in this area with teacher workshops held at the monument in the fall and/or winter inviting teachers to become more familiar with available materials and provide feedback for educaitonal material updates would greatly benefit teachers, students, and the monument.

Pinnacles developed and held several pilot multi-disciplinary 6th grade camp programs beginning in spring 2008. This tent-based camp incorporated current park curriculum and added a social science curriculum relating to Native Americans and Early Settlers. Staffing levels over the past several years have not been adequate to allow Pinnacles to fill many of the frequent requests for outreach education programs. Many area schools face difficulties in funding field trips, therefore an increased ability to visit classrooms is becoming more important. The diverse student population in this region also includes several groups traditionally underserved by the NPS, such as Hispanics, Native Americans, and low-income rural and urban youth.

School group visiting. NPS photo.

Providing outreach programs in schools would allow Pinnacles to reach these populations directly, and would create an invaluable opportunity to increase stewardship and support in gateway communities.

Although the Pinnacles Education Program provides high-quality services in some areas, additional funding and development is needed to meet public demand. To reach students not currently served, it is necessary to increase program availability and develop services for other age groups and topics that address additional park themes. Encouraging more teacher involvement and providing more in-school (outreach) programs would make Pinnacles' resources more widely available and establish a greater role for the monument as an education partner in area communities.

Interpretation

INTERPRETIVE PLANNING

The monument developed a long-range interpretive plan (LRIP) in 2004. This plan is a component of the monument's comprehensive interpretive plan (CIP) and drives the annual implementation plan (AIP) as directed by NPS DO-6: Interpretation and Education. The LRIP is intended to provide long-term direction and focus for the interpretive program for Pinnacles. Together with the park-produced AIP and the interpretive database, it will form the CIP. The LRIP describes the monument's primary interpretive themes and visitor experiences, and recommends ways to facilitate those experiences through facility design, interpretive/informational media, personal services programs, and partnerships. The LRIP also establishes the framework for subsequent program planning, and media planning, design, and production over 7 to 10 years.

INTERPRETIVE PROGRAMS

In the past few years, the staff has strived to consistently train, coach, and audit formal interpretive programs to the standards of the interpretive development program, including encouraging and rewarding the submission of programs for national certification. Additionally, interpretive staff encourages all park staff to engage in the peer-review process. This provides greater opportunities for a wider range of visitors to connect both intellectually and emotionally to the meanings of Pinnacles' many and varied resources, as recommended by national standards for interpretation.

The concentration of visitation in the spring, in addition to staffing constraints in the off-season, focuses most public interpretive programming on the spring season. In spring and summer, Friday welcome programs and rotating campground programs are offered in the monument's campground amphitheater. These programs allow an in-depth look at the monument's diverse interpretive themes, and can greatly enhance the depth of visitor understanding and appreciation. Ranger-guided walks through natural and historical areas and talks on a variety of monument interpretive themes are also offered on spring weekend days as staffing allows.

The monument conducts a year-round Junior Ranger program for children between 5 and 13 years of age via a self-guided Junior Ranger book and Adventure Pack that is reviewed with an interpretive ranger for a small award. In 2007, the monument was awarded a Junior Ranger Ambassador who assisted staff in the creation of a three tiered Junior Ranger book to better challenge a variety of learning styles and levels.

The number of visitors attending formal interpretive programs at Pinnacles has varied greatly over the last 7 years for which there is accurate data. The highest number of participants in formal programming occurred in 2006, with 4,383 participants. With the exception of 2002, when no formal programs were offered, the lowest participation occurred in 2003 with 1,866 participants. This wide fluctuation can be explained by the small size of permanent interpretive staff (between 1.0 and 1.5 FTE in recent years), the small size of seasonal staff (between 1.0 and 1.5 FTE), and the great reliance on volunteer and other labor through internship programs, particularly the Student Conservation Association (between 0 and 1.0 FTE).

As a result, there is currently a greater demand for formal interpretive programming than is able to be met by current staffing levels, especially in spring, on evenings in the summer and fall shoulder seasons, and by special request in the off-season.

NON-PERSONAL SERVICES: EXHIBITS, TRAIL GUIDES, PUBLICATIONS, AND WEBSITE

The wide variety of natural and cultural resources and interpretive themes at Pinnacles indicates a need for a variety of exhibits, publications, and webpages for visitors to learn about all the monument has to offer when that need cannot be met through personal contact.

Pinnacles has 13 wayside exhibits (large interpretive panels with graphics usually set on posts at waist height) as well as smaller interpretive and informational signs in the field. Interpretive wayside content highlights California condors, fire in the chaparral community, air quality, climbing, geology, and restoration activities. Many wayside panels were designed and installed prior to 1999. Future wayside exhibits would be replaced or added along the bottomlands and bench trail.

Photos (top to bottom): 1. Children from AMTB/ Coast Miwok/Southern Pomo tribes viewing an interpretive exhibit during the 2009 condor release event. Photo by Chuck Striplen. 2. Bird talk program. NPS photo. 3. Essay contest on Pinnacles NM stewardship. NPS photo.

The monument currently provides four self-guided trails with brochures: Moses Spring, Bear Gulch Seven Bridges, Balconies, and the Geology Trail. The brochures help to fill the gap created by a shortage of personal interpretive programming. Printing costs are subsidized by WNPA.

Site bulletins (specialty brochures providing in-depth interpretation of a subject) are available for all visitors, whether in person or on the web. These range from basic information about trails and sights to see, to in-depth historic and geologic background information and interpretation.

The Pinnacles website, at http://www.nps.gov/pinn, offers information, interpretation, modern and historic photos, maps, condor videos, and contact information. Although reliable annual statistics are not available, it can safely be assumed that Pinnacles receives thousands more "virtual visitors" annually than in-person visits, and that in-person visits to the monument can be greatly enhanced by a visit to the website.

SPECIAL EVENTS, INTERPRETIVE PARTNERS, AND COMMUNITY OUTREACH PROGRAMS

Although Pinnacles is not able to meet all community demands for participation in special events, fairs, and community meetings, there are several special events that occur in or out of the monument that attract a large number of participants.

There are several large in-park special events. The public release of California condors has occurred in either spring or fall. The Pinnacles Footprints event celebrates traditionally associated peoples of Pinnacles through lifeway demonstrations, educational activities, and experiential opportunities. The west side Community Celebration event, in partnership with local Hispanic, Native American, and civic organizations, engages the local community, the monument, and local organizations to share resources and stories. Other in-park events include Junior Ranger Day, International Migratory Bird Day, Earth Day, Wildflower Week, and Butterfly Weekend. In 2008, the monument celebrated its 100 year anniversary. Events included multiple celebrations on the monument history and culminated in re-dedication of the monument and an alumni celebration.

The largest out-of-park special events that garner annual participation from Pinnacles are the Salinas Valley Fair in May and the San Benito County Fair in September. Pinnacles participation in these events includes staffing booths for three to four days, with monument-related exhibits, videos, and children's activities.

Pinnacles staff, both from the interpretation and resources divisions, are sometimes able to support other requests for outreach presentations and displays. These

have included the Soledad Expo, multiple partnership events with the Monterey Bay Aquarium, saddle horse parades, non-lead ammunition events, hunter education workshops, rancher's workshops, and scholarly articles and associated slide presentations for the George Wright Society and California Invasive Plant Society.

Given its size, Pinnacles has a moderate number of local public, private, and non-profit partner activities. These include attendance at local meetings of Pinnacles Partnership, San Benito Weed Management Area, California Condor Recovery Team, San Benito Fish and Game Commission, Rotary International, Chambers of Commerce, Hollister Downtown Association, San Benito County Parks Commission, as well as liaison to WNPA.

Hollister BLM lands, Los Padres National Forest, Hollister Hills State Recreation Area, and Henry Coe State Park have ecosystems similar to Pinnacles. As a result there are opportunities for crossover in interpretation of geology and ecology. Interpretive staff coordination is limited by staffing, funding, and time constraints within all four agencies. Nonetheless, monument interpretive staff has coordinated trainings and participated in outreach events with both agencies.

Although Pinnacles participates in monument and community outreach activities, there are opportunities to increase these activities to meet demand and to increase local support. Engaging new audiences, along with visitor and education services, should continue to expand in the future, especially in coordination with neighboring agencies and tribes to bolster a perspective that supports both the ecological and sociological continuity of the Monterey and San Benito counties people and lands. In support of this, the monument is currently working with the Pinnacles Partnership to develop an environmental outreach program for local communities and educational groups. The program focuses on educational stewardship and environmental principles.

Regional Recreational Opportunities

Pinnacles National Monument is located in both San Benito and Monterey Counties. Besides Pinnacles National Monument, there are federal and state and other parklands, including Bureau of Land Management lands, state parks, county and city-owned parks, historical sites, and special use areas that also provide important recreational amenities for local residents and visitors.

SAN BENITO COUNTY RECREATIONAL OPPORTUNITIES

There are approximately 144,416 acres of federal, state, county, and city park and open space areas in San Benito County. These areas range from open space to developed parks that include a variety of amenities such as picnicking, swimming, rock climbing, off-road vehicle areas, hunting, bird watching, playgrounds, sports fields, and hiking.

In the 1992 General Plan, the County adopted a minimum parkland standard of 5.0 acres of parks for every 1,000 residents. The unincorporated parts of the county currently do not meet this standard; however, most residents living within or near the cities of Hollister and San Juan Bautista have adequate parkland. In 2008 there were approximately 2.5 acres of parkland per county resident (144,416 acres of total parkland and 57,784 people).

San Benito County owns or operates several parks. The four larger county parks include Bolado Park, Hernandez Reservoir, San Benito Historical Park, and Veteran's Memorial. Bolado Park houses the San Benito County Fairgrounds, seven miles southeast of Hollister. The fairgrounds host weddings, family picnics, dinners, dances, and conferences. In June the fairgrounds host the San Benito County Saddle Horse Rodeo. During the Fall it hosts the San Benito County Fair.

San Benito County has over 10 miles of bikeways and extensive rural road systems conducive to cycling. The majority of the bikeway segments are located in Hollister. There are approximately 8.5 miles of bike lanes in the county. The county has a proposal for a scenic trail to Pinnacles National Monument.

There are two public golf courses in San Benito County and two semi-private golf courses at a resort that accept public play. There are also several private recreation facilities in San Benito County. These include private camping, horseback riding, and hunting facilities. Private hunting clubs can be found extensively throughout county, including grasslands, wetlands, and water resource areas. These areas provide valuable wildlife habitat, passive recreational use in the non-hunting season, and cattle grazing. Other organizations, such as churches and civic groups also provide recreational facilities, including gymnasiums and performance halls. Most open space recreational uses on private land are camping facilities and RV parks.

A portion of the 1,210 mile Juan Bautista de Anza National Historical Trail traverses San Benito County and also passes through the Mission San Juan Bautista.

There are several areas managed by the BLM that provide a range of recreational opportunities, including:

- Clear Creek Management Area includes 63,000 acres and has been a popular area for off-highway vehicle (OHV) recreation, hunting, backpacking,

and sightseeing. Since May 2008 many public lands, including this area, have been closed to protect the public from naturally-occurring asbestos, an environmental hazard.

- San Benito Mountain Natural Area, which is open to hiking and hunting, contains San Benito Mountain and approximately 1,500 acres of non-public lands. The Panoche Hills area provides passive outdoor recreational activities, including hunting, camping, hiking, and wildlife viewing.
- Griswold Hills, consisting of approximately 10,000 acres of BLM-administered land, includes a 516-acre wilderness area containing oak-grassland habitat. The area is a popular destination area for hunters and for observing spring wildflowers.
- Tumey Hills, located east of New Idria Road, includes a network of hiking trails. A small portion of the area is within San Benito County.
- San Justo Reservoir and Recreation Area includes approximately 501 acres of recreation and 200 acres of water. Recreational activities at the reservoir include boating, fishing, windsurfing, sailing, mountain biking, picnic shelter areas, and other facilities. The recreation area is currently closed to the public due to a zebra mussel infestation.

There are three California State Parks (CSP) within San Benito County. The Hollister Hills State Vehicular Recreation Area (SVRA), located approximately six miles south of Hollister, includes bike, off-road, and obstacle course riding trails. The recreation area has group campsites, camping facilities, hiking trails, and a visitor center. San Juan Bautista State Historic Park is a nationally-recognized historic landmark located adjacent to Mission San Juan Bautista. The park has several structures built in the 1800s, including four historic museums. Fremont Peak State Park provides access to a one-mile hiking loop to Fremont Peak. The peak offers a panoramic view of the surrounding scrub oak woodlands, manzanita, toyon, and grassland habitats, the Gabilan Range, San Benito Valley, Monterey Bay, and Santa Lucia Mountains. The park includes an astronomical observatory and also provides picnic sites, camping, and wildlife viewing areas.

MONTEREY COUNTY RECREATIONAL OPPORTUNITIES

There are many parks and open space areas throughout Monterey County. The region includes an ecologically diverse landscape, including beaches, coastal dunes, wetlands, a dramatic rocky shoreline, redwood canyons and coastal peaks. Multiple agencies manage parks and open space in Monterey County, including the NPS, USFS, BLM, U.S. Fish and Wildlife Service (USFWS), CSP, California Department of Fish and Game (DFG), Monterey Peninsula Parks District, Monterey County Parks Department and local municipalities. The County parks system encompasses about 10% of the County's total park acreage (Monterey County 2007).

Notable public lands and open space include the Los Padres National Forest, Fort Ord National Monument, Big Sur coast state parks, as well as Lake Nacimiento, Lake San Antonio, and Laguna Seca Regional Parks.

A portion of the 1,210 mile Juan Bautista de Anza National Historical Trail runs the length of Monterey County, passing through the Salinas Valley. The trail also passes through Fort Ord National Monument.

FEDERALLY-OWNED OR MANAGED LAND

The federal government owns and manages several hundred thousand acres of land in Monterey County, including the Los Padres National Forest, Fort Hunter Ligget, Pinnacles National Monument, Salinas River National Wildlife Refuge and a broad array of BLM lands.

- The Los Padres National Forest (LPNF), managed by the USFS, encompasses 1,752,400 acres, some of which is in Monterey County. LPNF extends along the coast from the Big Sur area of Monterey County to the western edge of Los Angeles County. Recreational activities permitted within the LPNF include hiking, camping, mountain biking, OHV travel, picnicking, and many other outdoor recreation activities. In addition, several large wilderness areas are within the LPNF, including the Ventana Wilderness.
- The Salinas River National Wildlife Refuge, managed by the USFWS, is located approximately 11 miles north of the City of Monterey. The refuge provides habitat for several threatened and endangered species. Although, the refuge is open to the public, there are no facilities except a parking lot and footpaths. Permitted activities include fishing, hunting (seasonal), photography and wildlife observation.
- The Elkhorn Slough National Estuarine Research Reserve (ESNERR) is one of 26 National Estuarine Research Reserves established nationwide as field laboratories for scientific research, estuarine education and habitat stewardship. The ESNERR is owned and managed by the CDFG and it is operated in partnership with the federal National Oceanic and Atmospheric Administration (NOAA) and the local, non-profit Elkhorn

Slough Foundation. The 1,400-acre reserve hosts programs that promote education, research, and conservation in Elkhorn Slough. There are five miles of trails that meander through oak woodlands, tidal creeks, and freshwater marshes. Elkhorn Slough is renowned for its birding opportunities during fall, winter, and spring.

- The BLM administers several thousand acres of land throughout Monterey County. Holdings include the newly designated Ford Ord National Monument on the Monterey Peninsula, and rugged land adjacent to the Los Padres National Forest. Equestrian activities, hiking and mountain biking are allowed in Fort Ord National Monument. The BLM land near the Los Padres National Forest is mostly inaccessible and is designated as a Wilderness Study Area.

CSP owns and operates 20 park units in Monterey County, totaling 17,567 acres. Most of these units are on or near the coast. Several of these state parks, including the Fort Ord Dunes State Park on the Monterey Peninsula, Marina State Beach in Marina, Point Lobos State Reserve in Carmel, and the Julia Pfeiffer Burns State Park on the Big Sur Coast attract visitors from throughout California and around the world.

The Monterey Peninsula Regional Park District (MPRPD) is a special parks and open space district located on the Monterey Peninsula. The MPRPD was entrusted to acquire lands for the express purpose of preserving open space and providing recreational opportunities. The MPRPD has protected approximately 20,000 acres of open space and acquired, or helped to acquire, a total of 24 parks and open spaces along the Monterey Peninsula, Big Sur Coast, Cachagua and Carmel Valley.

The Monterey County Parks Department is responsible for the operation and maintenance of a system of nine regional parks and two lakes encompassing over 12,155 acres of land and 10,000 acres of lakes. San Antonio Lake, located southeast of Jolon and Lockwood in the South County area, encompasses 12,000 acres and is the largest county-operated recreational area. Toro Park is the second largest county-operated park facility comprised of 4,783 acres. These county-owned public lands provide open space and recreational opportunities primarily on a regional scale for unincorporated areas of the County, rather than at the neighborhood level. Royal Oaks Park and Manzanita Park serve the residents of the north county. Jacks Peak and Toro Park are located adjacent to Monterey-Salinas Highway 68 and serve residents from the Monterey Peninsula and the Greater Salinas Area. San Lorenzo Park, just north of King City, serves residents of the Salinas Valley and county visitors. The Lake San Antonio Recreation Area and the Laguna Seca Recreation Area/Raceway serve not only county visitors but also those from throughout California, the nation, and the world.

There are hundreds of miles of hiking, equestrian and bike trails in Monterey County. Notable hiking trails in Monterey County within the Los Padres National Forest include the Arroyo Seco trails, Little Sur Camp, the Blue Rock Ridge Trail, the Pine Ridge Trail and the Santa Lucia Trail. There are over fifty hiking trails within the Ventana Wilderness. Many of the state parks also contain extensive trail systems, including Andrew Molera State Park, Pfeiffer Big Sur State Park, Point Lobos State Reserve, and Fremont Peak State Park.

Facilities and Asset Management

Infrastructure and Facilities

Developed areas within Pinnacles National Monument include the monument operational facilities, infrastructure, and visitor facilities on both sides of the monument. Park operational facility areas include: Bear Gulch Headquarters area, the Pinnacles Campground on the east side, Chalone Housing/ Maintenance area, the West Pinnacles Maintenance and Housing Area, Chaparral day use area, associated roads and parking, resource management facilities – monitoring equipment, and fencing. The monument's infrastructure, including water, wastewater, electrical and other utilities, is in relatively good condition.

A variety of visitor facilities including a nature center, visitor contact station, visitor center, trails, and campground are available. Each district has visitor contact facilities. On the east, the East Pinnacles Visitor Center, was relocated from Bear Gulch to the campground store in October 2007 and replaced with the Bear Gulch Nature Center. On the west, visitor services have been relocated to the new West Pinnacles Visitor Contact Station. Other visitor facilities include the amphitheater on the east side, a trails network, picnic areas, associated roads and parking.

Because of the monument's steep terrain, facilities are located in valley bottoms, very close to creek channels. In the past two decades, three major floods in the Chalone Creek watershed have occurred, including a 40-year flood event in 1998, which resulted in extensive damage to park facilities. These flood events, in 1995 and 1998, destroyed the road bridge to Bear Gulch, the trails operations building, a mobile home, a cabin and a 180 car parking area. Also severely damaged were roads, trails, and utilities. Repairs spanned through 2004 and included the construction of a replacement road bridge, a trails

Photos (clockwise from top left): 1. Historic Bear Valley School. 2. Ben Bacon House. 3. Butterfield Barn. NPS photos.

building, and repairs to infrastructure. The mobile home, cabin, and parking area have been replaced and relocated to West Pinnacles.

In 2006, the 2000-acre Pinnacles Ranch was acquired which included two historic ranch homesteads, numerous cross fences and a campground. The campground includes a pool, a store, trails, roads and parking areas. The former Pinnacles Ranch also contains a dump station, sewer systems, a water system, and several non-contributing buildings and structures (i. e. aircraft hangars, horse shade structures, riding paddocks, and mobile home trailers) that have been removed since acquisition.

In 2011, the 1.5-acre property containing the historic Bear Valley School building was acquired. The adjacent property includes associated utilities (water, waste water, electrical).

In January 2012, construction was substantially completed on the relocated visitor, maintenance and housing facilities in the west side of Pinnacles. This project removed the flood-prone Chaparral ranger contact station, maintenance facilities and housing unit. New facilities consist of an entrance station, visitor contact station, parking area, maintenance facility, housing units and associated utility systems and infrastructure. The replacement visitor contact station is in the process of being commissioned to receive a Platinum LEED rating. The housing units meet California energy standards and the utility systems are integrated with a control system. The new facilities are off-grid, not connected to commercial power, with power provided by a photovoltaic system.

Asset Management

The NPS defines an asset as a physical structure or grouping of structures, land features, or other tangible property which has a specific service or function. There are many types of assets in the National Park System, including roads, trails, buildings, and utility systems to monuments, marinas, fortifications, and aviation systems.

The Asset Business Plan (ABP) has been developed to help national parks better understand and manage their assets. Using the data on 'industry standard assets' (includes roads, trails, campgrounds, buildings, housing, water systems, and waste water systems) from the Facility Management Software System (FMSS), the ABP is a subsection of the larger Park Asset Management Plan (PAMP). The ABP allows managers to review their inventories, conduct analyses, and document requirements for operating and sustaining their portfolio of assets. This process supports budget formulation and is the first step in determining which resources are required to bring the portfolio of assets up to an acceptable condition and properly sustain it over time.

All of the monument's built assets have been prioritized through the use of the Asset Priority Index (API). API is a facility's relative importance to the monument. API is a key element to improving the management of a large portfolio of assets. Understanding the relative importance of assets enables leadership to make critical budgetary and programmatic decisions, putting often scarce resources to their best use. The NPS API ranks assets on a low-to-high scale ranging from 0 to 100. A lower API indicates the asset's contribution is less significant in relation to accomplishing the mission of the monument. Conversely a high API indicates that the asset contributes significantly to the mission of a national park unit.

The Facility Condition Index (FCI) is a simple measurement of a facility's relative condition at a particular point in time. The FCI uses a numeric rating system to rank assets. Dividing the collective value of all deficiencies (deferred maintenance) by the Current Replacement Value (CRV) provides the FCI. The calculated FCI is recorded within to document an asset's relative condition. Using the API and FCI together, park managers can begin to identify their highest priority assets that are in the worst condition by plotting the API and FCI.

In February 2012 there were 188 assets with an average FCI of 0.119 and an average API of 68. Since 2006, the newly acquired lands added 62 assets whose current average Asset Priority Index (API) rating is

Photos (top to bottom): 1. Resource Management facilities at Bear Gulch Headquarters. 2. Peaks View day use area. 3. Administrative space in East Pinnacles Visitor Center. 4. Maintenance facilities at Chalone. NPS photos.

FIGURE 3: FACILITY CONDITION INDEX - ASSET PRIORITY INDEX STATUS AT PINNACLES

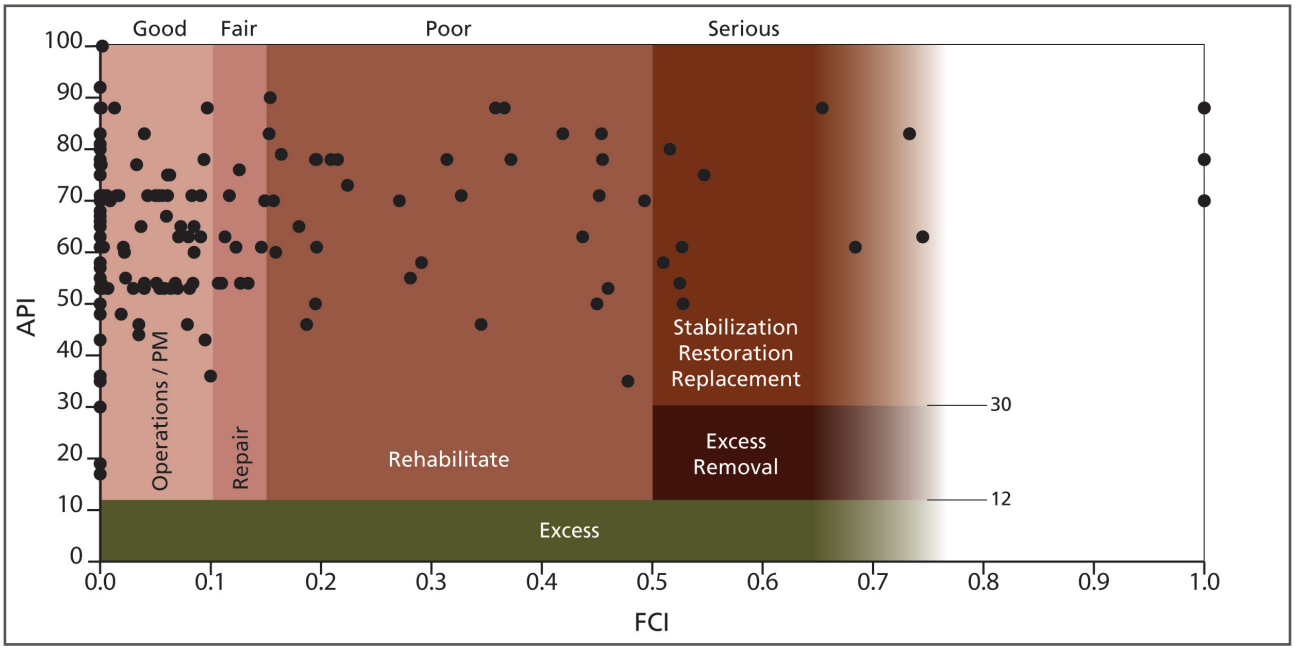


TABLE 17: PARK ASSETS

Asset Type	Count	Quantity	Unit of Measure	Average API	Average FCI
Roads	18	18.6	Miles	63	0.046
Parking Lots	19	143,566	Square Feet	68	0.194
Road Bridges	2	4,494	Square Feet	77	0.002
Trails	19	200,374	Linear Feet	66	0.081
Maintained Landscapes	9	2,056	Acres	76	0.121
Boundaries	2	617,760	Linear Feet	60	0.340
Buildings	60	32,418	Square Feet	58	0.151
Housing	13	16,509	Square Feet	48	0.085
Water Systems	5	62,300	Gallons per Day	80	0.158
Waste Water Systems	9	18,975	Gallons per Day	81	0.000
Utilities	6	1	Each	75	0.119
Other	4	1	Each	63	0.106
Grand Total	**166**			**64**	**0.120**

61. The current condition assessment for these assets conducted so far reveal an average Facility Condition Index (FCI) of 0.097.

In 2004 four mobile home trailers in the Chalone Creek area were replaced with newly constructed 8-bedroom dorm and a 2-bedroom duplex. Also constructed were a fire cache building, and a trails/carpentry shop. The average FCI is 0.036 and API is 55.

The facilities with the highest and worst FCI rating are Bear Valley School (1.433), Peaks View Parking Area (1.329) and the Bear Gulch Sewer System (1.144). Bear Valley School work is associated with bringing a historic structure up to current building standards associated with future uses identified in the GMP alternatives. The Peaks View Parking Area is a Capital Improvement Project (CI) to change the gravel parking lot to paved and to install vault toilets to replace the rental portable toilets. Replacement of the Bear Gulch Sewer involves relocating the leach field out of a creek area. In addition, there is a high amount of deferred maintenance issues. Nearly 60% of Pinnacles's deferred maintenance is based on FHWA maintained work orders.

Wilderness

The National Park Service is required to manage wilderness in accordance with the Wilderness Act of 1964. The Wilderness Act directs managers to preserve wilderness character and mandates that both wildness and naturalness be preserved. Congress defined wilderness as an area "...in contrast with those areas where man and his works dominate the landscape . . . as an area where the earth and its community of life are untrammeled by man." Congress further defined wilderness as an area that is "protected and managed so as to preserve its natural conditions. . . with the imprint of man's work substantially unnoticeable" and that wilderness "has outstanding opportunities for solitude or a primitive and unconfined type of recreation." Broadly, wilderness character can be considered to have four qualities:

- Untrammeled: Wilderness is an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain.
- Natural: Wilderness is an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions
- Undeveloped: Wilderness generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable;
- Opportunities for Solitude or Primitive and Unconfined Recreation: Wilderness has outstanding opportunities for solitude or a primitive and unconfined type of recreation.

The Wilderness Act also prohibits certain activities such as the use of motorized equipment, mechanical transport, structures or installations, and landing of aircraft unless it is considered the minimum requirement for the administration of the area for the purpose of preserving wilderness character. In addition, NPS policies mandate that management decisions affecting wilderness are consistent with the minimum requirement concept.

In 1976, 12,952 acres within Pinnacles National Monument were designated as wilderness under Public Law 94-567. This concept of assigning additional protections to sensitive natural areas at Pinnacles National Monument beyond fundamental NPS regulations precedes the 1964 Wilderness Act. In 1938, a Peregrine Falcon Sanctuary encompassing the Balconies area and lands north to that era's monument boundary was established to protect raptor nesting sites (unfortunately this area was unable to compensate for later regional decline of this species). The sanctuary's purpose was to limit human disturbance of wildlife and later became the nucleus of Congressionally designated wilderness. Boundary adjustments and an additional Congressional designation in 2002 (Public Law 107-370) brought the total Pinnacles Wilderness acreage to 16,048 – over 65 % of the monument. The Wilderness Act and NPS Management Policies (2006) require analysis of wilderness suitability when new lands are acquired as well as wilderness stewardship plans for national park units with wilderness. Therefore, in compliance with these policies, a wilderness stewardship plan for the monument is called for by this GMP.

The Pinnacles Wilderness protects the natural character of central California's native ecosystems and provides opportunities to experience wildness in a region of expanding urban development. Exceptional examples of Coast Range chaparral vegetation communities and the remains of a relic volcanic field characterize the monument's wilderness. Pinnacles Wilderness is unique to the region in that it includes major geologic faults directly associated with the San Andreas Fault. Encompassing a range of geologic features and habitats, the topography within designated wilderness ranges from 760 feet to 3,269 feet on South Chalone Peak.

The Pinnacles Wilderness contributes to preserving America's heritage by providing access to large undeveloped areas where the visitor can catch a glimpse of natural processes at work and feel that they are a part of the larger community of life. Pinnacles Wilderness offers the ability for visitors to immerse themselves in natural elements of a remote, pristine central California landscape. The Pinnacles Wilderness offers visitors the reward of seeing expansive, high quality, undeveloped vistas; exploring natural landscapes large and small; breathing clean air; and the ability to experience outdoor solitude and natural quiet. The high concentration of aromatic native plants and flowers enhances the opportunity for visitors to immerse themselves within an untouched wilderness landscape. Each season features unique fragrances returning visitors expect to experience in this wilderness area. Pinnacles Wilderness also contains natural systems that allow visitors to witness and experience dynamic systems, i.e. floods, rockfall, earthquakes, etc., at work in a natural setting where the imprint of man is substantially unnoticeable. These qualities make Pinnacles Wilderness particularly valuable given the monument's 60-mile proximity to a major metropolitan region.

CONDITIONS AND USE

Native vegetation predominates the wilderness and benefits wilderness character in Pinnacles. Non-native invasive plants are present in wilderness areas, but not widespread. Prevention and early detection practices play a primary role to prevent the spread of nonnative invasive plants. Invasive plants enter the wilderness

through a variety of means from transport on shoes and socks, to transport via bird droppings. Administrative stock operations in wilderness areas can also introduce or spread non-native plants into wilderness.

The Chalone Peak Trail and North Wilderness Trail are the longest trails that extend into the Pinnacles Wilderness. Radiating out from developed corridors in Bear Gulch, the Chalone Creek drainage, and Chaparral, these trails have their origins during the era of CCC projects during the 1930s. Currently, the monument includes approximately 32 miles of maintained trails, the majority of which follow a course through wilderness. These wilderness trails provide visitors with opportunities to experience solitude and opportunities for reflection in primitive and unconfined settings.

Much of the Pinnacles Wilderness boundary reaches the monument boundary and is bordered by private ranches and vineyards. NPS staff periodically monitors the wilderness boundary to identify possible encroachments on its wilderness qualities. Threats of particular concern are trespass by livestock, off-road vehicles, and introduction of invasive plant species or non-native animals. Broader scale management concerns are air, water, noise, and light pollution from surrounding non-wilderness lands, although the rural nature of neighboring lands generally contributes to the overall high quality of these resources within wilderness (see Air Quality, Natural Sounds, Night Sky, and Water Resources sections).

Some resource management activities in wilderness can affect its untrammeled quality. At Pinnacles, a small number of prairie falcons (5-10 birds per year) are tagged and invasive plant control occurs along trails and riparian corridors throughout designated wilderness. Activities such as these are done primarily to enhance the natural qualities of wilderness.

Natural Resources

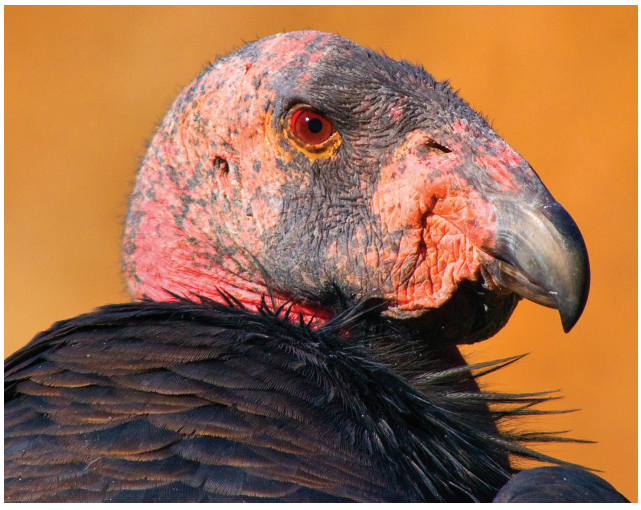
Air Quality

CONDITIONS AND SETTING

Air quality at Pinnacles is an important resource and, on good days, is a defining feature of the national monument. Not only does clean air directly enhance visitor enjoyment, but increased visibility of landscape features enhances visitor understanding and appreciation of natural systems. Pinnacles NM is located within California's North Central Coast Air Basin on the border of San Benito and Monterey counties. The monument, including over 16,000 acres of wilderness, is designated as a "Class I" airshed. The Clean Air Act affords Class I areas the greatest protection against air pollution. This designation requires federal land managers to protect the monument's air quality-related values, including visibility, against air pollution impacts.

Air quality in the monument varies from excellent to poor, depending on the pollutants being measured, the location in the monument, the season and time of day, the wind direction and other factors. The pollutants of most concern to monument air quality are fine particulates, ozone, sulfates and nitrates. Good air quality is aided by the proximity to the coast (35-40 miles) and the surrounding rural landscapes. Pinnacles enjoys good air quality on most days. Monitoring data have shown a trend of cautious stability. Of particular concern are the recent and ongoing growth of urban areas within the Salinas Valley and the southward expansion of the San Francisco Bay metropolitan area. This growth is reducing the distance between urban pollution sources and the monument.

Photos (left to right): 1. A Brown Elfin butterfly nectars on bush lupine. Photo by Paul G. Johnson. 2. Head detail of a California condor sub-adult. Photo by Gavin Emmons © 2011.



Pinnacles National Monument lies within an area of low population density in the Gabilan Mountain Range. These mountains are part of the central California Coast Range complex, which run roughly parallel to the coastline east and south of Monterey Bay. Areas adjacent to the monument are primarily agricultural; all but two of the towns or cities within 30 miles currently have fewer than 15,000 inhabitants. The exceptions are Salinas, 26 miles to the northwest with a population of 151,000; and Hollister, 23 miles north with a population of 35,000. The Salinas Valley to the west is the source of most air pollution that typically reaches Pinnacles. Seasonally, air quality at Pinnacles is also affected by industrial and urban sources from San Jose and the Silicon Valley 65 miles to the north, an area of well over one million inhabitants.

Although still superior to that in many parts of the country, visibility in the monument is sometimes impaired by light-scattering pollutants (haze). Ozone pollution is also of concern. Several plant species that occur at Pinnacles, including blue elderberry (*Sambucus mexicana*) and Douglas' sagewort (*Artemisia douglasiana*), are known to be sensitive to ozone. In addition, Pinnacles NM historically has had a great abundance and variety of lichens, which give the namesake pinnacle rocks their varied hues. Many of the species present are known to be sensitive to air pollution and may already be impacted (Benson 2003).

CLIMATE

The region's climate is strongly influenced by the North Pacific High Pressure System, which typically migrates north each spring and south each autumn, influencing the direction of winds and storm systems arriving from the ocean. At Pinnacles, summer is the season when the most light-scattering particulates are in the air; summers are typically hot and dry during the day, with infrequent winds. However, coastal fog often moves inland during the evenings and night, providing some mixing. Additionally, during periods of low air movement, pressure sometimes forms inland, leading to irruptions of easterly winds. These winds push pollutants out to sea, but may also carry dust and particulates from the San Joaquin Valley into Pinnacles. Most winds in the region, however, result from a combination of the offshore high-pressure system and lower pressure inland, resulting in westerly to northwesterly winds throughout much of the year. Less frequently, northerly winds and a persistent inversion layer draw air pollutants from Silicon Valley and the Santa Clara Valley into the monument.

MONITORING

The NPS Air Resources Division and the Environmental Protection Agency established particulate matter and ozone monitoring stations near the east entrance of Pinnacles National Monument in 1987, which have been running continuously since that time. Additionally, as part of the Interagency Monitoring of Protected Visual Environments (IMPROVE) network, visibility in the monument has been monitored using an aerosol sampler (1998-present), a transmissometer (1988-1993) and an automatic 35mm camera (1986-1995). An analysis of 1989-2008 data from the monument indicates that visibility in the area is improving on both the clearest days and the haziest days (NPS 2010). The monument also has an official weather station located at the base of Condor Gulch. This station has provided long-term data, but the spatial variation in weather and climate has not been researched. Due to the limited instrumentation and lack of historical climate data, the monument lacks a detailed portrait of local microclimates.

SOURCES OF AIR POLLUTANTS

The principal air pollutants of concern for Pinnacles are ozone precursors, including nitrates (NOx), reactive organic gases, (ROG) and particulate matter (PM). Sulfur dioxide (SO_2) emissions are not high. The major point sources of emissions (those that emit at least 100 tons/year of ROG, NOx, particulate matter less than ten microns in diameter (PM10), or SO_2) in the region are located near communities that are not adjacent to Pinnacles, e.g. energy facilities in San Ardo and Moss Landing. Within Monterey and San Benito counties, non-point sources of pollution, mostly mobile sources, are the greatest (California Air Resources Board 1998b).

The rate of urban and suburban growth in the Pinnacles region may lead to a substantial increase in pollution during the coming years. San Benito County's population is projected to nearly double, with a 94.1% increase by 2030, about twice as much as the average growth across California over the same 30 year period. Monterey County is projected to increase 31.7% between 2000 and 2030 (U.S. Census 2007).

Within Pinnacles National Monument there are a variety of known sources of air pollutants, including petroleum fuel vehicles used for most of the monument's small fleet of transportation vehicles and heavy machinery. These vehicles contribute an unidentified portion of the local air pollutants. The monument also operates 2 hybrid electric highway vehicles, 3 golf cart type Neighborhood Electric Vehicles (NEV), and 3 truck NEVs. Prescribed fires cause periodic emissions that roughly replicate a natural pollution source and are seasonally timed based on permission from the California Air Resources Board. Campground fires, visitor automobiles, and park commuter traffic often represent the most significant pollution sources within

the monument. Finally, furnaces providing heat to monument residences, offices, and shops are regular, though relatively minor sources of air pollutants.

Programs at the monument also work to minimize pollution sources. These include operation of a shuttle service that reduces the number of personal vehicles driving from the campground to the main trailheads in Bear Gulch. The monument installed solar panels at the East Pinnacles Visitor Center. While this effort does not directly reduce pollution inside the monument, it is an example of the monument's growing commitment to sustainability.

Climate and Weather

The climate of Pinnacles is typical of the Mediterranean climate of California, with cool wet winters and hot dry summers. Summer temperatures of over 100°F are common, but coastal fog will often come into the valleys at night. Nighttime summer temperatures of 50°F are common, making for enormous daily temperature swings.

Winter climate is similar to the California deserts, with mild days and nights often dropping into the low 20s. The average precipitation is approximately 16 inches per year. Nearly all of the precipitation is in the form of rainfall, with the majority occurring from December to March. Snowfall is rare, but does occur in significant amounts about every 10 years.

The great variability in seasonal precipitation is due to the east Pacific high. This dominant weather feature shifts northward in the summer to shunt storms far to the north. Occasionally this feature brings subtropical moisture into central California from southerly latitudes, producing one to five thundershowers per year in the monument. Mostly, however, the east Pacific high acts as a giant valve completely shutting off precipitation for long stretches of the year.

California is known for its long dry and wet cycles. Changes in the East Pacific high shift on approximately a six-year cycle. The result is persistent drought for five to eight years, followed by a wet period. Such cyclic variation is an important consideration in vegetation, wildlife, and water management.

Climate Change

Climate change models have been developed to project future alterations to temperature and precipitation regimes in the State of California (Hayhoe et al. 2004, Cayan et al. 2008). While modeled changes in climatic variables can vary substantially based on differing emission scenarios, all current models predict significant warming during the 21st Century. Already, increased temperatures, presumably due to anthropogenic influence, have been documented state-wide and impacts from climate change are already occurring; however, changes in climate are anticipated to be more rapid and severe in the future (CEC 2009).

In the last fifty to eighty years, the climate in California has become warmer. This increase in temperature has been documented using multiple sources of historic data. For example, heat waves have become more humid and warmer primarily as a result of higher night-time temperatures (Gershunov and Cayan 2009). Regional mean March temperatures have increased 1.8 degrees F every decade since 1948, resulting in earlier melting of the snow pack in the Sierra Nevada and, likely, a positive feedback related to albedo effects (Kapnick and Hall 2009). Overall, California has experienced a warmer late-winter/early-spring as measured by mean and maximum daily temperatures (Bonfils and Duffy 2007). Specifically within the climatic region where Pinnacles is situated, annual minimum temperatures have increased by 3.7 degrees F per decade since the 1920s (Pittiglio et al. 2008).

Unfortunately, climate models predict even greater increases in temperature for the future of California. By the end of the 21st Century, global climate models have simulated an increase in mean annual temperature between 2.7 and 8.1 degrees F, depending on the emission scenario utilized (Cayan et al. 2008). An earlier study modeled a 4.1 to 10.4 degree F increase in mean annual temperature by the end of this century (Hayhoe et al 2004). Because of the inherent variability in precipitation that is associated with California's Mediterranean-like climate (Michaelsen et al. 1987), future changes to the precipitation regime and confidence in modeled predictions are relatively low compared to those generated for temperature change. Future precipitation simulations developed by Cayan et al. (2008) and Hayhoe et al. (2004) did not reveal any strong trends towards increasing or decreasing mean annual precipitation in the central portion of the state, although Hayhoe et al. (2004) did predict a decrease in precipitation for southern California. However, both of these studies suggest that overall, future precipitation may possibly occur more often in association with severe storms events. Thus, rainfall amounts in the climatic zone where Pinnacles is located may or may not change over the long-term but rainfall will likely occur in less frequent but more intense storms.

FLORA

The vegetation that occurs in Pinnacles National Monument is typical of other locales throughout the interior South Coast Range, which runs north to south along the central coast of California. The

chaparral vegetation type that dominates the landscape in addition to the other upland plant communities found in Pinnacles are composed of species highly adapted to long, rain-free periods that coincide with summer drought. Because the climate in this part of California is highly variable (Michaelsen et al. 1987), many of the plant species are resilient and/or resistant to stress caused by low water availability. However, any long-term change in climate will undoubtedly have a profound influence on the vegetation types found here.

Based on paleobotanic records, it is believed that increases in just 1 degree C or 1.8 degrees F have dramatically altered the geographic distribution of plant species and the vegetation types they form throughout many portions of California (Axelrod 1981). Because climate change models predict increases much greater than 1.8 degrees F, it is likely that plant species and vegetation types will change dramatically in the future. For example, Loarie et al. (2008) predicts that out of the 2,387 endemic plant taxa found in California, 66% will experience a greater than 80% decrease in their distribution across the landscape. Based on the historic and ongoing increases in temperature recorded in California, evidence of response to climate change has already been documented as chaparral, woodland and other vegetation types have experienced massive die-offs of dominant species and/or have shifted upward in elevation (Paddock 2006, Kelly and Goulden 2008). Plant taxa with shallow root systems, like *Arctostaphylos glauca* (Hellmers et al. 1955), which occurs in the chaparral of Pinnacles, may be the first to experience stem die-back or mortality, similar to what has occurred in warmer locales in southern California (R. Steers, University of California, Riverside, unpublished data). Wetland or riparian plant species may also be especially vulnerable if rainfall patterns shift towards more intense, pulse-like events since this will likely result in more surface run-off and less infiltration to recharge local groundwater that feeds creeks into the dry season.

FAUNA

As with flora, different animal species in California have been and will continue to respond to climate change. Resampling of historic datasets in both the Sierra Nevada and the Peninsular Range have shown strong shifts in animal species distributions related to increased warming over the last century (Moritz et al. 2008, Hargrove 2010). In other parts of the state with relatively low elevation relief, like the Coast Ranges, use of climate change models predict that the optimal bioclimatic envelopes of many bird species will alter considerably in the future (Wiens et al. 2009). Within Pinnacles and its surroundings, climate change will have direct and indirect effects on wildlife. For some species, the future climate may be within

Great horned owl nestling. Photo by Gavin Emmons © 2011.

their physiological tolerance; however, if the vegetation or associated animal species they rely on are no longer able to persist, they will be negatively impacted. Because Pinnacles lacks high relief and corresponding biotic zonation along an elevational gradient, its wildlife will not be able to find climatic refuge by moving upslope. Rather, it may be the relatively cool and moist canyon bottoms of Pinnacles that end up providing the greatest value as a harbor against the changing climate, although the importance or ability of these relatively mesic areas to aid in the persistence of species is unknown.

ECOSYSTEM PROCESSES

Climate change is expected to alter ecosystem processes, like fire regimes, hydrologic cycles, and biogeochemical cycles, among others. Specifically, the fire regime has the potential to be dramatically altered by climate change and may have the largest influence on monument resources. The fire regime of an area can be characterized by its frequency, intensity, extent, type, and seasonality (Brooks et al. 2004). Under a warmer climate, it is expected that any of these properties could be altered. For example, vegetation will be drier and more readily flammable, which will extend the fire season earlier in the spring and/or later into the fall compared to current norms (Westerling et al. 2006). In mid-November of 2008, unusually late wildfires, such as

the "Montecito Tea," "Freeway Complex," and "Sayre" fires, ravaged areas of southern California. Similar late-season fires are possible at Pinnacles, providing dry conditions and ignition sources. It is also possible that in dry years large wildfires could occur throughout the winter and spring during what is normally the wet season. Individual plant and animal species, and the communities they form are all adapted to a particular fire regime and changing any of its properties will result in major consequences to monument resources.

Invasive species that displace native plants and wildlife may also benefit from climate change. For example, if increased aridity results in a more open shrub canopy through stem die-back or plant mortality, or if higher fire frequency precludes the ability of shrublands to recover, then exotic annual grasses and forbs will likely colonize openings in shrub and woodland canopies and further prevent or slow recovery. Climate change has the ability to transform several important aspects of invasive species, such as how they are transported, the types and numbers of new invasive species, altered impacts from existing invasives, altered distribution of existing invasives, and altered responses to control methods (Hellman et al. 2008). Currently, invasive species are a major threat to Pinnacles ecosystems and it is still unclear how climate change will influence the interaction between the numerous invasive and native species in this monument.

Other processes and properties of ecosystems will also be influenced by climate change. At Pinnacles, it is possible that pathogens may benefit as physiologically stressed plants may become increasingly susceptible to pests. Increasing aridity may also slow the rate of biogeochemical cycling for certain elements, which can have feedback on plant growth and even fire risk. Furthermore, increased fire frequency will likely alter mineralization rates and change soil conditions, likely to the detriment of native plants (Ehrenfeld 2003). If precipitation does occur in less frequent but more intense storms, then not only will biogeochemical cycling become more pulse-driven, like in desert ecosystems (Schwinning and Ehleringer 2001), but the danger of mass-wasting may become much greater. For example, with more frequent wildfires, bare soils on steep hillslopes will occur more often, thus, infrequent but severe downpours versus more frequent, less intense storms could result in greater hill-side erosion and sedimentation rates in stream beds and canyons. Another set of processes related to the human footprint can also impact plants and animals under a changing climate. As biota respond to climate change, roads, dams, and other infrastructure that have fragmented habitat or removed corridors will likely hamper their ability to persist (Ewers and Didman 2006).

CULTURAL RESOURCES

Climate change may have negative and positive effects on cultural resources. A more arid climate may result in conditions that are less corrosive or degrading to archaeological artifacts found in natural settings. In contrast, increased fire frequency plus higher rates of erosion from large storm events may result in more damage or loss of artifacts, depending on their setting. Other important cultural resources are the plants and animals utilized by indigenous people groups of the monument. Current efforts to reengage these groups in the management of culturally significant deergrass *(Muhlenbergia rigens)* and white-root sedge *(Carex barbarae)* populations may no longer be possible if future climatic conditions limit the ability of these species to persist in the monument, although other culturally significant species such as chia (*Salvia columbriae*) may persist.

VISITOR EXPERIENCE

Overall increases in temperatures and increases in the incidents of heat waves may result in higher medical emergencies in the monument as visitors become fatigued or succumb to heat-related illnesses more often. Greater fire frequency and severity could result in the loss of life, the closure of trails and parking areas, the displacement of attractive wildflowers with weedy species, and an overall degradation of the aesthetic qualities of the monument. Depending on the severity of climate change and its associated alterations to ecosystem processes, and the flora and fauna, visitor experiences may be greatly altered.

Viewsheds

Geologic formations and panoramic views of the surrounding landscape are expansive, high quality, undeveloped viewsheds within Pinnacles National Monument. The viewsheds are also important natural, cultural, and scenic resources, and the preservation of these resources is important for public enjoyment.

The views offered at Pinnacles include both natural and cultural resources within the monument and beyond the monument, including the San Andreas Fault, the Diablo Range, Monterey Bay and the Ventana Wilderness. Along the Hwy 146 east entrance, one can see the historic resources such as the Butterfield homestead area. These historic views contribute to the regional significance of the monument. Since acquisition of the former Pinnacles Ranch property, the monument has been actively removing invasive yellow star thistle from the historic landscape. Expansive views of the geologic features and surrounding region's rural character can be seen from high elevation areas such as the High Peaks and North Chalone Peak trail.

The developed infrastructure of the monument (roads, trails, buildings, and utilities) generally blends in well with the landscape. Exceptions include some roads, trails, and the paved parking lot at Chaparral which can be viewed from the High Peaks. Facilities for research protection such as fencing could also be seen from some trails. Some development from the surrounding communities can be seen from high elevation trail areas. Haze, dust, and air pollution sources from outside the monument also affect viewsheds.

Pinnacles has two designated integral vistas. "Integral vistas" are views from inside a mandatory Class I airshed area looking outward to specific important panoramas or landmarks beyond the class I area's boundaries, where views have scenic, scientific, or cultural importance to the class I area. Each national park unit with Class I air quality has completed the identification of integral vistas. The two integral vistas from the monument are the High Peaks and the North Chalone Peak Trail. The High Peaks vista is integral to the visitor experience and has scientific value. The High Peaks area includes the most popular trails for visitors which provide views in all directions. The scientific value of this vista is associated with the geologic story of the monument. The view to the northeast includes a portion of the San Andreas Fault. Along this fault, views of large sandstone formations, broken off from the continental plate and dragged northward by the Pacific plate, illustrating tectonic plate activity. The North Chalone Peak Trail vista was also noted as integral to the visitor experience and is important for its scenic and historical values. Views to the west include the Salinas Valley and further west into the Los Padres National Forest and the Ventana Wilderness area. At North Chalone Peak, which includes the historic fire lookout, 360 degree views are possible with views of geologic formations, and on some days, the Monterey Bay of the Pacific Ocean is viewable.

Night Sky

The dark sky over Pinnacles National Monument has been identified as an asset, contributing to the monument's pristine landscape. Preserving this critical resource is important for the protection of nocturnal habitat and for the enjoyment of the public.

The night sky at Pinnacles is among the best in the greater San Francisco Bay Area, primarily due to the rural nature of the area (low population density, few organized communities) as well as being in a Class I airshed.

Population growth and the subsequent artificial lighting of nearby communities have degraded the view of the night sky. Although light trespass from towns

The moon sets over Pinnacles, competing with light pollution from Soledad Prison. Photo by Paul G. Johnson.

such as Hollister, Soledad, Greenfield, King City, and Salinas, as well as the Soledad Prison, are visible to the naked eye, research by the NPS Night Sky Team shows trespass from San Jose, Bakersfield, Visalia, Fresno, and even Los Angeles. Among the unaided views identified by the team include views of the Milky Way (with some definition), thousands of stars (some to high magnitudes), and star clusters. With magnification, galaxies can still be seen on a clear night in the monument.

There are currently no lighting ordinances to preserve the night sky in surrounding communities. Though much of the area surrounding the monument is still rural, development is occurring. It is likely that further growth will lead to the degradation of dark sky if night sky protection ordinances are not adopted by surrounding communities.

Natural Sounds

The acoustic environment is a combination of all the physical sound resources within a given area. Acoustic resources include both natural sounds and cultural and historic sounds. The soundscape can be defined as the human perception of those physical sound resources. Because the NPS works to protect and enhance both monument resources and visitor experiences, Pinnacles differentiates between physical sound sources and human perceptions of those sounds. The acoustic environment varies in its character from day to night and from season to season and can be affected by changes in numbers of visitors who introduce human-caused sound into the environment. Pinnacles National Monument is generally a quiet landscape, with occasional short-term interruptions of the natural sounds of nature and quiet. Natural sounds heard in the monument include wind, water, wildlife, and vegetation. The monument does not have baseline acoustic data. Visitor use studies, however, have indicated that 72% of visitors consider natural quiet/sounds of nature to be extremely important. The presence of unwanted, uncharacteristic, or inappropriate sounds can interfere with or alter the acoustic resource and degrade the visitors' experience. Visitors have noted while on the trails (within wilderness), that large groups of hikers and climbers can be noisy. Loud vehicle noises from motorcycles or trucks backing up can be heard from high points in the monument.

Noise is defined by the NPS as human-caused sound that is undesired or extraneous to an environment. Depending on the atmospheric conditions, the closeness to a noise source, and topographic features, visitors generally experience very little noise while in designated wilderness. Several sources of noise can, however, mask natural sounds in wilderness. The sounds and sights of overhead aircraft can greatly diminish people's sense of naturalness and solitude. There are no Air Force installations with designated airspace or municipal airports and there are currently no commercial air tours near Pinnacles. The sound of passing vehicles on Highway 25 can be heard from the bottomlands and adjacent canyons, including portions of the Ben Bacon Historic District. During several months of the year, vineyards use propane cannons to deter birds from feeding on grapes. These cannons produce a loud "bang" approximately twice per minute. Currently they can be heard on the extreme east side of the monument (portions of the Ben Bacon Historic District) and for the uppermost mile of the North Chalone Peak Trail and all of the South Chalone Peak Trail.

The acoustical environment is vital to the natural functioning of park ecosystems. The natural sounds within Pinnacles National Monument are an important resource and a critical component of ecological communities within and outside of the monument. Understanding the role of natural sounds in a healthy ecosystem is critical to their effective management and protection. Studies elsewhere in the national park system, and other sensitive environments, suggest that the acoustic environment is important for intra-species communication, territory establishment, including finding desirable habitat, courtship and mating, nurturing and protecting young, predation and predator avoidance, and effective use of habitat. Visitors also appreciate natural sounds. Many natural sounds such as gurgling streams, bird songs, or the rustling of leaves on a fall day can have a calming and relaxing effect. Sound-sensitive resources or values may include biological resources, special areas such as wilderness, cultural and historic resources, and visitor experience. Approximately 16,000 acres (over 60%) of the monument is congressionally designated wilderness.

California condors, as well as bats and breeding and nesting raptors, may be sensitive to noise disturbance. Wildlife sensitivity to sounds is examined through research in **acoustic ecology**, the study of sound in the relationships between organisms and their environment. Scientists also use **bio-acoustics** to determine the health of natural habitats. Scientists can discern details about animal populations and behavior by recording sounds in the wild. Such bio-acoustical recordings are used in a variety of ways, including bird censuses and bat echolocation studies.

The natural sounds of Pinnacles National Monument are valuable resources that can easily be degraded or destroyed by inappropriate sounds or loud sound levels. As a result, the monument's acoustical environment requires careful management if it is to remain unimpaired for future generations.

Topography

The topography of Pinnacles National Monument ranges from rolling hills to rock spires, crags and other points of sharp relief. Although the terrain is mountainous with locally steep topography, the area is of generally low elevation ranging from less than 1,000 feet (300 m) along South Chalone Creek to 3,267 feet (996 m) at the summit of North Chalone Peak. Hawkins Peak, which is composed largely of "the pinnacles," is over 2,600 feet (792 m) in elevation. The mean elevation of the monument is about 2,000 feet (610 m) above sea level. Floodplains and terraces are less developed inside the monument; beyond these there is little level ground for development. With the addition of the Pinnacles Ranch in 2006, the monument acquired

bottomlands that had been used for dryland farming and/or livestock grazing, and as an airstrip.

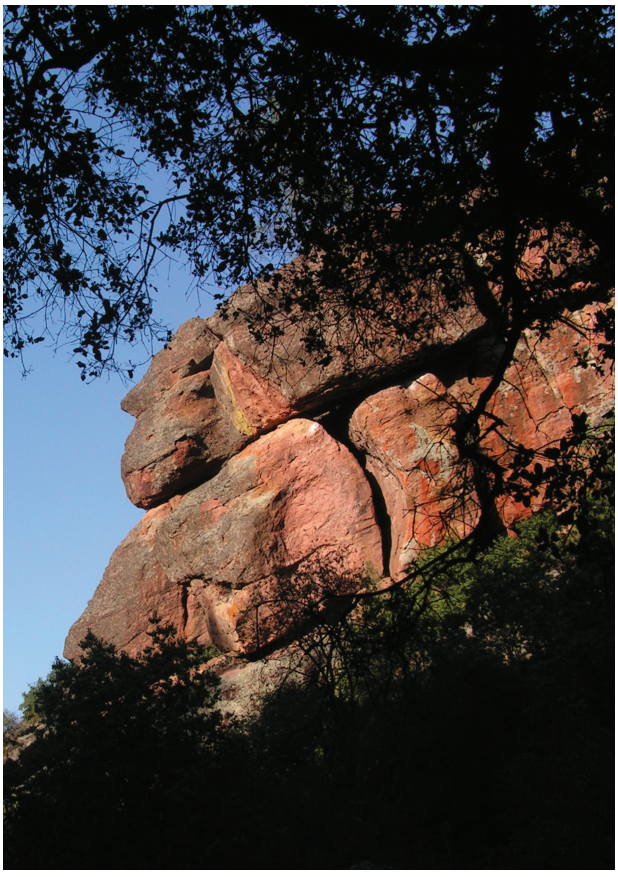
Geological Resources

The volcanic formations in Pinnacles National Monument are regionally exceptional, set within an area of granitic, metamorphic, and sedimentary rocks of the Gabilan Mountains, part of California's central Coast Ranges.

VOLCANIC SPIRES

Pinnacles National Monument derives its name from rock spires and crags that are remnants of part of an early Miocene or late Oligocene (about 23-24 million year old) volcano. These outstanding landscape characteristics, the "Pinnacle Rocks," inspired the first conservation movement in the area and eventually led to Theodore Roosevelt's declaration protecting Pinnacles National Monument in 1908. The Pinnacles themselves are weathered rocks of the Pinnacles-Neenach volcanic field in an advanced stage of decomposition. The volcanic center originated when rhyolite and dacite magma was forced to the surface through fissures in a basement of granitic and metamorphic rocks. Later volcanic activity built up a thick pile of pyroclastic and flow units above the earlier lavas. The western portion of the volcanic field was eventually torn by the San Andreas Fault from its origin approximately 195 miles south (near Lancaster, California). Over millions of years as it moved northward to its present position in the monument, the volcanic layers were cut by smaller faults, bent and tilted, covered with sand in a shallow marine environment, and eventually uplifted and exposed. Slowly, the erosive work of water and wind on the rhyolitic tuff and other pyroclastics gave rise to the exceptional geologic forms and highly variable topography for which Pinnacles is famous. These spires are significant for their scenic values; present an outstanding example of plate tectonics; and provide important habitat, particularly for nesting California condors and raptors such as prairie falcons.

A view from the Bear Gulch Trail. NPS photo.



CAVES

Erosion of the Pinnacles has produced talus cave formations unlike most limestone caves or lava tube caves on the North American continent. Large boulders break from spires and tumble into steep gorges, forming talus jumbles on a grand scale. Caves occur where the largest interstitial spaces in these heaps of variable sized boulders remain relatively insulated from daily temperature extremes. The largest and most persistent caves have formed in places where huge boulders cap a section of narrow canyon. Intermittent stream erosion beneath the boulder ceiling keeps the cave floor open. The 525-foot long Balconies Cave is an example of this type of geologic formation. The most outstanding cave in the monument, the 1700-foot long Bear Gulch Cave, also originated in this fashion when volcanic tuff boulders capped a gorge.

Unlike most lava tube or limestone cave systems, the talus caves of Pinnacles National Monument have multiple entrances and therefore greater air exchange. The darkness and reduced air flow of the monument's talus caves, however does form moderately stable microclimates in an area with widely varying temperatures. The caves are relatively cool and moist during hot and dry summer days, but also can be relatively warmer and drier during cold and rainy winter days. Because of their moderate microclimates, the caves provide important habitat for bats, amphibians, invertebrates, and other wildlife. Bear Gulch Cave is unique because it is used by Townsend's big-eared bats for both overwintering and as a maternity colony - one of the largest such colonies in California. Listed as a "species of special concern" by the state of California, monument staff regulate visitation to prevent impacts to breeding or hibernating bats. Federally threatened California red-legged frogs also use Bear Gulch Cave during much of the year, though they are not known to breed there.

By providing a window into the geologic processes that shape the monument, the caves are also important to monument visitors. The Bear Gulch and Balconies Caves are some of the most accessible talus caves in the United States, and the Bear Gulch Cave may be the longest. Wildlife and people visit the caves in the summer to escape the sun and heat.

ROCKS AND MINERALS

Because of its long and complex geologic history, Pinnacles National Monument harbors a diverse group of rocks and minerals. The Pinnacles themselves are primarily comprised of tuff, breccia, and volcanic ash of rhyolite, dacite, and andesite. Layers of contrasting texture or color are readily visible in several areas. Because of the explosive eruptions that formed the breccias, fragments of a diverse group of older rocks are also embedded within these volcanic rocks. The heat and compression of volcanic deposition also metamorphosed some inclusions. Among the rocks and minerals captured or formed in the strata are: feldspars, pumice, and natural glass. Calcite deposits are also found within fractures of the volcanic rocks. While most of the rock visible in the monument is volcanic, granitic outcrops are prevalent in western and southeastern portions of the monument. These rocks were formed by slow cooling of magma deep in the Earth's crust, and include: quartz monzonite, quartz diorite, granodiorite, and gneiss. The oldest rocks in the monument are late Paleozoic Gabilan limestone, a metamorphosed, white coarse-grained marble with some quartzites and schist, found in thin, isolated bodies within the granitic rocks on the west side of the monument. These rocks represent the preexisting crust into which the granitic bodies were intruded. The youngest rocks in the monument are the relatively unconsolidated sandstone and shale that form crumbling cliffs and rolling hills in eastern portions of the monument. Fragments of all of these rocks occur in alluvium within the monument. The well-preserved sequence of volcanic rocks present at Pinnacles National Monument has been an invaluable resource to geologists investigating the history of the San Andreas Fault and the development of the plate margin. Together the rocks tell a story of hundreds of millions of years of the Earth's history.

FAULTS

As noted earlier, the monument is located within the Pacific-North American Plate boundary zone, an area of major tectonic activity. The movement of the Earth's plates forms major faults - geologic fractures where masses of rock and earth slip past one another, within the boundary zones. Three significant faults occur within the monument: Chalone Creek, Pinnacles, and Miner's Gulch. The Chalone Creek Fault is believed to have been the ancestral main line of the San Andreas Fault, which is now located about a mile east of the monument's Highway 25 boundary. The same forces that drive the faults have deformed and tilted the layers to help form the distinctive landforms within the monument.

Hydrologic Resources

Because Pinnacles National Monument is situated in an arid, chaparral-dominated mountain range, its limited water resources are of particular value to biodiversity and visitors.

CREEKS

The terrain in the Gabilan Range is rugged and deeply dissected. The drainage pattern is predominately controlled by fault traces and fractures at intersecting angles. Many streambeds in the monument are ephemeral or intermittent, dry except after significant rain. The longest of these intermittent creeks within the monument are the West Fork of Chalone Creek and Frog Creek. A limited amount of surface water can be found in these streams during the dry season. The Chalone Creek main stem, Bear Gulch Creek, Sandy Creek, and an unnamed stream in McCabe Canyon have stretches of perennial flow, although it may be very low or stagnant during summer months. Much of the perennial water in these creeks is found in small, sheltered plunge pools. All of the creeks named above converge within the monument, flowing into Chalone Creek, the predominant drainage of the southern Gabilan Range. Originating approximately 4 miles west of the NPS boundaries, Chalone Creek flows the length of the monument from the northwest to the southeast corners. Approximately 70% of the Chalone Creek drainage above its confluence with Sandy Creek lies within Pinnacles National Monument, while about 40% of the Sandy Creek subwatershed lies within the monument. Nearly all of Pinnacles' 41.4 square miles drains into this tributary, which empties to the southwest into the Salinas River, which in turn flows northwest into Monterey Bay in the Pacific Ocean.

Streams within Frog Canyon and McCabe Canyon lie entirely within the monument. Flowing off South Chalone Peak, there are a series of smaller ephemeral drainages entirely or nearly entirely within the monument that empty into Chalone Creek at or near the monument's southern boundary. Most streams within the monument, however, have major segments on private lands. The headwaters of Bear Gulch Creek and the main stem of Chalone Creek and many of its tributaries originate outside the monument boundary. Also, most of Sandy Creek is located outside of the monument. Many creeks in the area have been altered

along some portion of their length. Chalone Creek and Sandy Creek are free-flowing throughout their course in the monument, but their uppermost reaches, on private lands, are impounded by small stock ponds. Bear Gulch Creek is impounded behind a dam within the monument built during the CCC era (1933-1942).

Periodically, heavy rains cause substantial flooding within the monument. There have been three large floods in the Chalone Creek watershed during the past two decades, including an event in 1998 that has been estimated to have been in the range of a 40-year flood. These floods have caused millions of dollars in damage to monument facilities. Some stream reaches within the Chalone Creek watershed experienced considerable erosion, whereas others experienced substantial sedimentation. The narrow canyons provide little space for development. Therefore, facilities are often located relatively close to stream channels.

SEEPS AND SPRINGS

Nine springs, including Superintendent's Spring, Chalone Bridge Spring, and Oak Tree Spring, were known and marked within the monument prior to the 2000 and 2006 monument boundary expansions. Recently acquired lands have not been fully inventoried for hydrologic resources, but it is known that a minimum of five spring-fed wetlands occur in McCabe Canyon and the Bottomlands. Small seeps may also appear seasonally in wetter years. Springs, such as Willow Springs, generally occur along fault lines, along rock fractures, or along lithologic contacts (between different types of rocks). Within the monument, springs are no longer used as domestic water supplies for facilities due to their inadequate water production. Within the chaparral dominated landscape, the wetlands associated with these springs act like oases during hot and dry summer and autumn months. In addition to supporting a high diversity of plants, these wetlands provide important forage, resting, or rearing habitat for Neotropical migrant birds, amphibians, butterflies, and other wildlife that move through the monument.

ARTIFICIAL RESERVOIRS

Bear Gulch Creek is impounded behind a dam within the monument built during the CCC era. Due to low input during the dry season, the 2.7-acre Bear Gulch Reservoir is stagnant for much of the summer and is subject to eutrophication. The reservoir is no longer being used for domestic purposes, although it is now important habitat for threatened California red-legged frogs. Because this frog has been eliminated from over 70% of its historic range and most natural habitat has been significantly altered, such artificial habitats are valuable to maintenance of the regional population as a result the monument has elected to preserve this important historic and natural resource. Small (about 1 acre or smaller) earthen dam stock ponds on the east of the bottomlands (former ranchlands) are currently being reviewed for their habitat and cultural values to determine what management actions (if any) should be taken.

SUBTERRANEAN WATER

Groundwater exists within the monument primarily in the valley-fill alluvium. This alluvium may reach a depth of at least 38 feet (12 m) and therefore may serve as a substantial groundwater reservoir. The alluvium is more permeable than the surrounding bedrock and of high hydrologic conductivity. Where the valley crosses a resistant rock unit, this groundwater is often brought to the surface in perennial pools.

The diversity of geology strongly affects ground water. Three geohydrologic units are present: 1) granitic and metamorphic rocks, 2) volcanic rocks — the Pinnacles Formation, 3) and porous sedimentary rocks, which include the Temblor Formation and the valley-fill alluvium. Most of the monument is underlain with volcanic rocks. Surrounding the central area of volcanics are granitic rocks on the western and southeastern sides, and sedimentary rocks of the northeast side. Three northward trending faults that traverse the monument have produced structural traps for groundwater. The valley alluvium, particularly along the east entrance road and South Chalone Creek, is a reliable source of groundwater. One well produces over 10 gallons per minute. The Temblor Formation is less well studied, but is another potential water source.

WATER USE

Three wells drawing water from depths of 90 to 300 feet supply all of the monument's drinking water. The Bear Gulch, Chalone, and Peaks View facilities are serviced by a well that taps the valley alluvium near the Bear Creek – Chalone Creek confluence. The west side is serviced by wells. Another well on the former Kingman Ranch supplies water to the campground and Bottomlands facilities. Public water supplies are treated regularly to guard against public health threats. Additional wells exist in the monument, but do not provide public (potable) drinking water. Total water use from all wells in 2006 was 3,101,614 gallons. No comprehensive study has been made of total private and federal water consumption in the watershed and the effects of use on long-term aquifer sustainability. The NPS Water Resources Division plans a Watershed Conditions Assessment for Pinnacles National Monument in the coming years.

WATER QUALITY

In 2006, the USGS completed a baseline study of water quality in seven springs within the monument. The resulting data indicate that spring water in the monument is of generally good quality. Water samples were analyzed for dissolved concentrations of major ions, trace elements, nutrients, stable isotopes of hydrogen and oxygen, and tritium. In most cases, the concentrations of measured water-quality constituents in spring samples were lower than California threshold standards for drinking water and federal threshold standards for drinking water and aquatic life. However, three of the springs had dissolved arsenic concentrations that were higher than the 2006 EPA drinking water standard of 10 g/L. It is noteworthy that effluent from the residence area at Chalone Creek picnic area discharges to a leach field buried in the porous alluvium near the stream. While no indication of surface or groundwater contamination has been found, it may warrant further monitoring.

The San Francisco Bay Area Inventory and Monitoring program initiated surface water quality sampling in 2006. The sites are in Sandy Creek (3), McCabe Canyon (1), Bear Gulch (1), and Chalone Creek (3). Insufficient data has been gathered for analysis, but the specific conductance values of initial samples for Chalone Creek ranged from 300-600 S/cm, while Sandy Creek was a bit higher and Bear Creek and McCabe Canyon Creek were a bit lower. Samples taken during the 1990s from surface waters also illustrated that Chalone Creek is very well buffered, with specific conductance values in excess of 200 S/cm. Calcium concentrations are higher than 1,000 eq/L. The data also suggests that surface waters in Pinnacles are not sensitive to potential acidification from SO_4^{-2} and/or NO_x deposition levels that could reasonably occur in the foreseeable future. To date, no major pollution concerns in Pinnacles' surface waters have been identified.

In 2000, the monument evaluated stream macroinvertebrate monitoring as a means to assess water quality and stream health. The results lacked many species typically used as indicators of good water quality, but these are species most likely to be found in cool, perennial streams. Therefore, because the stream systems at Pinnacles are relatively warm and primarily intermittent, the species assemblage should not be considered a sign of poor water quality. Instead, the degree of diversity documented is an indication that the Pinnacles aquatic ecosystem is fairly healthy (Robert Wisseman, Aquatic Biology Associates, pers. comm.).

The presence of feral pigs in recently acquired (2000-2006) lands in the eastern portion of the monument has raised water quality concerns, especially at the campground where pigs are known to wallow in springs and frequent Sandy Creek. These are areas that monument visitors also explore. Due in part to the likelihood that pigs contribute to fecal contamination of these waters, the monument has excluded feral pigs from the lowlands of Bear Valley via a newly erected pig exclusionary fence. Septic systems in the campground and McCabe Canyon residence are also being investigated as sources of surface water contamination.

FLOODS AND FLOODPLAINS

FEMA Flood Insurance Rate Maps have been produced for Sandy Creek in this area (San Benito County, California, map numbers 06069C0675D and 06069C0500D), however, the analysis conducted was general and no site specific flood elevations were reported. The maps generally depict the 100-year flood inundating large areas of the adjoining floodplain along the length of the Sandy Creek drainage, but again, the floodplain boundaries do not appear to be tied to any recoverable elevations. The map opposite shows the Sandy Creek floodplain analysis.

In 1995 the USGS conducted a detailed flood study for Pinnacles National Monument that included both Chalone and Sandy Creeks. This study produced a detailed report and a cross section based floodplain map (Meyer, R.W., 1995). In brief, the USGS study concluded that, "most of the buildings and proposed building sites in the monument area are above the 100-year flood." The USGS study utilized unit hydrograph techniques to estimate the magnitude of the 100-year flood and subsequently predicted flood depths at ten cross section locations on Sandy Creek using a standard step-backwater model. Additionally, relatively detailed floodplain maps for Chalone Creek and Bear Valley were produced using a 10-foot contour interval base map and are included in the report.

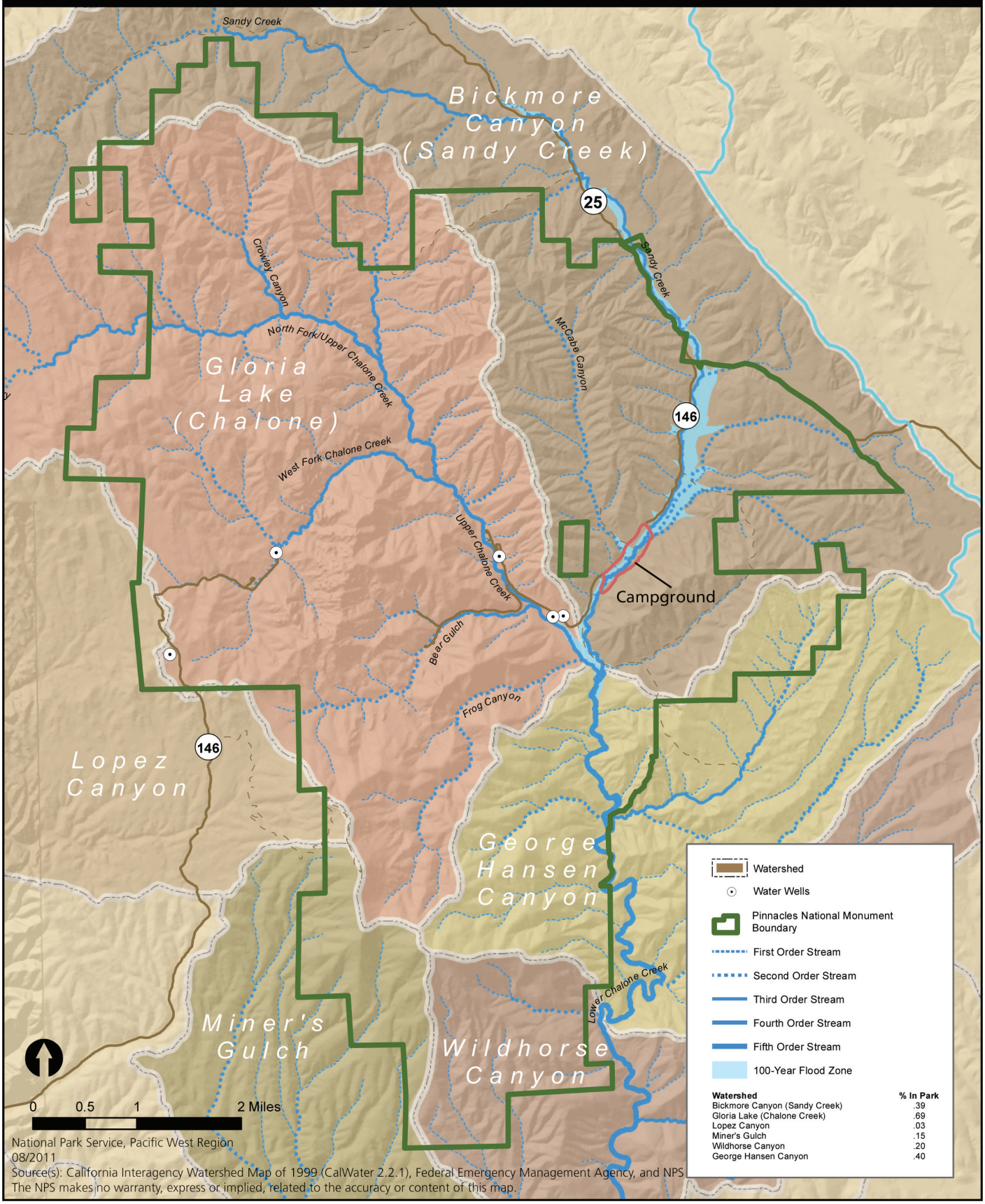
Based on the unit hydrograph technique, the USGS estimated the magnitude of the 100-year flood along Sandy Creek to be 3800 cubic feet per second (cfs). Results from the step-backwater analysis indicate that a flood of this magnitude will achieve a stage that varies between about four and nine feet above the thalweg of the channel between the confluence and the uppermost cross section, which is located immediately downstream of the campground store.

Unfortunately, the detailed analysis did not include the portion of Sandy Creek adjacent to the upper portion of the campground. However, the lower portion of the campground was included in the analysis, and due to the proximity of most of the sites in question, the results from the flood modeling may be reasonably extrapolated to the upstream sites. Furthermore,

Hydrology

Pinnacles National Monument

National Park Service
U.S. Department of the Interior



National Park Service, Pacific West Region
08/2011
Source(s): California Interagency Watershed Map of 1999 (CalWater 2.2.1), Federal Emergency Management Agency, and NPS
The NPS makes no warranty, express or implied, related to the accuracy or content of this map.

any future floodplain assessment along Sandy Creek (and Chalone Creek) may utilize flood stage estimates from the USGS study by comparing flood depths to adjacent overbank areas of interest. More specifically, if the difference between the bottom of the channel and the site of interest is substantially greater than nine feet (the maximum estimated stage from the model for Sandy Creek) then the site may be considered outside of the 100-year floodplain.

The USGS models produced a reasonable demarcation of areas of potential inundation, as is required by Executive Order 11988 (Floodplains and Wetlands). Flooding, however, has the potential to cause major changes in streambed morphology, thereby altering the corresponding inundation level. In-stream and near-stream structures have not been analyzed for their impact upon future flood dynamics or their impact upon channel morphology. Therefore, more detailed analysis is needed. Land use patterns outside the monument also have the potential to adversely affect channel morphology within the monument boundary. Baseline data such as soil infiltration rates, unit stream discharge, estimates of stream flow with corresponding rainfall totals, and simple channel surveys have not been collected.

WATER RIGHTS

No adjudications of water rights have been initiated by California within the vicinity of the monument. If water rights were to be adjudicated, monument water uses would need to be quantified, including consumptive needs of visitors and monument administration, and needs for water-dependent resources such as for federally threatened species, such as for California red-legged frog habitat, and for maintaining the hydrologic character of talus caves, which are integral to the monument's original proclamation designating it under the Antiquities Act. To fully assess the existence and nature of a federal reserved water right associated with the monument, an examination of laws creating it would be necessary. If needed to fulfill the purposes of the federal reservation, a federal reserved right may be either for consumptive purposes (e.g., involving diversion of water from the stream) or for non-consumptive purposes (e.g., involving instream uses of water). A federal reserved right would be limited to that amount needed to accomplish those purposes. While this water right ordinarily comes into existence upon the reservation of federal land for a specific purpose, its existence can be confirmed and its exact contours (i.e., purpose, amount, timing, and source) can be ascertained only through a formal court determination. Until such a determination is made, the existence and contours of a federal reserved right are a matter of estimation.

Due to the presence of a federally threatened species and the monument's characteristic talus caves, there is some concern for the effects of additional water use development on monument resources. Approximately one-quarter square mile of the Bear Gulch watershed is located outside the monument's western boundary. There are no water rights of record upstream of the monument in the Bear Gulch watershed. Water development adjacent to the monument is primarily limited to use for grazing and a few agricultural uses. Regarding Chalone Creek watershed, there are about 9 square miles of watershed located upstream from the monument's western boundary. There are also approximately 15 square miles of the Sandy Creek watershed beyond the monument's northern and eastern boundaries that are tributary to Chalone Creek within the monument. Cattle are grazed in these areas and most water development is limited to stock ponds and one vineyard just outside the monument boundary. Additional future water development is possible, but because of a lack of water available in the watershed, development is not as likely to occur. Overall, though the potential for upstream water development exists, the risk is not currently thought to be great. It is important for the monument to ascertain its water resource needs before development occurs, and to ensure support for those needs with the necessary water rights. This support can be achieved through implementation of a combination of federal and state law for both consumptive and non-consumptive uses.

Soils

The soils of Pinnacles National Monument highlands are typically shallow, gravelly, sandy loams. Soil nutrients and water holding capacity are low. Most of the monument's soil is derived from rhyolitic conglomerate and decomposed granite. Soil on hill slopes is very shallow with poor development. These soils generally support extremely drought tolerant chaparral vegetation. Soils at hill toeslopes and valley bottoms are deeper and exhibit greater soil development with marked organic matter accumulation (well-developed A horizon). These soils have more nutrients, higher water holding capacity, and greater rooting depth. As a result, toeslope and valley soils tend to support oak woodlands and grasslands. All soils in the monument are described as well-drained to excessively-drained. Poor water holding capacity and infiltration properties of the soils results in high runoff rates and erosion during periods of intense rainfall.

The soil at Pinnacles was divided into four soil series corresponding to differences in parent material (Isgrig 1969). These include Laniger series, Sheridan series, Sand alluvial land, and igneous rock land. Of the soils described, Laniger gravelly, sandy loams and Sheridan

TABLE 18: ACREAGE AND PROPORTIONAL EXTENT OF SOILS AT PINNACLES NATIONAL MONUMENT

Soil Name	Acres	%
Ordeal-Passion-Badlands association, 50 to 100 percent slopes	3,171	11.7
Knuckle-Burgundy-Argixerolls complex, 20 to 70 percent slopes	1,573	5.8
Chalone-Firstsister-Highpeaks complex, 50 to 70 percent slopes	1,207	4.5
Casino-Argixerolls complex, 50 to 70 percent slopes	436	1.6
Casino sandy clay loam, 20 to 35 percent slopes	114	0.4
Rock outcrop-Highpeaks-Burgundy complex, 35 to 100 percent slopes	1,498	5.5
Knuckle-Chalone-Burgundy complex, 35 to 70 percent slopes	149	0.5
Backdoor-Tuborcio complex, 20 to 70 percent slopes	3,768	13.9
Rimtrail sandy loam, 0 to 5 percent slopes	60	0.2
Elder-Oxyaquic Haploxerolls complex, 2 to 5 percent slopes	32	0.1
Ordeal-Tuborcio-Passion complex, 20 to 50 percent slopes	2,094	7.7
Tuborcio loam, 2 to 20 percent slopes	185	0.7
Elder gravelly sandy loam, 0 to 1 percent slopes	154	0.6
Still clay, 0 to 2 percent slopes	46	0.2
Elder coarse sandy loam, 1 to 3 percent slopes	69	0.3
Tuborcio sandy loam, 35 to 50 percent slopes	790	2.9
Teapot-Rock outcrop complex, 35 to 50 percent slopes	191	0.7
Argixerolls-Rock outcrop-Chalone complex, 35 to 50 percent slopes	623	2.3
Still-Riverwash complex, 0 to 2 percent slopes	98	0.4
Firstsister-Oxyaquic Haploxerolls-Rock outcrop complex, 0 to 50 percent slopes	21	0.1
Toags-Oxyaquic Haploxerolls-Riverwash complex, 0 to 2 percent slopes	254	0.9
Toags-Pinncamp complex, 0 to 5 percent slopes	80	0.3
Toags gravelly coarse sand, 2 to 9 percent slopes	59	0.2
Toags-Riverwash complex, 0 to 9 percent slopes	109	0.4
Oxyaquic Haploxerolls, 0 to 1 percent slopes	20	0.1
Rock outcrop-Highpeaks-Chalone complex, 35 to 50 percent slopes	730	2.7
Highpeaks-Rock outcrop complex, 35 to 50 percent slopes	282	1.0
Ordeal-Longsfolly-Passion complex, 9 to 50 percent slopes	3,803	14.0
Badlands	59	0.2
Backdoor-Tuborcio complex, 35 to 50 percent slopes	2,143	7.9
Backdoor sandy loam, 9 to 20 percent slopes	163	0.6
Chalone-Knuckle-Rock outcrop complex, 35 to 50 percent slopes	651	2.4
Chalone-Knuckle-Firstsister complex, 50 to 70 percent slopes	1,716	6.3
Pinnacles coarse sandy loam, 5 to 30 percent slopes	175	0.6
Pinnacles stony sandy loam, 30 to 75 percent slopes	29	0.1
Pinnacles coarse sandy loam, 15 to 30 percent slopes	164	0.6
Pinnacles coarse sandy loam, 30 to 75 percent slopes	240	0.9
Santa Lucia channery loam, 30 to 75 percent slopes	139	0.5
Total	27,095	100.0

coarse, sandy loams appear to be the most representative of the developed soils in the monument. Igneous rock land, a complex of rhyolite rock outcrops and very shallow soils, is widespread.

The Laniger soil series is derived from rhyolitic (igneous) conglomerate. These Laniger soils are not from the same geographic formation as soils west of the Chalone Creek Fault, which separates them. The A horizon (topsoil) is 11 inches thick. Soil color is grayish brown and soil texture is a gravelly, sandy loam. The B horizon (subsoil) is 18 inches thick. Soil color is pale brown and soil texture is a gravelly, coarse sandy loam. Soil fertility of the Laniger soil series is low, water holding capacity is 1.5 to 4 inches, permeability is rapid, and runoff is rapid to very rapid. Distinct topographic features associated with the Laniger soil series include eroded badlands and semi-circular slumps.

The Sheridan soil series consist of well-drained to excessively well-drained loam soils derived from decomposed granite and other igneous rocks. Average soil profile depth is 18 to 24 inches, water holding capacity is 2 to 4 inches, runoff is rapid to very rapid, and the erosion hazard is very severe. Sheridan soil series supports dense vegetative cover which prevents erosion.

Sandy alluvial land is found in creek bottoms and valleys. Sandy alluvial land occurs mainly in the bottom of Chalone Creek and along Sandy Creek. The deep, coarse textured alluvium is slightly alkaline and has a water holding capacity of 4 to 6 inches. The alluvium is subject to removal and deposition, as well as occasional flooding. Sandy alluvial land supports riparian vegetation.

Typical of an alluvial floodplain, soils in the Bottomlands site are fairly deep, well drained gravelly sandy loams and sandy loams formed from conglomerate rock in the floodplain of Sandy Creek. These soils are thicker, up to 80 inches deep (200 cm) and more developed than in comparable valley areas inside the monument (NRCS 1969, NRCS 2009). The broad valleys and sandy loam soils support an extensive Valley Oak Woodland in Bear Valley. The upland landscape of the former Pinnacles Ranch exhibits many similarities to areas elsewhere in the monument, and contains similar topography, soils, and geology.

Soils in McCabe Canyon are quick-draining, gravelly coarse sand, formed in the stream terrace from conglomerate bedrock with higher organic content occurring nearer to the base of the slopes. Soils are approximately 60 1.5 to 80 2 m deep and become loamy coarse sand at approximately 2 feet deep (0.6 m) (NRCS 2009).

Igneous rock land is found on rhyolitic conglomerate and consists of rock outcrops and very shallow, discontinuous soils. Igneous rock land soils are very shallow and excessively drained.

A more recent soil survey of Pinnacles National Monument was conducted in 2007 and includes newly added lands. This survey mapped 38 different soils in the monument (USDA 2007). The steepness of slope, acreage, and percentage of the monument covered by each soil type is given in Table 18.

Vegetation

BACKGROUND

Although Pinnacles takes up about one-tenth of 1 percent of the land mass of California, nearly 10 percent of all plants in the state are represented within the monument (Hickman 1993). Over 650 vascular plant species have been documented in Pinnacles National Monument, and many new species continue to be discovered (NPS 2007). In addition to the vascular plant flora, 293 species of lichens (NPS 2004) are known to occur in the monument. Although little is known about the diversity of mosses, it is projected that Pinnacles may have approximately 125-175 of the 600 mosses currently documented for California (Norris and Shevock 2004). The remarkable floristic diversity over such a relatively small area can be attributed in large part to the influences of the California's Mediterranean-type climate (NPS 1999), being located in a transitional zone between California's north-south distributional limits and its placement between the Coast Range and the interior Sierra Nevada system. Pinnacles National Monument is within one of only five regions in the world with a Mediterranean climate, which are known for their biodiversity.

SPECIAL STATUS PLANTS

Although there are no state- or federally-listed plants known to occur in Pinnacles National Monument, there are 14 plants listed as rare by the California Native Plant Society (Table 19) (CNPS 2010). A new species of *Streptanthus* being described from Pinnacles has been found nowhere else and will likely be added to this list. Nineteen species of lichens that occur in the monument are also listed as rare by the California Lichen Society. One particularly rare species of lichen (*Texosporium sancti-jacobi*) is known from only a few sites and has been ranked as critically endangered and is on the Global Red List of Lichens published by the International Committee for the Conservation of Lichens (Thor 1996).

VEGETATION ZONES AND TYPES

Twelve generalized vegetation types can be grouped into five major vegetation zones in Pinnacles (Table 20). An updated vegetation map and classification of the monument was completed in 2009.

Chaparral

Comprising over 70% of the monument, chaparral is characterized by a dense layer of shrub species with few or no trees and a sparse herbaceous understory. Chaparral is well adapted to tolerate the hot dry summers of a Mediterranean climate. Common chaparral shrubs in Pinnacles are: chamise (*Adenostoma fasciculatum*), buckbrush (*Ceanothus cuneatus*), manzanita (*Arctostaphylos glauca* & *A. pungens*), holly-leaved cherry (*Prunus ilicifolia* ssp. *ilicifolia*) and black sage (*Salvia mellifera*). Chaparral plants have adapted with strategies to survive and thrive in this harsh environment. These survival strategies include small waxy-coated leaves and deep taproots to reduce water loss, water storage structures, and summer dormancy to minimize transpiration during the arid summer months. Fires in chaparral tend to be intense and tend to scorch all aboveground vegetation. Even so, most plants, including chamise are able to rapidly resprout from their root-crown after fire, while other chaparral shrubs, such as buckbrush, germinate vigorously after fire. In fact, some species such as the Indian Valley bush mallow and golden ear-drops (*Dicentra chrysantha*) require fire to germinate.

Oak Woodland / Savanna

This vegetation type is dominated by either blue oaks (*Quercus douglasii*) or valley oaks (*Quercus lobata*) with a dense understory of herbaceous annuals. Oak woodlands are found in the monument in flat to steep sloping areas and alluvium where soils are deeper than where chaparral is located. Valley oak savanna are uncommon in the monument and are limited in distribution to the open, flat alluvium at the confluence of Chalone and Sandy Creeks such as the bottomlands. The herbaceous layer is generally dominated by non-native annual grasses (such as *Bromus* spp., *Vulpia* spp., *Avena* spp.). Native perennial grasses and forbs remain scattered throughout the oak woodlands. Oak savannas provide food for many species of animals within the monument. Acorns, fruits, seeds and vegetative parts of these plants provide food throughout the year. Many species of small mammals that use the chaparral as a home will venture out into the oak savannas to forage.

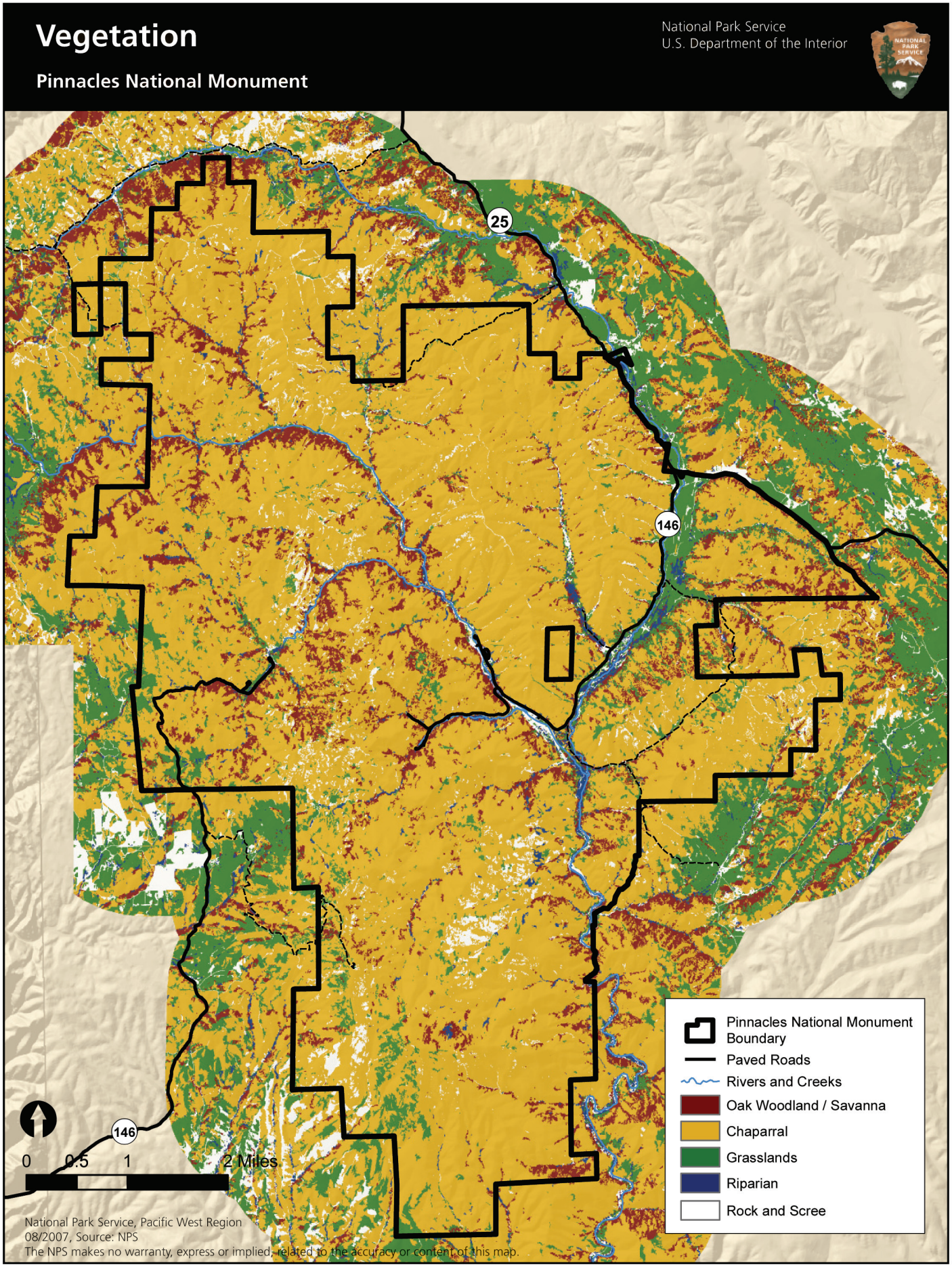
Valley oak (*Quercus lobata)* savanna is a rapidly disappearing ecosystem in California. Although valley oak is found within the monument, many of the trees are more than 100 years old and are no longer regenerating. Valley oak is most common on the higher flood plains along rivers and streams, and it commonly is associated with riparian forests that support dominantly Fremont's cottonwood (*Populus fremontii*). These areas are known to be extremely fertile for use as agricultural cropland and grazing land; thus, much of the land suitable for valley oak regeneration has

TABLE 19: CNPS RARE VASCULAR PLANTS DOCUMENTED WITHIN PINNACLES NATIONAL MONUMENT

Common Name	Scientific Name
Douglas' spineflower	*Chorizanthe douglasii*
coast larkspur	*Delphinium californicum* ssp. *interius*
virgate eriastrum	*Eriastrum virgatum*
protruding buckwheat	*Eriogonum nudum* var. *indictum*
San Benito poppy	*Eschscholzia hypecoides*
Indian Valley bush mallow	*Malacothamnus aboriginum*
Paso Robles navarretia	*Navarretia jaredii*
slender nemacladus	*Nemacladus gracilis*
hooked popcorn flower	*Plagiobothrys uncinatus*
slender pentachaeta	*Pentachaeta exilis* ssp. *aeolica*
Brewer's clarkia	*Clarkia breweri*
Pinnacles buckwheat	*Eriogonum nortonii*
spring lessingia	*Lessingia tenuis*
dark-mouthed triteleia	*Triteleia lugens*

TABLE 20: FIVE VEGETATION ZONES AND 13 MAJOR VEGETATION TYPES FOUND WITHIN PINNACLES NATIONAL MONUMENT

Zone	Preliminary Alliances
Chaparral	coastal sage scrub mixed chaparral chamise chaparral manzanita chaparral hollyleaf cherry chaparral
oak woodland/savanna	blue oak woodland valley oak woodland
riparian woodland	riparian woodland southern oak woodland California buckeye woodland gray pine woodland
Grassland	grassland
scree and rock	herbaceous


Vegetation
Pinnacles National Monument
National Park Service
U.S. Department of the Interior
25
146
146
0
0.5
1
2 Miles
Pinnacles National Monument Boundary
Paved Roads
Rivers and Creeks
Oak Woodland / Savanna
Chaparral
Grasslands
Riparian
Rock and Scree
National Park Service, Pacific West Region
08/2007, Source: NPS
The NPS makes no warranty, express or implied, related to the accuracy or content of this map.

been lost as a result of destruction of the habitat and lack of adequate soil moisture (Adams and others 1992; Griggs and Golet 2002; Howard 1992; Meyer 2002; Olson 1998). Valley oak is a deciduous tree that requires large amounts of water at the rooting depth and the rich soil created by spring flooding (Pavlik and others 1993). Natural regeneration of the valley oak has been steadily declining, primarily because of the loss of habitat and removal of natural yearly flooding events (Sork and others 2002). Regeneration of valley oak woodland that is used by deer, rodents, and feral pigs is difficult because of predation of the seedlings within the first year. This woodland has been altered significantly as a result of the rapid drainage of water through the sandy soils, altered hydrology, increased annual grass understory, wildlife predation of the seedlings, and increased shade created by the older remaining valley oak trees.

Riparian Woodlands

The riparian vegetation type is restricted to the moist canyon bottoms, generally where surface water flows seasonally or intermittently. Dominant species in this type include sycamore (*Plantanus racemosa*), coast live oak (*Quercus agrifolia*), willow (*Salix* spp.), Fremont's cottonwood (*Populus fremontii*).

Grasslands

Grasslands in Pinnacles National Monument are dominated by a dense layer of herbaceous plants with shrubs and tree playing a limited role in the type. The grasslands are dominated by Mediterranean annual grasses with scattered non-native forbs and native annual and perennial grasses and forbs. Some of the grassland areas that occur on the steeper slopes may be present due to frequent burning of chaparral sites (NPS 2005). McCabe Canyon contains extensive areas of intact native grasslands. Several species, including deergrass (*Muhlenbergia rigens*) and white-root sedge (*Carex barbarae*), are highly valued by Mutsun and other California Indian peoples to maintain cultural practices such as for use in basket weaving. Such large stands of these ethnobotanically important species are now considered rare in California (NPS 2010).

Rock and Scree

This vegetation is dominated by sparsely scattered herbaceous species shrubs. Soils are thinner than and tend to have fewer non-native species than in the other herbaceous dominated vegetation types in the monument. Although these areas appear rather sparse, they are relatively rich in species diversity, containing a wide variety of grasses and forbs.

HUMAN INFLUENCES

Vegetation at Pinnacles has historically been and continues to be directly and indirectly altered by human activities. These activities include: changes to the natural fire regime, invasion by non-native plants and animals, air pollution, disturbance/erosion from routine monument operations, and climate change. These activities have played a critical role in shaping the current vegetation patterns in the monument.

Non-native plants

Many non-native plant species have become well-established in Pinnacles. These invasive species displace native species and quickly colonize any disturbed area, natural or human caused. Many weed distribution vectors from visitors, administrative

TABLE 21: PRIORITY INVASIVE PLANTS IN PINNACLES NATIONAL MONUMENT

Species	Common Name
Acroptilon [Centaurea] repens	Russian knapweed
Melilotus alba	white sweetclover
Nicotiana glauca	tree tobacco
Rubus discolor [procerus]	**Himalayan blackberry**
Salsola tragus	prickly Russian thistle
Silybum marianum	blessed milkthistle
Verbascum thapsus	woolly mullein
Carduus pycnocephalus/ tenuiflorus	**Italian thistle**
Centaurea solstitialis	**yellow starthistle**
Cirsium vulgare	bull thistle
Conium maculatum	**poison hemlock**
Cynodon dactylon	Bermuda grass
Brassica spp.	mustard
Hirschfeldia incana	**Summer mustard**
Plantago lanceolata	English plantain
Raphanus sativus	wild radish
Dittrichia graveolens	**stinkweed**
Piptatherum miliaceum	smilo grass
Tribulus terrestris	**puncturevine**
***Phalaris* spp.**	**harding grass / canary grass**
Trifolium hirtum	rose clover
Verbascum blattaria	moth mullein
Arundo donax	giant reed
Iris pseudacorus	yellow flag
Tamarix ramosissima	**Saltcedar**

(Note: As of 2011, the highest priorities for control are the weed species listed in bold-faced type).

activities, as well as adjacent land practices make Pinnacles especially vulnerable to the introduction of new non-native invasive species. As of 2010, there were 118 known non-native plant species in the monument. Most of these weed species will increase in spread following a fire. Not all non-native species can currently be effectively managed, so efforts are now focused on the most invasive and most controllable of the species present. Currently, yellow starthistle (*Centaurea solstitialis*), summer mustard (*Hirschfeldia incana*), stinkweed (*Dittrichia graveolens*) and Italian thistle (*Carduus pycnocephalus*) are four of the highest priority species. Other invasive non-native species may be found in the monument that will need management attention. In many cases, the most important reason for effective and responsive invasive plant control of high priority species is to protect adjacent uninfested areas. In Pinnacles, there are thousands of acres without large densities of targeted invasive plant species. Prompt and effective control of invasive species can protect these uninfested acres from future invasions. For this reason, Pinnacles has implemented an early detection program through the San Francisco Bay Area Inventory and Monitoring Network.

Table 21 shows a list of highest priority invasive non-native species known to in Pinnacles that have the potential of reaching population densities that could require active management to control their spread within the monument.

Other species currently not documented in the monument or present but whose full distribution is unknown may also become priority species for abatement by monument staff. Species documented in Pinnacles may be added to the high priority species list if they are considered an ecological threat by the California Invasive Plant Council (Cal-IPC) or the California Department of Food and Agriculture. In order for a species to be added to the Pinnacles priority species list, they must meet one of the following criteria:

- Assigned a medium or high ranking on the California Invasive Plant Council (CalIPC) List of Invasive Plants of Greatest Ecological Concern and considered a CalIPC red alert species. The Cal-IPC List of Invasive Plants of Greatest Ecological Concern is list is available on the internet at: http://www.cal-ipc.org/.

- Considered a Class A, B, or C invasive species by the California Department of Food and Agriculture.

Prescribed burning of the non-native invasive yellow star thistle. NPS photo by Denise Louie.

Effects of non-native animals

Non-native animals, such as feral pigs, also play a role in altering the vegetation in Pinnacles. Multiple studies have examined the effects of feral pigs on vegetation in California and indicate that they do significantly alter native vegetation (Cushman 2004, Kotanen 1995). Prior to fencing of much of the monument boundary in the 1980s, feral pigs caused widespread habitat damage.

Effects of historic land use

Grazing by domestic animals and farming, particularly in the bottomlands, has undoubtedly altered the plant assemblages within these grasslands. These areas probably had significantly greater native plant diversity and fewer non-native species prior to extensive farming over the last two centuries, as farming techniques such as tilling has been shown to reduce native plant diversity in California grasslands (Stromberg 1996). Grazing, when properly managed, can have beneficial impacts to native grasslands.

Livestock grazing occurred primarily in the valley flats on the east side. Grazing by cattle continued through 2006 and was discontinued on a larger scale in 2007 to implement a restoration project to target the dense monoculture of yellow star-thistle (*Centaurea solstitialis*) through Integrated Pest Management techniques including prescribed burning, mowing, hand hoeing, prescribed goat grazing and herbicide application. This work will continue through at least 2015 where cattle grazing could be reintroduced for resource purposes.

Effects of Bear Gulch Reservoir

The dam on Bear Creek that forms Bear Gulch Reservoir, which was constructed by the Civilian Conservation Corps, has altered the hydrology of Bear Creek, reducing the number of natural flood events. This has reduced the capacity of cottonwoods, willows, sycamores, valley oak, sedges, and rushes to regenerate and has shifted some sections of Bear Creek to a more upland-dominated system.

NATIVE AMERICAN LAND USE

Indigenous peoples of California engaged in active land management through practices such as burning for results that met their everyday needs for plant materials. Over 100 plant species that occur within the monument have been documented as being traditionally used for medicine, subsistence, manufacturing and other purposes (Bocek 1984). Certain species, such as deergrass (*Muhlenbergia rigens*) and white root sedge (*Carex barbarae*), were frequently cultivated by Indian peoples to produce basketry materials. The practice continues today on a smaller scale. Knowledge and perpetuation of land management techniques of California Indian people aids in a more holistic understanding of the composition, spatial array and extent of vegetation communities.

Wildlife

The monument's overlapping distributional limits, abutted tectonic plates and geologic characteristics, expanses of chaparral, spring-fed wetlands, diverse bottomlands, and protected status since 1908 have resulted in a refuge for biodiversity of wildlife species as well as genetic variability within species. Pinnacles is home to animals that occupy a transitional zone both latitudinally along California's North-South distributional limits and longitudinally between coastal and interior systems. This rich intersection of habitats supports:

- the world's highest known bee diversity per unit area - over 400 species within the monument
- a locally high diversity of reptiles (22) and amphibians (8)
- 46 native mammals, including 14 of California's 24 bat species
- 181 species of birds have been recorded in the monument, with 120 native species regularly observed and 95 native species of birds confirmed or believed to nest here
- 70 species of butterflies, at least 440 species of moths, 41 dragonfly species, and 1 native fish.

There are also numerous other invertebrate species and work is underway to better document their diversity. Species lists are posted and maintained on the monument's web site.

Preliminary investigations of the health of sedge beds with California Indian basketweavers. Photo by Chuck Striplen.

SPECIAL STATUS SPECIES

Many wildlife species within Pinnacles National Monument have special legal status. Such recognition requires careful review of potential management actions for impacts or benefits to these species. Special status species include the federally and state endangered California condor *(Gymnogyps californianus)*, the federally and state threatened California tiger salamander *(Ambystoma californiense)* which breeds in stock ponds and summers underground in grasslands and oak woodlands, and the federally threatened California red-legged frog *(Rana draytonii)* which breeds and lives in streams and ponds.

Numerous state Species of Special Concern find habitat at Pinnacles:

- Amphibians: western spadefoot (*Spea hammondii*) and foothill yellow-legged frog (*Rana boylii*).
- Reptiles: Western pond turtle *(Actinemys marmorata)*, Coast horned lizard *(Phrynosoma blainvillii)*, silvery legless lizard *(Anniella pulchra pulchra)*, and San Joaquin coachwhip*(Masticophis flagellum ruddocki)*.
- Mammals: pallid bat *(Antrozous pallidus)*, Townsend's western big-eared bat *(Corynorhinus townsendii)*, western mastiff bat *(Eumops perotis californicus)*, big-eared kangaroo rat *(Dipodomys elephantinus)*, and American badger *(Taxidea taxus)*.
- Migratory bird species known or likely to breed within the monument include: Cooper's hawk *(Accipiter cooperii)*, sharp-shinned hawk *(Accipiter striatus)*, golden eagle *(Aquila chrysaetos)*, long-eared owl *(Asio otus)*, loggerhead shrike *(Lanius ludovicianus)*, and yellow-breasted chat *(Icteria virens)*.
- Two raptors regularly nest in Pinnacles' cliffs: prairie falcon (*Falco mexicanus*) and peregrine falcon (*Falco peregrinus*).

Several species are endemic (occur nowhere else) to Pinnacles National Monument and surrounding area. Given their rarity and restricted ranges, these species listed below may warrant additional management consideration.

- Gabilan slender salamander (*Batrachoseps gavilanensis*), big-eared kangaroo rat (*Dipodomys elephantinus*), Pinnacles shield-back katydid (*Idiostatus kathleenae*), and Pinnacles riffle beetle (*Optioservus canus*).
- Two invertebrates have recently been discovered at Pinnacles, an amphipod (*Stygobromus sp.*), known only from a single spring, and a worm (*Eremidrilus sp.*), known only from Chalone Creek.
- A sphinx moth (*Euproserpinus sp.*) is under investigation as a possible new species to science and is known only from the monument and two other locations. With further study, discovery of additional endemic species is inevitable.

Of all the species currently known to occur at Pinnacles, the following percentages of major vertebrate groups have special status: 11% of mammals, 15% of probable nesting birds, 18% of reptiles, and 50% of amphibians.

EXTIRPATIONS AND RESTORATION

Historically, grizzly bears, wolves, and perhaps black bears and jaguars roamed the monument. All of these large mammals were extirpated by the early 20th century. Given current land use patterns and habitat loss in the region, it may not be feasible to reestablish these species to the Gabilan Mountains.

Monument biologists have reestablished two extirpated species back to the Pinnacles environs; the California condor and the California red-legged frog. Another frog species in consideration for re-establishment is the foothill yellow-legged frog. These frogs were present in Pinnacles National Monument up until

Photos (left to right): 1. California tiger salamander. 2. California red-legged frog. Photos by Paul G. Johnson.

TABLE 22: SPECIAL STATUS WILDLIFE SPECIES AT PINNACLES NATIONAL MONUMENT

	Common Name	Scientific Name	Status
Invertebrates	Unnamed lumbriculid worm	*Eremidrilus sp.*	3
	Unnamed amphipod	*Stygobromus sp.*	3
	Unnamed sphinx moth	*Euproserpinus sp.*	3
	Pinnacles shieldback katydid	*Idiostatus kathleenae*	3*
	Pinnacles riffle beetle	*Optioservus canus*	3*
Fish	Sacramento Perch	*Archoplites interruptus*	CSC*2,4
Amphibians	Gabilan slender salamander	*Batrachoseps gavilanensis*	3
	California tiger salamander	*Ambystoma californiense*	FT/ST
	Western spadefoot	*Spea hammondii*	CSC
	California red-legged frog	*Rana draytonii*	FT
	Foothill yellow-legged frog	*Rana boylii*	CSC*2
Reptiles	Western pond turtle	*Actinemys marmorata*	CSC*
	Coast horned lizard	*Phrynosoma blainvillii*	CSC
	Silvery legless lizard	*Anniella pulchra pulchra*	CSC
	San Joaquin coachwhip	*Masticophis flagellum ruddocki*	CSC
	Two-striped garter snake	*Thamnophis hammondii*	CSC 1
Birds	California condor	*Gymnogyps californicus*	FE/SE
	Cooper's hawk	*Accipiter cooperii*	WL
	Sharp-shinned hawk	*Accipiter striatus*	WL
	Bald eagle	*Haliaeetus leucocephalus*	SE
	Golden eagle	*Aquila chrysaetos*	WL/SP
	White-tailed kite	*Elanus leucurus*	SP
	Prairie falcon	*Falco mexicanus*	WL
	Peregrine Falcon	*Falco peregrinus*	SP
	Long-eared owl	*Asio otus*	CSC
	Loggerhead shrike	*Lanius ludovicianus*	CSC
	Yellow-breasted chat	*Icteria virens*	CSC
	Grasshopper sparrow	*Ammodramus savannarum*	CSC
Mammals	Pallid bat	*Antrozous pallidus*	CSC
	Townsend's big-eared bat	*Corynorhinus t. townsendii*	CSC*
	Western mastiff bat	*Eumops perotis californicus*	CSC*
	Big-eared kangaroo rat	*Dipodomys elephantinus*	CSC*3
	Western red bat	*Lasiurus blossevillii*	CSC
	American badger	*Taxidea taxus*	CSC

Key:

CSC =California Species of Special Concern
WL = California Department of Fish and Game Watch List
F = Federal
S = State
E = Endangered
T = Threatened
P = Fully Protected
* = Federal Category 1 and 2 species before revoked in 1996
1 = occurs around Pinnacles and has habitat here, but has not been confirmed
2 = historically occurred in Pinnacles, but is believed to be locally extirpated
3 = endemic to Pinnacles and surrounding areas
4 = possibly not native to Pinnacles

at least the 1940s, but the cause of their extirpation is unknown. Efforts to re-establish populations would involve translocation of egg masses or tadpoles from the nearest genetic stock. In 2008, evaluations were underway for this work, but concerns over chytrid fungus halted plans.

One species formerly extirpated from the monument, the peregrine falcon, has successfully returned due to both active hacking and dispersal enabled by regional recovery efforts. From 1989-1991, seven peregrine falcons were cross-fostered into prairie falcon nests at the monument. However, it was more than a decade before peregrines returned to breed at Pinnacles. There has been one peregrine nest each year from 2005-2012.

NON-NATIVE WILDLIFE SPECIES

Feral pigs are the most problematic non-native wildlife species at Pinnacles National Monument. Initially, it is thought that escaped domestic hogs began to be established as feral as early as the late 1700s after Spanish missionaries brought livestock into central California. They later hybridized with descendants of the European wild boar which were brought into the Gabilan Mountains and adjacent Central Coast regions during the early 20th century. Pigs were intentionally released in the area, hoping to create additional hunting opportunities. Many of the pigs survived and spread. By the 1970s, these feral pigs were regularly documented in Pinnacles National Monument. A variety of major impacts, such as destruction of wetland vegetation at wallows, tilling of soils, and limitation of oak reproduction occurred. In response, beginning in the 1980s, Pinnacles constructed an exclosure around 14,500 acres of the monument's core. The fence was completed in 2003 and by mid-2006 all pigs were eradicated from within the exclosure. The monument expanded the exclosure in 2010 and 2011 to eliminate feral pig impacts from additional sensitive habitats, newly acquired lands, and the campground. 11 miles of additional fence was constructed, enclosing an additional 3,250 acres on the east side of the monument. This area is expected to be pig-free by 2013.

Two additional non-native invasive mammals, the house mouse *(Mus musculus)* and opossum *(Didelphis virginiana)* are rare within the monument and not currently considered threatening to Pinnacles' native ecosystems.

Seven non-native species of birds occur at Pinnacles National Monument. Most conspicuous are the flocks of non-native wild turkey *(Meleagris gallopavo)*. Introduced to the region multiple times in the past century as a game animal, the Rio Grande variety has flourished in recent decades. Although no population studies have been done on wild turkeys at Pinnacles, anecdotal observations suggest that several dozen inhabit the monument. In addition to vast quantities of seeds (primarily acorns), turkeys are known to consume amphibians, reptiles, and invertebrates. Turkeys are thereby a direct threat to several rare or sensitive species. Three additional non-native birds commonly occur in the monument: European starling *(Sturnus vulgaris)*, brown-headed cowbird *(Molothrus ater)*, and rock pigeon *(Columba livia)*. Starlings are cavity nesters and thereby compete with native species for a limited resource. Cowbirds are nest parasites and thereby limit the productivity of Neotropical migrants and other native songbirds. Rock pigeons are known to nest within the monument but are not believed to have an adverse effect on native birds. House sparrows *(Passer domesticus)* have also been intermittently documented in the monument in low numbers and chukars *(Alectoris chukar)* are considered rare. Eurasian collared doves (*Streptopelia decaocto*) were first observed at Pinnacles in 2010 and have expanded their range in the subsequent year. Further research is needed to determine the level of impact these non-native birds have on native Pinnacles species.

Several non-native fish species have been documented in Pinnacles National Monument in the past century. Currently, mosquitofish (*Gambusia affinis*) inhabit streams within the monument. Although this species is thought to have a minor impact on red-legged frogs, eradicating the population is currently impractical. Non-native catfish, probably black bullhead (*Ameiurus melas*), inhabited the Bear Gulch reservoir briefly during the late 20th century and were eradicated in the mid-1980s by draining the reservoir and electroshocking the remaining fish. Also, in the mid-1990s non-native green sunfish and/or bluegill (*Lepomis cyanellus/macrochirus*) infiltrated monument streams. They were considered a major threat to red-legged frogs, and were removed by electroshocking. Rapid response to such invasions is considered crucial to control efforts. Two other non-native fish were historically in the monument and were apparently naturally extirpated: fathead minnow *(Pimephales promelas)* and Sacramento perch *(Archoplites interruptus)*. Further research is necessary to determine if Sacramento perch may be native.

American bullfrog (*Lithobates catesbeiana*) was reportedly common at Bear Gulch Reservoir in the 1950s, but is no longer established within the monument. Several bullfrog tadpoles were found and removed from Sandy Creek in 2006, likely washed into the monument from overflowing stock ponds during winter floods. In 2011, a juvenile bullfrog was found on Highway 25 a mile north of the park entrance. This species is a potential threat to California red-legged frogs and many other native wildlife species.

Argentine ants *(Linepithema humile)* are not established at Pinnacles, but a colony was inadvertently brought in and quickly eradicated in 2004. Despite their small size, these non-native ants are a major threat to California ecosystems. They aggressively displace many native ant species. Such displacement causes cascading impacts to many species, including horned lizards (which feed on large native ants), native plants (some of which rely on native ants for pollination and seed dispersal), and many invertebrate species (through predation, competition for resources, etc.). It is likely that without vigilant efforts to prevent future introductions, they will eventually become established at Pinnacles.

INVENTORY AND MONITORING

To date the following inventories have been completed: 1984 breeding bird survey, 1983-1985 and 1997-1999 bird surveys, and 2001-2002 landbird inventory; 1984 raptor survey; 1984-86 small mammal survey; 1991-1994 and 1998-2000 riparian amphibian/reptile surveys; 1996-1997 and 2011 bee and wasp survey; 1999-2001 butterfly inventory; 2001-2004 riparian aquatic species inventory (vertebrates and invertebrates); and 2004-2005 bat surveys. The San Francisco Bay Area Inventory and Monitoring (SFAN I&M) Network has put considerable effort into data mining in order to collect all available information from park files and published research papers. Ongoing landbird monitoring, using many of the same routes as studied in earlier inventories, is taking place on a 3 year cycle.

Under the SFAN I&M Network, additional inventories were conducted for small mammals, reptiles, and amphibians on the BLM lands added to the monument in 2000 and also on the newly acquired McCabe Canyon lands. Inventory work currently in progress includes a moth inventory, the first phase of which ran from 2002-2004. Due to the generally high diversity of invertebrates, inventories of these groups are much more demanding than for vertebrates. Many undescribed species are likely to be discovered, and it may take many years of effort to attain a significant level of completeness.

The longest term monitoring in the monument has been the breeding raptor monitoring program. Continuously performed from 1987 through the present, the program evolved from the 1984 raptor survey. Now under the direction of the SFAN I&M Network, data are gathered intensively on raptor breeding activities from January through June at the Pinnacles Rocks and adjacent areas. These data are used to manage climbing activity in the monument. California condors are also intensively monitored as an integral part of the restoration effort.

Currently under development by the SFAN I&M Network is a long-term monitoring protocol for pond-breeding amphibians. This is expected to be implemented by 2013.

Fire

Fire historically provided major ecological benefits to chaparral and valley oak savanna habitats in the Gabilan Mountains and Pinnacles National Monument. The primary ecological benefit periodic fire can provide is the maintenance of a diverse vegetation structure with mosaics of varied successional stages across the landscape. Other benefits can include increasing plant species diversity, control of insect and disease populations, and reduction of non-native invasive species populations. Disrupting and suppressing these ecosystem-regulating effects of the historic fire regime creates differing ecologic conditions.

NATIVE AMERICAN USE OF FIRE

Archeological evidence suggests seasonal or intermittent human occupation of monument valleys. Definitive local fire archeology is not available, but much can be deduced from regional central and southern California evidence. Native Americans in this region are historically and ethnographically known to have actively used fire as a management tool. Fire was employed to improve yields of plant foods, enhance quality of basketry materials, facilitate harvests, increase visibility of predators and prey, reduce the threat of wildfires adjacent to settlements, and possibly to reduce frequency of insect pests. Fires of varying intensity and size were used depending on the objective. This set of strategies led to a diverse mosaic of vegetation communities in varying stages of succession. It remains unclear, however, the degree to which these human induced fires influenced upper mountain slopes. Pinnacles National Monument's ancient fire history is being explored, using new scientific techniques, through an interagency effort funded by the Interagency Joint Fire Science Program. Studies of the Gabilan Mountains fire history suggest that such natural fires were probably infrequent autumn fires (Greenlee and Moldenke 1982).

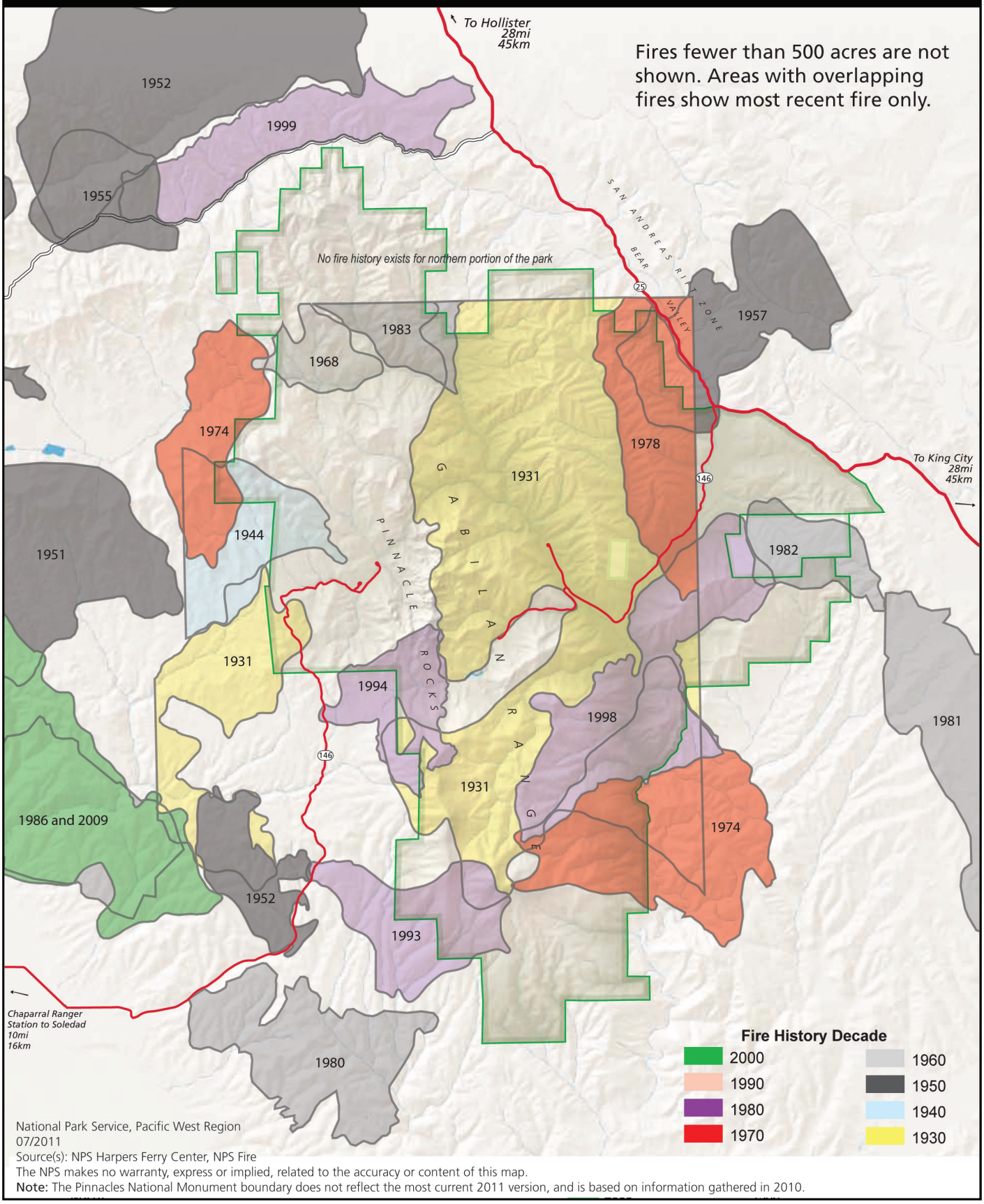
POST-EUROPEAN INFLUENCE

The extensive fire history compiled by in 1982 by Greenlee and Moldenke on the Diablo and Gabilan Mountains began looking at the natural fire return intervals in the region. Unfortunately, some of the only trees available for dating were gray pines, which are short-lived and could only provide insight into the fire history and fire return intervals for the last 100 years. Most of this period is influenced by the protections and projects that occurred after the area became

Fire History (Large Fires)

Pinnacles National Monument

National Park Service
U.S. Department of the Interior



National Park Service, Pacific West Region
07/2011
Source(s): NPS Harpers Ferry Center, NPS Fire
The NPS makes no warranty, express or implied, related to the accuracy or content of this map.
Note: The Pinnacles National Monument boundary does not reflect the most current 2011 version, and is based on information gathered in 2010.

a National Monument in 1908. For most of the 20th century, fire was suppressed with great success, thus limiting the frequency of fires normally predicted for a chaparral dominated landscape.

NATURAL FIRE REGIME AND INTERVAL

Available evidence suggests an average of one large fire (>2,500 acres) every nine years in the Gabilan Mountains and a reported fire return interval of 40 years. Approximately 146 lightning fires occurred in and around the monument between 1929 and 1978. There is little detailed information on the largest fires, but 3 historic fires apparently burned all or part of the monument in 1877, 1900 and 1931. In the past fifty years, smaller fires have collectively burned most of the Pinnacles repeatedly. Evidence from patterns of lightning ignitions indicate that naturally occurring lightning fires were probably infrequent, typically in the upper-slope and occurred in autumn. Depending on the type of vegetation that existed at the time, these fires were probably large. Today, the highly flammable chamise cover increases the potential for large lightning or human-caused fires.

FIRE ECOLOGY

Most of the monument is covered by chaparral, oak woodland, grassland, and rock scree vegetation types. Of these, chaparral is by far the most prevalent, covering roughly 80% of the monument's land area. In this vegetation type, plant life demonstrates several adaptations to reoccurring fires. For example, manzanita are able to resprout after fires, Ceanothus produce seeds at an early age and have roots that are specially adapted to grow in recently burned areas, Chamise produce a portion of seeds that require intense heat stress to germinate, and lupines are able to fix nitrogen from the atmosphere (fires reduce available soil nitrogen). Generally, chaparral plants sprout and grow quickly, and spread rapidly. Additionally, the structure, chemical composition, and low moisture content of mature chaparral encourage the rapid, complete combustion of chaparral shrubs in summer or fall fires, opening the landscape for growth of a new generation of plants. Other habitat types in the monument also demonstrate adaptations to periodic burning. Blue oaks resprout vigorously after fires and mature valley oaks survive low- to moderate-intensity fires. Oak post-fire regeneration is also benefited by animal dispersal of acorns. Native California grasses are better able to compete with widespread European exotics in landscapes influenced by fire. Monument vegetation communities are therefore adapted or resilient to fire influence. Nearly every fire in the monument, however, was suppressed for approximately 50 years until the monument's prescribed fire program began in the 1980s.

While the approximately 30- to 40-year burn interval in this area is a relatively lengthy fire return interval, there is evidence that the period of suppression affected overall species diversity and habitat for animals. Although attempts were made in the last 20 years to reintroduce fire into the ecosystem, timing, size, and behavior of fires did not simulate the natural fire pattern. As a result, many areas burned multiple times in this period and the resulting vegetation in these areas is not consistent with expected chaparral regeneration. In the last decade, the prescribed fire program has diminished to allow for ecosystem effects to be detected. Fire may be the only tool, however, to maintain the diversity and healthy structure of chaparral. In chaparral habitats, a mosaic of burned and unburned areas is necessary for the healthy maintenance and regeneration of plant and animal associations. There is a point, however, where these factors become detrimental due to increasing fragmentation of the habitat with the risk of converting open areas to nonnative annual grasses and forbs.

Fires are widely accepted as a natural part of chaparral ecosystems, and much of Pinnacles National Monument is dominated by fire-tolerant chamise and mixed chaparral plant communities. Most chaparral species are able to recover rapidly after fire, either as a result of vegetative resprouting or the presence of seeds that require hot fires to stimulate germination (Christensen and Muller 1975; Odion and Davis 2000; Keeley 1992a; Keeley 1992b; McMurray 1990). These chaparral communities are generally only briefly affected by fires, and in many cases are resprouting or germinating the next year. Once the chaparral stands become extremely dense, the understory herbaceous species all but disappear, most wildlife is not able to pass through them. In very mature stands, some chaparral species are not able to germinate and become established because of the shading and competition from the established shrubs. Fires generate openings that allow herbaceous species to become established, provide corridors and forage for wildlife, and allow chaparral species to regenerate and spread.

FIRE AND AIR QUALITY

Prescribed fire activities require compliance with the Clean Air Act. States have the responsibility to implement the provisions of the Clean Air Act as established by the EPA , including the authority to establish air quality standards and regulations. The monument complies with the Clean Air Act by adhering to the requirements of the California Air Resources Board and the Monterey Bay Unified Air Quality Control District. The most recent Pinnacles National Monument Fire Management Plan (June 2007) details procedures under which the monument applies for prescribed fire permits and reports fire activities.

Native Fire returns to Pinnacles. A prescribed cultural burn ignited as part of a collaborative study between the AMTB, National Park Services, California State Parks, San Francisco Estuary Institute and UC Berkeley and UC Santa Cruz. Photo by Rick Flores, UC Santa Cruz.

Cultural Resources

Pinnacles National Monument contains cultural resources including archeological sites, ethnographic sites, historic structures, cultural landscapes, and museum objects. One archeological district on the west side of the monument has been recorded and listed in the National Register of Historic Places as the "Chalone Creek Archeological Sites." Other cultural resources have been determined eligible for listing on the National Register of Historic Places. These resources include the following:

- The Pinnacles East Entrance District (historic district) is a historic designed landscape that reflects the period of early monument development and administration and the craftsmanship of the CCC. The High Peaks Trail System, an outstanding example of a rustic-style trail system, is a component of the Pinnacles East Entrance District.
- The Ben Bacon Ranch Historic District is a cultural landscape that was determined eligible for its association with early subsistence and small-scale commercial agriculture in California.
- The North Chalone Peak Fire Lookout was determined eligible for listing for its association with California forestry and fire protection.

Historic Overview

Although relatively little archeological research has been conducted in the Gabilan Mountains where Pinnacles is located, the region has likely been occupied by humans for at least 8,000 years, and possibly longer. The ethnic groups present in the Pinnacles area at the time of European contact were part of the Ohlonean (or Costanoan) subfamily of Penutian-speaking peoples. They are believed to have migrated to coastal California from the interior, first arriving on the east shore of the San Francisco Bay about 3,500 years ago. From there they moved south, eventually reaching Pinnacles between 2,500 and 1,500 years ago, probably displacing an earlier Hokan-speaking people. The Ohlone who settled on the east side of Pinnacles became known as the Mutsun, while those who settled on the west were known as the Chalon. Each Ohlone group occupied a single, well-defined territory, but members would move within this territory throughout the year in response to seasonal harvests of native food and fiber sources. In addition to many transitory villages or occupation sites associated with these annual movements, each territory also contained at least one permanent village, from which the group generally took its name.

Pinnacles National Monument lies within the Gabilan Mountain Range, which separates the San Benito

Valley on the east and the Salinas Valley on the west. Agricultural development began in the Salinas Valley shortly after 1770 in association with the Spanish colonial capital at Monterey and *Mission San Carlos Borromeo* in nearby Carmel, both of which were established along the coast that year. Another mission, *Nuestra Señora de la Soledad*, was established further inland in 1791 on the eastern edge of the Salinas Valley almost directly below the Pinnacles. Further to the north, *Mission San Juan Bautista* was established in 1797 along one of the most important transportation corridors connecting the coast with the interior of California. This corridor had been used for thousands of years by Native Americans. It was adopted by Spanish colonists in the eighteenth century and incorporated into the *El Camino Real* (The Kings Highway).

During the mission period, which lasted from 1769 until 1833, nearly all of the native peoples living in the vicinity of the Pinnacles were removed from their ancestral homes and forced to live in or around the missions in order to be converted to Christianity and acculturated to a Spanish way of life. The majority died of European diseases. The reduction of the Chalon people of Pinnacles at Mission Soledad was mostly complete, and few remained to live outside of the mission system by 1833. A small community of the descendents of these people has recently been identified living in Southern California. Northeast of the Pinnacles, some of the native Mutsun avoided reduction at Mission San Juan Bautista and Mission Santa Cruz and continued to live in their ancestral lands well into the American period, but their traditional lifeways had been altered irrevocably by European colonization. For the most part, the surviving Mutsun and Chalon assimilated into both Mexican and American societies, where they worked as ranch hands, miners, and agricultural laborers. Their descendents remain in the area today.

Following the secularization of the missions in 1833, the extensive lands once controlled exclusively by the Franciscan missionaries, and managed by their Native American neophytes, were distributed in large grants to prominent Mexican citizens, known as rancheros. The rancheros raised immense herds of Spanish longhorn cattle, which they slaughtered for hides and tallow, selling these products to foreign merchants in coastal ports like Monterey. The Pinnacles did not lie within any of the Mexican-era ranchos but was adjoined by several. Just south of the Pinnacles, lying across the breadth of the Gabilan Range, was the vast *Rancho San Lorenzo*, and along the floor of the Salinas Valley just west of the Pinnacles was the *Rancho San Vicente*. On the east side of the Gabilans, several miles north of the Pinnacles, was the *Rancho Cienega de los Paicines*. Bear Valley lies between Paicines and *Rancho San Lorenzo* and was used intermittently for pasturage by livestock from both places but was never formally claimed by either one. The *Rancho San Vicente* and adjacent ranchos in the Salinas Valley were physically closer to the Pinnacles, but the rugged, chaparral-covered hills which rose abruptly from the valley floor discouraged travel to the Pinnacles from this direction or utilization of the lands around the rocks.

With the conclusion of the Mexican-American War in 1848, American immigrants began arriving in California in vast numbers. Most were drawn at first by the discovery of gold in the Sierra Nevada foothills. A few years later, in 1852, the discovery of mercury in the Diablo Range about forty miles east of the Pinnacles also drew some miners to this remote region but had comparatively little effect on the Pinnacles themselves. By the late 1860s, however, most of the gold frenzy had subsided and the new immigrants began turning to agriculture, establishing small homesteads throughout the arable regions of the state. Most of the land which had been settled during the Spanish and Mexican periods was already taken up in large ranchos, however. Mexican land grants accounted for nearly all of the cultivable land in the Salinas Valley, for instance, and discouraged homesteading in this region. The rugged hills above the Salinas Valley were the only exception to this pattern on the west side of the Pinnacles, but only a few settlers were bold enough to try farming in this rugged country. One of these, Harrison Lyons, established a homestead around 1885 which now lies within the boundary of the monument. His farm never grew to any substantial size or value but is a good example of the rather marginal living a subsistence farm could support in this environment.

In 1870, Henry Melville established a mineral claim on the west side of the Balconies, near the land Harrison Lyons would later settle on. Over the next few decades, he expanded his claim substantially, though he never sank more than a few shallow tunnels into the supposedly rich copper vein he said he had discovered. His real wealth came from the shares he sold in this mine to gullible foreign investors. Eventually these investors grew weary of Melville's failure to produce any metal, but by that time, the Pinnacles were becoming a popular destination for sightseers, and Henry Melville's mineral claims lay directly in the path of anyone wanting to reach the spectacular formation from the Salinas Valley. By 1920, he had built a gate and was charging an entrance fee. He even bought a small bus and began conducting tours to the Pinnacles from Soledad. His monopoly over the principal access point from the west would prevent the NPS from developing this side of the monument for decades after its establishment.

Unlike the Salinas Valley, much of the land east of the Gabilan Range was unencumbered by Mexican grants at the time American settlers began looking for homesteads. This was one of the principal attractions of Bear Valley. The first homesteaders arrived here in 1865. Within a few decades, they had built a relatively prosperous community of moderately-sized farms practicing diverse but non-intensive dry land agriculture and pastoralism. The principal cash products were livestock (sheep and cattle), cereal grains and dairy. These early homesteaders were the first to use the Pinnacles for recreational purposes. During this time, a primitive road was built from Merrin Canyon up Chalone Creek to the eastern side of the Balconies and a picnic area was established there. It was used primarily on holidays. The Bacon family, who settled on Sandy Creek near the mouth of Bear Gulch, lived closest to the Pinnacles. Their children grew up exploring the caves and rock formations and would later act as guides for visitors when they began coming to the Pinnacles around the turn-of-the-century. The Bacon boys were often joined by their friend, Schuyler Hain, who had homesteaded a few miles further up Bear Valley in 1891. It was Hain who realized that the Pinnacles were extraordinary enough to attract visitors from throughout the state or even the nation, and he proposed preserving the formation as a public park and promoting it for tourism. Through Schuyler Hain's efforts, and the assistance of David Starr Jordan, president of nearby Stanford University, a forest reserve was created in 1906. In 1908, Pinnacles National Monument was formally established as the twelfth monument under the Antiquities Act. It contained only 2,080 acres in the midst of the original forest reserve (which was then dissolved for lack of a forest).

During the first two decades of its existence, Pinnacles National Monument was developed and maintained largely through the efforts of local volunteers and county organizations. The first custodian of the monument, Herman Hermansen, was a local homesteader who was hired by the NPS in 1922 for the nominal salary (even then) of $12 a year. He and a few of his neighbors built a rudimentary trail system and developed a lodge and campground in Bear Gulch at the site of the present nature center. These were the first developments to be made in Bear Gulch. Hermansen also challenged Henry Melville's claim on the west side of the Balconies, initiating a long series of lawsuits which would eventually result in the nullification of Melville's claim and the transference of the property to the National Park Service (though not until 1958). In 1925, the first road to the top of Bear Gulch was constructed by the County of San Benito with the assistance of the Hollister Farm Bureau and its president, W.I. Hawkins. Later that year, Hawkins replaced Hermansen to become the second custodian of the monument, a position he held for the next twenty years.

It was not until 1928 that the NPS committed itself to fully developing Pinnacles National Monument. The first development outline—predecessor of the master plan—was prepared that year. Over the next five years, much of the basic infrastructure of the monument was designed and constructed by NPS staff working under the direction of the then western Field Headquarters in San Francisco. This early development included most of the High Peaks and Condor Gulch trails as well as visitor and administrative facilities in Bear Gulch. The latter included a ranger's residence, two rustic comfort stations, a campground and sanitary utilities. No development was undertaken on the west side because Henry Melville still controlled access to the monument from the Salinas Valley.

In 1932, a substantial allotment was made for road construction from President Hoover's unemployment relief act. This was used to construct the present entrance road from Chalone Creek up to the top of Bear Gulch.

In the fall of 1933, a CCC camp was established at the monument on Chalone Creek. This program—formally called the Emergency Conservation Work—was established under President Franklin Roosevelt's Federal Emergency Relief Act. It put thousands of young men to work on federal and state lands throughout the nation doing forestry conservation work and light construction. The CCC became one of the most popular of Roosevelt's Depression-era assistance programs. The CCC was active at Pinnacles National Monument until early 1942, when the entire program was shut down as a result of America's entry into World War II. During these nine years, CCC enrollees expanded and improved the existing trail system and built, or helped build, a number of new structures. These included the Bear Gulch nature center, the Condor Gulch utility area, the superintendent's residence, the stone entrance pylons along Chalone Creek, two rustic pit toilets on North Chalone Peak and Scout Peak, and the Bear Gulch Dam. The CCC was also responsible for much of the existing landscaping in the Bear Gulch headquarters and picnic areas. The intensive physical development that occurred during this relatively brief period of time was guided by comprehensive master plans, the first complete set of which were prepared by the NPS Branch of Plans and Design in 1933. These planning sheets were updated every few years until 1942.

With acquisition funds made available through the NPS 50-year anniversary, Mission 66, the remaining private inholdings in the monument were acquired. These included the old Melville property in the Balconies,

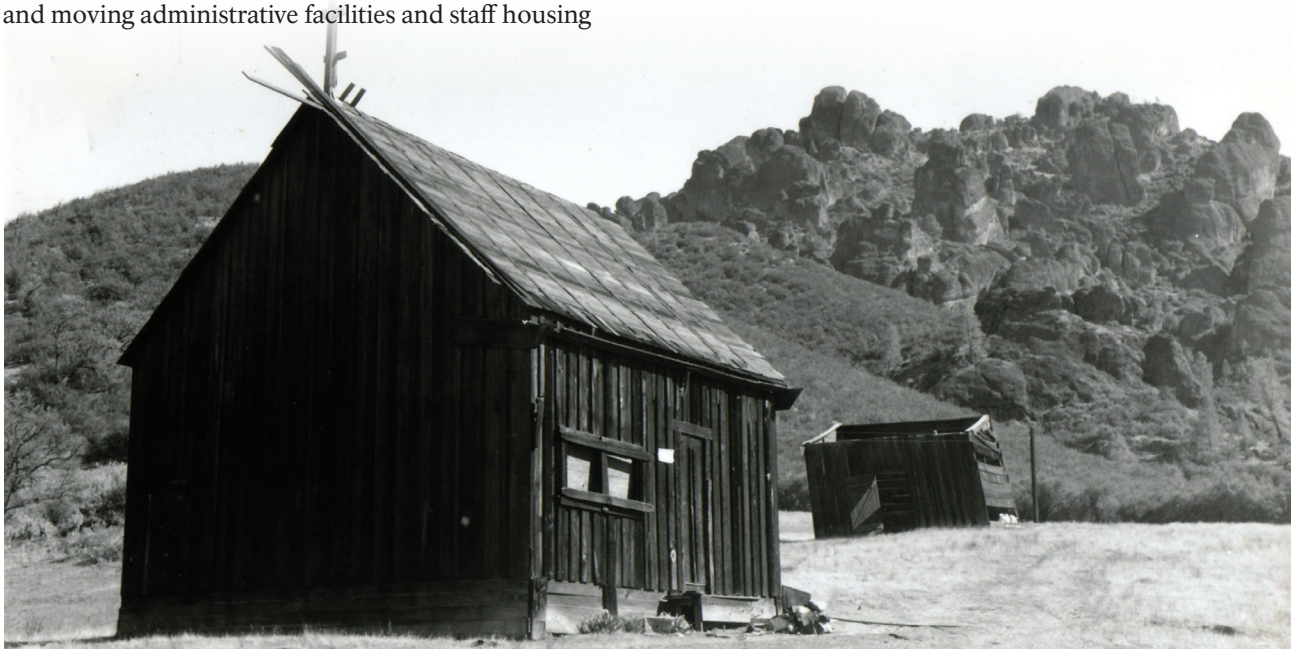
finally allowing development of the west side to begin. One of the first projects to be undertaken there was construction of the Balconies Rim Trail in 1963, connecting the east and west sides of the monument through the Old Pinnacles. This was followed in 1966 with improvement of the west side access road and the construction of visitor facilities and temporary residences for staff in the Chaparral area. On the east side, formal campgrounds were constructed on both sides of Chalone Creek adjacent to the now-abandoned CCC camp.

Most of the work done during the Mission 66 period was consistent with the development plans which had been outlined for the monument since the late 1920s. By the 1970s, however, rapid growth throughout the greater central coast region began to put pressure on the monument's resources as visitation steadily increased. It became apparent that further development of existing facilities alone would not be sufficient to meet the growing demands. In response, the next few decades were devoted largely to reassessing existing patterns of development and coming up with a new long-term vision for how development should (or should not) occur.

In 1976, a new master plan was produced outlining the most important principles which had resulted from this reassessment. At the heart of the plan was a list of proposals which included converting the monument to day-use only; shifting the focus of use to the west side, which could better accommodate larger volumes of short-term visitors; removing visitor use facilities and staging areas to the edges of the monument, and moving administrative facilities and staff housing out of the monument altogether. The idea was that development should be concentrated away from the most sensitive areas in the monument so that greater numbers of visitors could be accommodated without degrading the resources they had come to experience.

These original proposals were refined over the following decade and resulted in separate Development Concept Plans (DCPs) for the east and west sides that were completed by the early 1990s. The west side DCP proposed building a visitor center, parking area and support facilities in recently-acquired land on the western edge of the monument and removing most of the existing development from the environmentally-sensitive and scenic Chaparral area. This proposal has only now been fully implemented.

The east side DCP proposed a similar plan, with existing development at Bear Gulch to be kept largely as a trailhead picnic area and cultural exhibit which would interpret the CCC. A new visitor center and administrative facilities would be constructed on Sandy Creek, just inside the eastern boundary of the monument, while maintenance facilities, which had relocated to the old CCC camp after World War II, would be concentrated near the bottom of Bear Gulch in the former YACC area, a small facility which had been established for the Young Adult Conservation Corps in the mid-1980s. The Chalone Creek Annex, site of the old CCC camp, would be maintained as a trailhead picnic ground and staff residential area. All other development would be removed, including the maintenance yard and remaining CCC buildings, the campgrounds, and the road above the Annex.



Henry Melville's cabin on the west side of the monument before it was torn down in the late thirties or early forties. NPS photo.

Photos (left to right): 1. Some of the original homesteaders (Myron Bacon with beard on left), ca.1880. Photo from Grace Robinson album, courtesy of Deborah Melendy Norman. 2. Ben and Orea Bacon seated in front of their house, ca. 1894. Photo courtesy of Deborah Melendy Norman.

A severe storm during the winter of 1998 forced reconsideration of both plans. Floodwaters destroyed part of the Chalone Creek Annex campground, hastening its retirement. But they also destroyed the YACC area, and forced planners to abandon the idea of ever developing this site. It was subsequently restored to a natural condition, while the maintenance complex remained upstream at the Chalone Creek Annex. The road above the Annex was also taken out as part of this post-flood restoration project. Staff housing was relocated from Bear Gulch to new facilities in the Annex, as proposed in the DCP, but no other changes occurred in Bear Gulch, and the former visitor center (now nature center) and administrative facilities remain there.

By the end of the 1990s, conditions had once more changed sufficiently to justify a new planning effort, but this was postponed when President Clinton authorized the enlargement of Pinnacles National Monument by nearly 11,000 acres in January 2000. The monument had already been enlarged seven times since the original 2,080 acres had been set aside in 1908, growing to almost 17,000 acres by 1980. This proclamation represented the single largest increase in the monument's history. Approximately 8,000 acres were transferred immediately from adjacent public lands, while negotiations began for the purchase of an additional 3,000 acres of private land on the east side of the monument. The largest proportion of this was a single parcel—the Pinnacles Ranch—comprising nearly 2,000 acres. It constituted most of the area around Sandy Creek between the eastern boundary of the monument and Highway 25. This was the land which had originally been settled by the Bacon and Butterfield families nearly a century-and-a-half earlier, and the area is rich in historic significance. Both the George Butterfield and Ben Bacon homestead sites are extant and have been determined eligible for the National Register. They lie within the designated Ben Bacon Ranch Historic District. Upon acquisition of the Pinnacles Ranch in 2006, the GMP planning process began to consider a host of new opportunities and challenges that had been created by expansion of the monument.

Archeological Resources

ARCHEOLOGICAL SITES

Thirty-seven archeological sites and several isolated artifacts and features have been inventoried within Pinnacles National Monument and it is expected that additional sites and isolates will be recorded in the future. The known sites are located in both San Benito and Monterey Counties and all but the newly discovered have been entered into the NPS Archeological Site Management Information System (ASMIS), an agency-wide inventory database. Both prehistoric and historic era sites are represented. One archeological district consisting of three Native American prehistoric sites on the west side of the monument was listed in the National Register of Historic Places as the "Chalone Creek Archeological Sites" district in 1978. No Native American rock art sites have yet been discovered though that possibility remains. The sites can be characterized and counted as shown in the Table 23.

The historic era sites are mostly the remains of homesteads, their associated water features, and mines or mining related sites. Exceptions include a stone masonry drainage channel apparently built by the CCC and an artifact deposit associated with a significant fire lookout on North Chalone Peak. Archeological features include masonry walls and ruins, trash deposits and artifact scatters, fence posts

Photos (left to right): 1. Park Service Director Stephen Mather with the Pinnacles Boys in 1924. Herman Hermansen is third from left; Mather is to the right of Hermansen; and the older man with his hands resting on a wooden staff is Schuyler Hain. 2. Chalone Annex group campground, 1965. NPS photos.

and wire fence strands, agricultural implements, planted trees, adits, shafts and mine timbers, all from the American period of settlement. No Spanish or Mexican era sites are known within the monument despite its proximity to the Mission Nuestra Senora de la Soledad and El Camino Real or to Mission San Juan Bautista. Indians and Mexicans were present throughout the American settlement period though, and were active participants in agricultural and mining activities. It has been hypothesized that during the Spanish period the Pinnacles may have functioned as an isolated geographic refuge for Indians seeking to avoid conscription or recapture by the Mission system, but no evidence or analyses have yet been developed to support that proposition.

On the basis of site characteristics including the presence of shallow hopper, bedrock mortars and the relatively few artifacts that have been collected (many without good provenience), the known Native American archeological sites appear to date to within the last 1000 years but there is an expectation that evidence of earlier Native American occupations will be discovered in the future. The presence of at least one on-site milling slab, portable bowl mortars and several large contracting-stem projectile points in the monument's museum collection may indicate a greater antiquity of occupation. No archeometric dating has been done and no typologically datable shell beads or ornaments have yet been found. Several pieces of obsidian have been collected but chert flakes and artifacts are more numerous. Only one midden site has been tested archeologically, with minimal results.

On the basis of historic and ethnographic information the prehistoric sites are associated with the Ohlone Indians (earlier known as the Costanoan Indians) who spoke languages of the Penutian stock. Penutian speakers may have migrated to the area sometime between approximately 3500 and 2500 years ago. More specifically, the Mutsun and Chalon bands of Ohlone Indians are known to have occupied what is now the monument prior to contact with the Spanish. The Mutsun and Chalon bands of Ohlone are the groups directly associated with the Pinnacles and their descendants still live in the area and elsewhere in California. In particular, the Amah Mutsun band, already recognized by the State, has applied for federal re-recognition. The potential for earlier occupations at Pinnacles though could indicate additional associations with earlier, native peoples who were the ancestors of the neighboring Salinan and Esselen peoples to the west. These peoples spoke languages of the Hokan stock. It is theorized by anthropologists that Hokan speakers occupied the area prior to the arrival of the Penutian speakers. Salinan groups may also have visited the Pinnacles area during Ohlone times, especially on the west side of the monument. Neighboring Northern Valley Yokuts groups to the east may also have visited.

Together, the prehistoric archeological sites of Pinnacles represent a Native American hunting and gathering economy where plant resources were actively managed integrated into a regional trade network capable of providing at least small amounts of obsidian for tools. This economy would be consistent with the local presence of small and large game animals; nut bearing trees including gray pine, coast live oak, valley oak, and buckeye; seed producing native grasses and wildflowers; and stands of deergrass and Santa Barbara or white root sedge used in basketry for which California Indians are well known.

TABLE 23: ARCHEOLOGICAL SITES

Predominant Site Characteristic	Site Count	Notes
Rock Shelter	3	Typically associated with small middens
Bedrock Mortar	10	Sometimes associated with middens
Lithic Scatter	10	Primarily flakes and debitage associated with the manufacture of stone tools
Prehistoric Midden	2	Comparatively larger middens with bedrock or portable mortars
Historic Era Features and Artifacts	12	19th and 20th century homestead, mining water management and fire lookout sites
Total	37	

Native American prehistoric sites are typically located near streams or springs and may indicate a comparatively low or seasonal population of Native Americans during their periods of use, since sites are relatively small and are not numerous. No major village sites have yet been identified. Furthermore, reliable year-round water sources were somewhat limited and no human remains have yet been observed or referred within the monument. The linear distribution of the sites and the relatively short distances between them may also indicate that resource exploitation was intense, efficient and well suited to one or several small groups. Though fresh water sources would have made year round habitation possible it is likely that the seasonal availability of edible seeds and nuts would have governed the cyclical movements of hunting and gathering peoples into and out of the area.

ARCHEOLOGICAL SITE CONDITION

With assistance from NPS archeologists Pinnacles National Monument is in the process of evaluating the condition of its archeological sites using the national criteria established for use with ASMIS. Site condition is based primarily on the observed physical stability of the site and the apparent level of threat or endangerment from factors such as erosion, vandalism or other ground disturbing activities.

At the end of 2011 the monument had 36 archeological sites listed in ASMIS. Of those, 17 sites were in good condition, 10 were in fair condition, five required new evaluations and four were not relocated because of vegetation and soil cover. Primary threats to archeological resources include alluvial and colluvial erosion; unintentional visitor impacts resulting from the close proximity of trails and facilities; intentional looting of artifacts by visitors; bioturbation by small and large mammals including feral pigs; utility line maintenance activities that entail ground disturbance and brush removal, and high temperature wildfires. Many of these threats can be managed through site monitoring, more effective project planning and review, public education, prescribed fires, and trail realignment.

REGIONAL CONTEXT

Pinnacles National Monument is within California's Central Coast Region for archeology (Moratto 1984). Within the region much archeological work has been done in Monterey County, especially along the coast. This has resulted in a chronological series of radiocarbon dates for the human use and occupation of the region starting at approximately 8,000 years before present. In other parts of California, for example at Borax Lake to the north and Channel Islands to the south, human use and occupation has been dated much earlier from approximately 10,000 to 12,000 years before present.

Comparatively little archeological work has been done in San Benito County though, including most of Pinnacles National Monument. If the prehistory of Pinnacles as part of the Gabilan Range reflects that of the Diablo Range to the east, then sites representative of the early, pre-ethnographic "Hunting Culture" (Jones and Klar 2007) may be present. The Hunting Culture has been dated in the Diablo Range to as early as 5,500 years ago, with more intensive occupations emerging approximately 4,500 years ago. The Hunting Culture concludes at approximately 1,000 years before present at which point the ethnographically known cultures of the Ohlone and Salinan are taken to encompass the archaeological record. Earlier inland Hunting Culture sites are characterized by large contracting stem and square stem projectile points and other bifacial tools along with milling slabs and occasional bowl mortars, while later sites often exhibit small, side-notched arrowheads, olivella and steatite beads, and bedrock and hopper mortars. The Hunting Culture changed through time, incorporates both Hokan and later Penutian speakers, and included important transitions such as a greater reliance on acorns for food, the use of the bow and arrow for hunting and warfare, and the development of more complex economies including local and regional trade networks. Native populations gradually grew in size with notably larger increases during the last 1,000 years, based on the number of dated archeological sites.

ARCHEOLOGICAL SURVEY COVERAGE

Only 12% of Pinnacles National Monument has been surveyed for archeological sites and only one prehistoric site (CA-SBN-123) and one historic era site (the Ben Bacon Homestead Artifact Scatter) have been tested by excavation. Pinnacles is not well integrated into the archeology of the region and because of the limited research done in the monument, it has not yet made a substantial contribution to it though it has clear archeological potential.

Eight archeological surveys, each covering a relatively substantial acreage, have taken place at Pinnacles and they resulted in the discovery and recording of the majority of the monument's known sites. Survey methods employed a mixture of both reconnaissance and intensive level survey techniques. A chronology of these surveys follows.

The first survey was conducted for NPS in 1967 by private contractors who recorded 13 prehistoric archeological sites in drainages along the monument's primary trail systems (Olsen, Payen and Beck 1967). The next survey was conducted in 1981, also under contract to NPS, and included survey of newly acquired lands, updating of existing site records based on new site visits, and recording of an additional 11 sites including several historic homesteads (Haversat, Breschini and Hampson 1981). These were the first historic era archeological sites recorded at Pinnacles. Also in 1981, on former BLM lands transferred to Pinnacles, the BLM conducted an archeological survey of over 1,200 acres for the Horse Valley Chaining project but recorded only one lithic scatter. Following the Stonewall Fire of 1997 a survey crew from the NPS Western Archeological & Conservation Center (WACC) at Tucson updated site records for sites along the South Wilderness Trail and added two new sites to the inventory (Schub 1998). In 1999 WACC archeologists also recorded a CCC stone masonry drainage channel near an employee housing area (Shirley 2000) as part of a compliance survey. In 2001, on private lands now part of Pinnacles, the California Department of Transportation surveyed the corridor of Highway 146 on the east side of the monument and recorded several archeological resources including two prehistoric sites (Mikkelsen 2000). The site of the new West Pinnacles Visitor Contact Station was surveyed in 2002 by WACC with negative results (Corey 2002). Archeologists from Yosemite National Park surveyed approximately 260 acres in the former Pinnacles Ranch area in 2008 and recorded the historic Butterfield homestead (Gavette 2008). In 2011, a UC Berkeley Archeological Field School in conjunction with the NPS and the Amah Mutsun tribal band conducted a survey of McCabe Canyon and other areas.

A number of smaller, compliance surveys have been conducted over the years, usually with negative results. One recent exception was the survey and test excavation conducted for the Sandy Creek Bridge Replacement project which identified the Ben Bacon Homestead Artifact Scatter (Engel 2011).

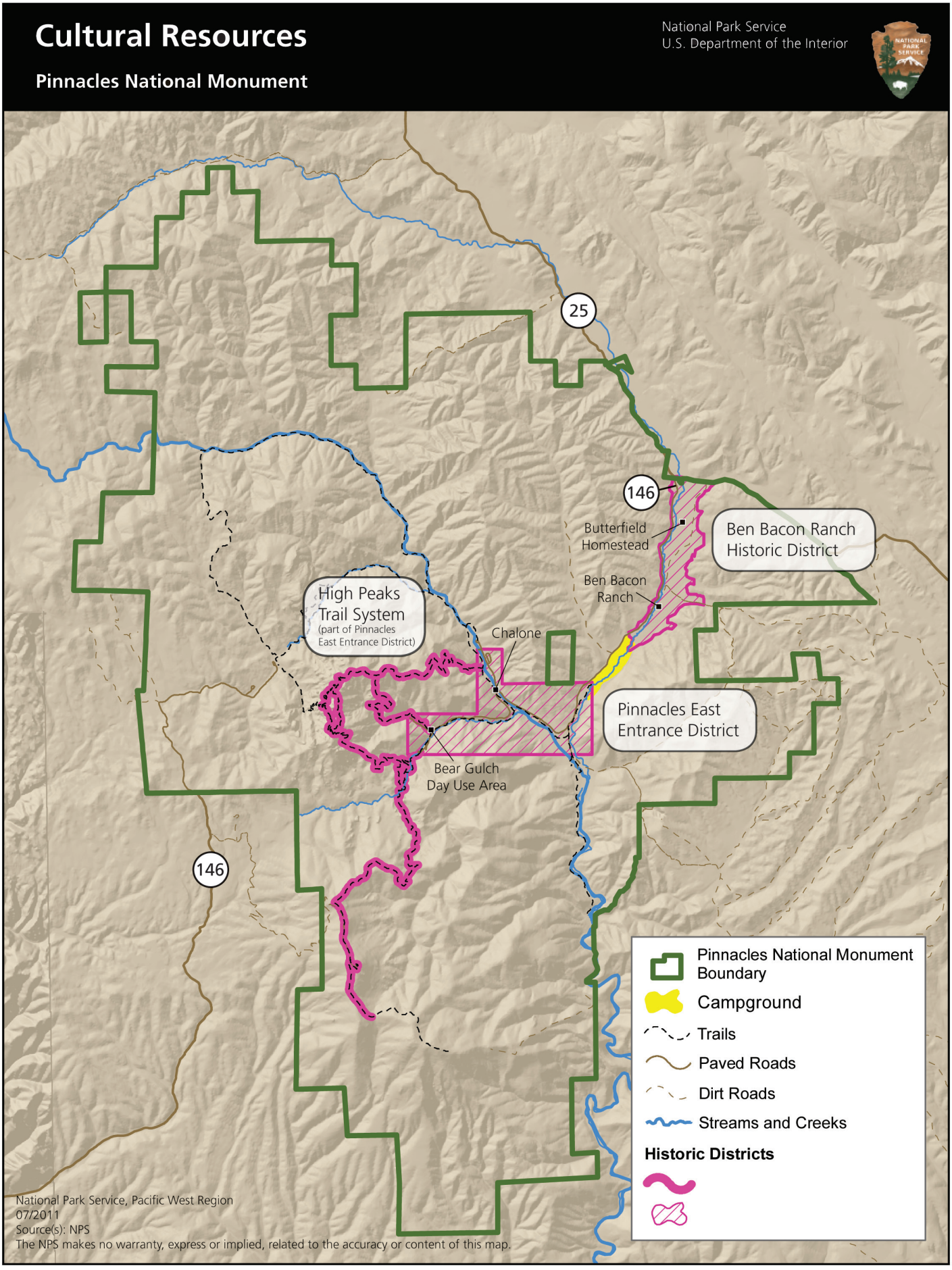
ARCHEOLOGICAL RESEARCH POTENTIAL AND RECOMMENDATIONS

An initial NPS archeological overview and assessment summarizing the archeology of Pinnacles National Monument was completed in 1978 (Fritz and Smith 1978) when the monument was much smaller and only 13 sites had been recorded. A new and expanded overview and assessment was completed in 2011 (Massey with Gardener and Engel 2011) that included updated documentation and records for 22 sites and the recording of six newly discovered sites. In addition, new research and management recommendations based on a better knowledge of the resources were presented.

Broad recommendations include but are not limited to systematic archaeological survey to identify and document expected prehistoric and historic era sites; limited archaeological testing of known and expected sites to establish their chronology, significance and eligibility for listing in the National Register of Historic Places (NRHP); and further development of the predictive site model newly presented in the 2011 overview and assessment.

More specific research recommendations indicate the archeological research potential of the monument and include but are not limited to:

- defining and explaining prehistoric settlement patterns and the seasonality of Native American site usage within the context of ethnographic knowledge and the archaeology of the region
- defining and explaining patterns and dynamics of inter- and intraregional trade
- identifying and recording rock art sites (as yet unknown at Pinnacles)
- investigating homestead and mining sites with a focus on determining intensity of use, resultant changes to the landscape, and contributing to development of a landscape history of the monument
- identifying and investigating Civilian Conservation Corps (CCC) deposits to better document and understand the conditions of life and work for the CCC, which built many of the significant structures and trail systems of the monument
- reevaluating, updating and expanding the Chalone Creek Archeological Sites National Register District


Cultural Resources
Pinnacles National Monument
National Park Service
U.S. Department of the Interior
25
146
Butterfield Homestead
Ben Bacon Ranch Historic District
Ben Bacon Ranch
High Peaks Trail System
(part of Pinnacles East Entrance District)
Chalone
Pinnacles East Entrance District
Bear Gulch Day Use Area
146
Pinnacles National Monument Boundary
Campground
Trails
Paved Roads
Dirt Roads
Streams and Creeks
Historic Districts
National Park Service, Pacific West Region
07/2011
Source(s): NPS
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The potential for meaningful archeological research at Pinnacles National Monument is considerable and the resultant knowledge would benefit the public by enabling NPS to better understand, protect and interpret the archeological resources of the monument. In addition, the additional knowledge gained through research would be of direct interest and value to Native American descendant communities such as the Amah Mutsun and Chalon peoples.

Historic Structures and Cultural Landscapes

A total of 42 structures are recorded on the List of Classified Structures (LCS) for Pinnacles National Monument, 31 of which have been determined eligible for listing on the NRHP. Another nine have not been formally evaluated, while two others were determined to lack eligibility but are still managed as cultural resources. These range from buildings to smaller scale elements such as retaining walls and trails. With the exception of the masonry drainage channel apparently built by the Civilian Conservation Corps (CCC), the historic era sites are the remains of homesteads (foundations, masonry, trash deposits, wire fencing, etc.) related to dry land subsistence agriculture from the early American period of settlement. No Spanish or Mexican era sites are known to exist within the monument.

CULTURAL LANDSCAPES DETERMINED ELIGIBLE FOR THE NATIONAL REGISTER

Pinnacles East Entrance District

The Pinnacles East Entrance District (historic district) is a cultural landscape determined eligible for the National Register of Historic Places by the California State Historic Preservation Office.

The Pinnacles East Entrance Historic District is a 797-acre historic designed landscape within Pinnacles National Monument, one mile east of the geologic formations that give the monument its name. The features associated with the district reflect the period of early park development and administration and the craftsmanship of the CCC and are generally located along the washes of the Chalone and Bear Creek drainage systems.

The district is locally significant under National Register Criteria A and C for the period of significance of 1923-1941. This period reflects the years of early park planning and development combined with the efforts of the CCC. The first major road building effort into Bear Gulch was begun in 1924 with funding from local merchants, however it was not until 1933 when a CCC camp was established at Pinnacles that major public road improvements and facility construction occurred. The CCC abandoned Camp Pinnacles in 1941, ending the period of early park development.

The historic district (identified as a cultural landscape) includes monument roads, the Chalone area, Condor Gulch, the Bear Gulch administration area, and Moses Spring area. Major features within the landscape include the entry road, entrance pylons, rock retaining walls, culverts, tree wells, and early monument buildings. While the Chalone area was found to not retain integrity in the 1999 Chalone CCC Camp Level I Cultural Landscape Inventory, it retains elements which contribute to the larger Pinnacles East Entrance Historic District and is included within its boundaries.

The site continues to fulfill its historic function as the location of park administrative functions, and the majority of character defining features and landscape characteristics contribute to the district's integrity as a designed landscape. These include buildings and structures, circulation, cluster arrangement, land use, natural systems and features, spatial organization, topography, and views and vistas. Small-scale features have lost their integrity and do not contribute as landscape characteristics. As a whole, the cultural landscape of the Pinnacles East Entrance Historic District is in fair condition and retains integrity as a designed landscape. In the following list, features that were constructed during the period of significance contribute to the historic district are while those features that were constructed after the period of significance are non-contributing, even if they are compatible with the historic character of the district.

Circulation

List of Contributing Landscape Features:

- Chalone Creek Road (LCS 267608, Structure # HS16)
- Condor Gulch trailhead
- Eastern Approach Road (Route 146) (LCS 267612, Structure # HS17)
- High Peaks trailhead
- Moses Spring Parking Area
- Moses Spring trailhead
- Stone Stair [LCS: Stone Stairs and Walks, Chief Ranger Residence] (LCS 57535, Structure # HS6)
- Condor Gulch Road (LCS 267617, Structure # HS15)
- Bear Gulch Road (LCS 57542, Structure # HS13)

List of Non-Contributing Landscape Features:

- Bear Gulch administrative area path
- Bear Gulch parking area
- Bear Gulch Trail
- Chalone Creek Bridge

Old Pinnacles trailhead
South Wilderness trailhead
Stone stairway at Building # 10
Two Visitor Center area parking areas
Wood laminate foot bridges

Buildings and Structures

List of Contributing Landscape Features:

Maintenance Office [LCS: Maintenance and Compliance Office] (LCS 57549, Structure # 8)
Visitor (Nature) Center (LCS 7547, Structure # 1)
Conference Room (LCS 57548, Structure # 5)
Bear Gulch Comfort Station (LCS 7391, Structure # 17)
Box culvert with wingwalls (LCS 267602, Structure # HS22)
Chief Ranger Residence [LCS: Chief Ranger's Residence] (LCS 7390, Structure # 2)
Dormitory [LCS: Residence/Dorm "Honeymoon Cabin"] (LCS 57550, Structure # 10)
East Entrance Pylon North (LCS 14031, Structure #HS2)
East Entrance Pylon South (LCS 14032, Structure #HS3)
Garage [LCS: One Car Garage] (LCS 57533, Structure # 23)
Gas and Oil House (LCS 7393, Structure # 200)
Guardwall [LCS: Stone Guard Wall] (LCS 267603, Structure # HS21)
Horse Barn (LCS 7394, Structure # 202)
Maintenance Shop (LCS 57544, Structure # 300)
Masonry Culverts and Headwalls (LCS 267604, Structure # HS20)
Moses Springs Comfort Station [LCS: Moses Spring Comfort Station] (LCS 7392, Structure # 18)
Museum Archives [LCS: Interpretive Laboratory] (LCS 57551, Structure # 13)
Ranger Office (LCS 57547 Structure # 4)
Retaining Walls [Retaining Wall, Chief Ranger Residence] (LCS 57534, Structure # HS5]
Storage Shed (LCS 267605, Structure # 306)
Storage Shed and Warehouse [LCS: Truck and Car Garage] (LCS 57545, Structure # 301)
Superintendent's Residence (LCS 292095, Structure # 19)
Tack Room (LCS 57546, Structure # 302)
Tree Wells [Stone Tree Wells] (LCS 267606, Structure # HS19)

List of Non-Contributing Landscape Features, Managed as a Cultural Resource (LCS):

Chalone Creek Bridge
Checking Station (Building # 25)
Comfort Station (Building # 309 / # 500)
Control Building (# 312)
Powder House (Building # 305)
Residence (Building # 203)
Residence (Buildings # 101 and # 102)
Residence Trailer (Building # 204)
Residence Trailer (Building # 205)
Residence Trailer (Building # 206)
Resource Office (Building # 207)

List of Non-Contributing Landscape Features:

Administrative Office (Building # 14)
Administrative Office (LCS 57553, Structure # 7)
Superintendent's Office (LCS 57552, Structure # 6)
Storage Shed (Building # 517)
Visitor (Nature) Center culverts
Woodshed (Building # 20)
Primary Well (# 315)
Secondary Well (# 313)

Undetermined

Rock Wash Near Chalone Maintenance Area

Small-Scale Features

List of Contributing Landscape Features:

Bear Gulch Curbing [Not on LCS]

List of Non-Contributing Landscape Features:

Signage
Trash bins
Gates
Fire Hydrants
Propane Tanks
Electrical Utilities
Phones
Flag Pole
Cash Box
Bench
Mailbox
Hot Tub
Flammable materials storage box
Gasoline pumps

Archeological Sites

List of Contributing Landscape Features:

Equipment Shed Foundation

High Peaks Trail System

The High Peaks Trail System (trail system) is a component of the National Register eligible Pinnacles East Entrance Historic District. In 2009, the California State Historic Preservation Officer (SHPO) concurred with an amendment to the Pinnacles East Entrance Historic District that expanded the boundary of the historic district to include the trail system.

Road crew cabins in Bear Gulch, 1932. These are the same buildings presently used at park headquarters. NPS photo.

The historic district and the High Peaks Trail System share the same period of significance. The Cultural Landscape Inventory (CLI) for the historic district established a period of significance which began with the work initiated by the first custodian of the monument and ended with the conclusion of the CCC's contribution. This period was defined as extending from 1923 to 1941. Subsequent research has discovered that the CCC continued to make significant contributions to the district and the trail system all the way into the spring of 1942 when the last of the trail work was completed. Subsequently the California SHPO concurred with extending the period of significance one year, from 1941 to 1942, to capture contributions made in 1942 and to realize the actual intent of the original CLI.

The trail system, like the other construction with the Pinnacles East Entrance Historic District, was developed by the National Park Service (NPS) and the Civilian Conservation Corps (CCC) between 1923 and 1942, and it provides recreational access to the finest geologic features of Pinnacles National Monument. Geologic features include rock spires, canyons, and talus caves which are remnants of an ancient volcano. The trail system that navigates through the unique terrain is an outstanding example of the rustic-style of design employed by the NPS during the 1920s and 1930s. A high percentage of the existing trail features date to the historic period and includes Bear Gulch Caves Trail, Moses Spring Trail, High Peaks Trail, High Peaks Cut-Off Trail, Condor Gulch Trail, Tunnel Trail, Wall Trail, Rim Trail, and portions of the Juniper Canyon and Chalone Peak Trails.

The historic structures constructed in support of the High Peaks Trail System were designed in the rustic-style, which emphasized the blending of built works into their setting. The manipulation of natural topography that occurred along the majority of the trail system is still evident including the effort in minimizing the disturbance to the surrounding landscape. The trail alignment, as established during the historic period, balances the challenges of the steep topography with the desire to allow visitor access to the monument's unique features.

The trail system shares its significance with the Pinnacles East Entrance District, which is locally significant under National Register Criteria A and C with a period of significance that extends from 1923 to 1941. The Pinnacles East Entrance District is locally significant within San Benito and Monterey Counties for its multitude of historic features designed in the rustic style and associated with the establishment of Pinnacles National Monument and the work done there by the CCC. Under Criterion A, the Pinnacles East Entrance District is locally significant for its association with early park development and the CCC. Under Criterion C, the district is significant for its design according to early National Park Service rustic design principles.

In a separate determination of eligibility in 2002, the SHPO concurred with the determination that the Bear Gulch Caves Trail is eligible for the National Register under Criteria A and C. The Bear Gulch Caves Trail is included in the High Peaks Trails System inventory.

The High Peaks Trail System (trail system) is an outstanding example of a rustic-style trail system providing visitor access to many of the finest geologic and natural features of Pinnacles National Monument. The historic character of the High Peaks Trail System is evident in the remaining landscape characteristics and features: circulation, buildings and structures, topography, natural systems and features, spatial organization, and land uses.

The primary landscape features that remain from the period of significance include the Bear Gulch Caves Trail, Moses Spring Trail, High Peaks Trail, Condor

Gulch Trail, Tunnel Trail, Wall Trail, Rim Trail, and portions of the Juniper Canyon and Chalone Peak trails.

The High Peaks Trail System and associated contributing features within this district retain all seven aspects of integrity. The High Peaks Trail System is in good condition. Though there is clear evidence of disturbances due to visitor use of the trail system, the maintenance staff has had a history of sensitively stabilizing these impacts through routine and periodic maintenance.

The North Chalone Peak Fire Lookout Tower, located within the High Peaks Trail System, does not contribute to the East Entrance Historic District. The lookout was constructed in 1952, after the period of significance of the historic district, 1923-1942. The lookout itself is individually eligible for the National Register under Criterion A for its association with California forestry and fire protection, and Criterion C as the oldest example of the revised 809R plan. The year of significance is 1952.

In the following list, features that were constructed during the period of significance contribute to the historic district are while those features that were constructed after the period of significance are non-contributing, even if they are compatible with the historic character of the trail system. See the High Peaks Trail System Cultural Landscapes Inventory for a more detailed analysis of contributing and non-contributing features.

Circulation

List of Contributing Landscape Features:

- Bear Gulch Caves Trail (LCS 57540, Structure # HS11)
- Moses Spring Trail (LCS 57539, Structure # HS10)
- High Peaks Trail (LCS 57536, Structure # HS7)
- Condor Gulch Trail (LCS 57538, Structure # HS9)
- Tunnel Trail (LCS 57537, Structure # HS8)
- Juniper Canyon Trail (Upper Segment) (LCS 791347, Structure # tbd)
- Wall Trail (LCS 791355, Structure # tbd)
- Rim Trail (LCS 791364, Structure # tbd)
- Chalone Peak Trail [LCS: North Chalone Peak Trail] (LCS 57543, Structure # HS14)
- High Peaks Cut-Off Trail [LCS: High Peaks Cutoff Trail] (LCS 791375, Structure # tbd)
- Condor Gulch Overlook

List of Non-Contributing Landscape Features:

- Chalone Peak Trail - Fire Road Segment
- Moses Spring Trail Realignment
- Cave Access Trail
- Rock Climbing Access Trailheads

Buildings and Structures

List of Contributing Landscape Features:

- Tunnels (3)
- Bridges (6)
- Causeways (2)
- Retaining Walls (351)
- Parapet Walls
- Steps (47)
- Check Steps (8)
- Check Dams (Water Bars) (2)
- Open Ditches (Open Culverts) (5)
- Spillway (1)
- Bear Gulch Dam (LCS 7395, Structure # HS1)
- High Peaks Comfort Station (LCS 23050, Structure # 400)
- Chalone Peak Comfort Station [LCS: North Chalone Peak Comfort Station] (LCS 23051, Structure # 403)
- Switchback Retaining Walls
- Handrails (15)
- Cut Stone Bench

List of Non-Contributing Landscape Features:

- Bridges (2)
- Retaining Walls (73)
- Steps (15)
- Check Steps (176)
- Check Dams (Water Bars) (22)
- Open Ditches (Open Culverts) (31)
- Culvert (1)
- Diversion Ditch (1)
- Terraces (5)
- North Chalone Peak Fire Lookout Tower (LCS 444168, Structure # 402)
- (Though the lookout does not contribute to the East Entrance Historic District, the lookout is individually eligible for the National Register (see above narrative)).
- Interpretive and Wayfinding Signs
- Wayfinding Arrows
- Gates (7)
- Temporary Fences
- Wood Bench

Topography

List of Contributing Landscape Features:

- Switchbacks (64)
- Tread Cuts (212)
- Rip Rap Trail Tread (1)

List of Non-Contributing Landscape Features:

- Switchbacks (12)
- Tread Cuts (7)
- Feature: Rip Rap Trail Tread (1)

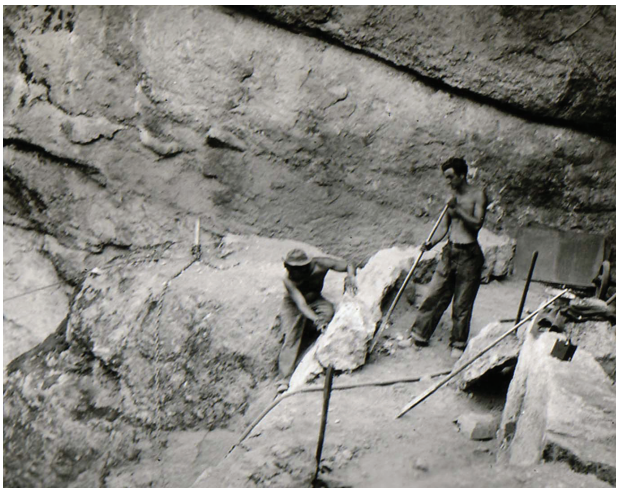
Ben Bacon Ranch Historic District

The Ben Bacon Ranch Historic District is a cultural landscape that was determined eligible for the National Register of Historic Places by the California state historic preservation officer.

The 331-acre Ben Bacon Ranch Historic District (historic district) is a vernacular landscape that represents the pre-irrigation homestead/agricultural landscape of central California. The existing buildings, structures, and associated landscape characteristics date from the state's early agriculture period. The historic district is the core area of the larger 1,967-acre Pinnacles Ranch, which was acquired and added to Pinnacles National Monument in 2006. Pinnacles Ranch roughly corresponds to the lands acquired by homesteader, Ben Bacon, during the period of significance. The Ben Bacon Ranch Historic District includes the northern portion of the Sandy Creek Valley floor, where two historic homesteads and their associated agricultural features are located.

The Ben Bacon Ranch Historic District is locally significant under Criterion A for its association with early subsistence and small-scale commercial agriculture in California. The period of significance starts in 1865, when the first homesteaders settled along Sandy Creek, and ends in 1941, when the last of the original homesteading generation died and their way of life ended. After the period of significance, the local agricultural economy (including the Ben Bacon Ranch) stagnated, isolating Bear Valley from the larger patterns of development which characterized agricultural communities throughout most of the rest of California. The historic district retains its integrity as a pre-irrigation homestead in the San Benito County area. Also retained are the landscape characteristics associated with agriculture prior to the development and widespread use of irrigation systems for intensive agricultural production.

The historic district is associated with local settlers Ben Bacon, George Butterfield, Elizabeth Bacon, and Gustav Lange. Ben Bacon acquired all of the land within the historic district during the period of significance and used the valley to cultivate crops and raise livestock. The buildings and features retained at the Bacon and Butterfield clusters convey the historical significance of the pre-irrigation agricultural developments in the region through the design of these core homestead clusters. Also evident is the relationship of the homesteads to the surrounding landscape, as defined by existing historic road alignments, fence lines and vegetation. Much of the historic road system is retained and conveys the historic relationships between the homesteads, croplands and pasture, other homesteads, and the larger region. The existing grasslands that dominate the setting reflect the broad open pasture and cropland character established during the historic period. These grasslands are punctuated by valley oak stands and riparian vegetation that have retained their historic locations. Overall, the character of the vegetation, particularly the open grasslands, riparian corridors, oak stands, and planted trees around the homesteads dominate the landscape and convey the historic character established during the period of significance by a combination of cultivation and grazing. The historic buildings and structures that remain still convey a strong feeling of the historic character of this agricultural landscape. The landscape appears today much as it did during the period of significance, as evidenced by historic photographs.



CCC enrollees at work, 1935. NPS photo.

While the historic district's buildings, structures, and planted trees have been neglected since the period of significance, this has not affected the historical integrity of the district. The overall landscape is in fair condition with stabilization needed for historic structures.

Circulation

List of Contributing Landscape Features:

Butterfield road (LCS 791273, Structure # tbd)
Bacon road (LCS 791210, Structure # tbd)

List of Non-Contributing Landscape Features:

Sevenman Canyon Road (Contemporary)
Airstrip Road

Buildings and Structures

List of Contributing Landscape Features:

Bacon house (LCS 791222, Structure # tbd)
Bacon barn (LCS 791255, Structure # tbd)

Photos (top to bottom): 1. Original fire lookout on North Chalone Peak, constructed by CCC in 1935 (destroyed by fire in 1951). 2. Present fire lookout on North Chalone Peak, constructed by California Dept. of Forestry in 1952. 3. May 2008 view of North Chalone Peak fire lookout. NPS photos.

Bacon pump house (LCS 791241, Structure # tbd)
Bacon garage [storage building] (LCS 791338, Structure # tbd)
Butterfield barn (LCS 791284, Structure # tbd)
Butterfield secondary barn [LCS: Butterfield Secondary Barn/Granary] (LCS 791322, Structure # tbd)
Butterfield windmill/well (LCS 791330, Structure # tbd)
Wood shed (Bacon)

List of Non-Contributing Landscape Features:

Concrete pad (Bacon)
Carport (Bacon)
Septic tank (Bacon)
Three-Rail Fence (Bacon)
Shade shed (Bacon)
Fishing pond (Bacon)
Vehicle bridge (Bacon)
Water tanks (2) (Butterfield)
Water trough (Butterfield)
Wooden box (Butterfield)
Well pump (Butterfield)
Mobile home (Kingman)
Fences, gates, and corrals/paddocks

McCabe Canyon

McCabe Canyon lies outside the boundaries of the Ben Bacon Ranch historic district but is historically associated with it. The lower half of the canyon was homesteaded by Ben Bacon's brother Oliver, whose farmstead was located along Sandy Creek opposite the mouth of McCabe Canyon but no longer exists. Oliver Bacon never introduced any improvements into McCabe Canyon except for a water supply system, which conveyed water from a redwood-lined spring box through an underground steel pipe to a concrete livestock watering trough and nearby spigot for domestic use. All of these features are still extant, and the livestock trough has been recorded as an isolated archeological feature (State Primary Number P-35-000319).

Also recorded near the mouth of McCabe Canyon is a lithic scatter (CA-SBN-222) associated with pre-historic occupation of the area by the Chalon Indians, a subgroup of the Ohlone and closely related to the present day Amah Mutsun.

Just within the mouth of McCabe Canyon is the residence of Mark Francis, who is a direct descendent of the original Bacon family. This house was introduced to the site in the 1950s and has no designated significance. Mark Francis will continue to occupy the residence under a life-lease agreement arranged when he sold the property to the National Park Service in 2000.

Above the Mark Francis house, toward the middle of the canyon is an extensive bed of spring-watered white-root sedge (*Carex barbarae*), growing beneath an overstory of valley oak. Above this is an equally extensive bed of deergrass (*Muhlenbergia rigens*). Both plants were, and continue to be, valued by California Indian people as fiber sources utilized in the making of baskets. Although no definitive archeological or ethnographic evidence has yet been found demonstrating the use and occupation of this site by California Indians, the extent of these ethnobotanically valuable resources, the proximity of abundant water and food sources, and the presence of CA-SBN-222 at the bottom of the canyon all argue strongly that this is a landscape with ethnographic significance. A reconnaissance level archeological survey was conducted of the canyon (Gavett 2008) and more intensive survey work was conducted by UC Berkeley in 2011.

West Side Historic Archeological Districts (Proposed)

Two historic archeological districts are being considered for the west side of the monument to encompass locally-important mining and homesteading sites associated with the period from approximately 1870 to 1933. The sites within this potential district include the Lyon's Homestead (CA-SBN-124H) and the Melville Mines. These sites have been partially documented and researched but will require further study and more-detailed field surveys. One of the proposed districts would begin at the west entrance of the monument and extend north to the mouth of Jawbone Canyon where the canyon is crossed by the monument entrance road. To the west and north, it would be bounded by the entrance road, while its east boundary would lie along the bottom of Jawbone Canyon. At its southwest corner, the district boundary would be adjusted eastward to exclude a proposed administrative center just west of the Lyon's Homestead. A second district would include a small area north of the entrance road, adjacent to the overflow parking area, where the Melville Mines are concentrated.

Values, Traditions, and Practices of Traditionally Associated Peoples (Ethnographic Resources)

Pinnacles possesses cultural resources important to a diverse range of peoples traditionally associated with the monument and its surrounding environment. These include native Ohlonean descendants of the Mutsun and Chalon peoples as well as members of the local community, many of whom are descended directly from families that homesteaded in the mid-nineteenth century. The monument also likely possesses resources significant to the Hispanic community as well.

The Amah Mutsun Tribal Band, Chalon Nation, and other California Indian peoples recognize culturally-significant ethnobotanical resources in the monument. In some cases, vegetation patterns exhibit evidence of possible anthropogenic manipulation from prior to Euro-American settlement. Though not yet demonstrated conclusively, these patterns may represent a tangible legacy of landscape management and other cultural activities associated with the ancestors of the present Ohlone generation. Other important culturally significant information associated with the Ohlone of the Pinnacles region is preserved in the notes of Smithsonian anthropologist/linguist J.P. Harrington, who conducted extensive interviews during the early twentieth century with one of the last surviving native speakers of the Mutsun language, Ascencion Solarsano. Some of Solarsano's direct descendents are still living in the area and working actively with NPS staff to preserve and further the Mutsun legacy at Pinnacles.

The local ranching community also possesses a strong historic relationship with Pinnacles. The ancestors of many of these families came to the area during the mid-nineteenth century, shortly after California's accession to the United States, and established the first American homesteads in the region. Members of this community were responsible for petitioning the federal government to establish the monument in 1908 and have been employed on its staff at nearly every level, from superintendent to maintenance laborer, at various times since. For this rural community, the Pinnacles represent both a natural landmark which defines their physical geography as well as a political achievement and source of local pride and cultural identity.

Links to the Spanish-Era at Pinnacles have not been well studied and are currently underappreciated. Nonetheless, it is known that this community is and has long been important to the monument. Pinnacles lies within the region of Upper California colonized by the Spanish Empire during the mid-eighteenth century and is only fifty miles—or an easy two-day journey by horse—from the capital of the Spanish colony at Monterey. The Mission of Nuestra Señora de la Soledad, established by the Franciscan fathers in 1791, was located at the western foot of the mountains rising up to the Pinnacles, scarcely eight miles from the present monument boundary. The present town of Soledad, situated not far from the abandoned mission, members of its population, and populations of other Salinas Valley towns may retain potentially significant ethnographic ties with pre-Anglo California and the Pinnacles.

Contemporary Tribal Interests

For thousands of years, Chalon, Mutsun, Chapana, and Pagsin people (called Ohlone, as a grouping, by others), lived in this area. Native peoples still live in the region and members of the Amah Mutsun and Chalon tribes are working with monument staff to expand knowledge of their relationship with this land—its plants, animals, and waters—and how their ancestors managed it for centuries.

In January 2007, an interdisciplinary group of regional experts consisting of botanists, archeologists, fire managers, resource managers and Amah Mutsun Tribal Band representatives and Western Mono basketry practitioners convened for a field trip to McCabe Canyon. The group provided the following input:

- The deergrass stand in McCabe Canyon is noteworthy due to its size and rarity.
- The stand and surrounding oaks may have been managed by Native Americans using fire.
- The stand appeared overly mature with decadent foliage and requires active management to maintain health and abundance.

Subsequent collaboration led to a successful 2009 grant in "Cooperative Habitat Restoration of a California Grassland" with the University of California, Santa Cruz and the Amah Mutsun Tribal Band with Western Mono basketry practitioners to restore habitat quality, reintroduce traditional management techniques, provide learning opportunities to tribal people, monument staff and the public and evaluate flora and faunal response. Building on this work, the monument was successful in garnering additional partners for an in-depth study "Exploring the Traditional Use of Fire in the Coastal Mountains of Central California." The project has brought together a team of ecologists, archeologists, environmental historians, indigenous peoples, and land managers within a research and educational framework. Partners include the University of California at Berkeley, University of California at Santa Cruz, the San Francisco Estuary Institute, California State Parks, Bureau of Land Management and the Amah Mutsun Tribal Band.

Pinnacles is also learning from their Argentinian partners, where Andean condor reintroduction efforts involve a cultural component with local communities and indigenous peoples. Pinnacles is striving to follow this example and incorporate tribal interests in California condor recovery. The monument is working with requesting tribes to acquire USFWS permits for tribal use of condor feathers. The Amah Mutsun Tribal Band has been involved with juvenile condor release events since 2007 and has taken a strong interest in the progress and challenges of the recovery program. A Chumash tribal representative has also inquired about the Pinnacles condor flock.

The Amah Mutsun Tribal Band resumed tribal dance ceremonies at Pinnacles in 2009 and has since "rediscovered" survivors of the Chalon people who came back to Pinnacles and the region in 2011. This homecoming was the result of ethnographic work of Dr. Charles Ettner from California State University at Fresno, using California mission records.

Museum Collections

The monument maintains a significant collection of historical, archeological, and natural history specimens. The *Collections Management Report* (2011) reports that there are over 156,000 objects in the collection. The cultural objects include 66 archeology, 15 history and 76,980 archival items. The 40,292 natural history items are composed primarily of insect and herbarium specimens, with small numbers of mammals, birds, reptiles, amphibians, and rocks. A Curator of Record was assigned to the monument in 2008 from San Francisco Maritime NHP, providing needed guidance in basic museum operations. In 2010, the Pinnacles Scope of Collections was updated.

Since 2007, cataloging the backlog of archival documents, maps, photographs and biological accessions has been completed. More remains to be finished and each year more backlog is accumulated since the monument does not have a base-funded museum archive program. Many of the herbarium specimens have been photographed, and a project is underway to make these and other biological specimens available to the public via a digital archive.

Amah Mutsun Tribal Chair Valentin Lopez (left), and AMTB Ceremonial Dance Leader, Marvin Marine, offer a song in honor of the release of condors into the wild. Photo by Chuck Striplen.

A 2007 renovation to the museum building interior alleviated problems with pest and environmental control. The space is of adequate size for the current collection but with limited room for additional objects and workspace. Due to limited space, limited professional oversight, sensitive riparian habitat, and fire-prone vegetation in the vicinity of the facility, moving the museum collections to a more suitable location within the monument is an important consideration in future planning.

Pinnacles is working with the San Francisco Bay Area Network to be included in scoping additional museum specimen storage for objects not needing immediate accessibility to be managed by professional curatorial staff in the Bay Area.

Park Operations

RESOURCE PROTECTION AND VISITOR SERVICES

The Resource Protection and Visitor Services Division provides law enforcement services (including all emergency services such as search and rescue and emergency medicine as well as planning for these); education, interpretation and outreach and coordination of these; and fee collection. Currently, the division consists of nine FTE, eight of which are permanent full time, with another staff person who is permanent less than full time. The remainder of the staff are filled by term, seasonal, and student intern/volunteer positions. The division also provides for visitor and employee safety, and manages the structural fire prevention program. Staff from the Resource Protection and Visitor Services Division are the first and sometimes the only contact visitors have with monument staff. They explain why the monument is here as well as why it should be preserved. They answer visitors' questions and give informative programs. The staff also inform the public of the rules and regulations to protect resources. The revenue from fees provide for improvements to exhibits, monument buildings and trails, and any resources that are disturbed.

RESEARCH AND RESOURCE MANAGEMENT

The Research and Resource Management Division manages the monument's natural and cultural resources and is responsible for planning and implementing short- and long-term projects to manage, monitor and/or enhance these resources.

FACILITIES MANAGEMENT (MAINTENANCE)

The Facilities Management Division manages the day-to-day maintenance needs of the monument, for both employee and visitor facilities. This division is responsible for planning, formulating, implementing, and tracking maintenance projects, as well as for developing long range planning budgets for Cyclic Maintenance Repair/Rehabilitation and Construction Programs.

ADMINISTRATION

The Administration Division manages and provides general oversight for all monument administrative programs including budget, finance, payroll, Government Performance and Results Act reporting requirements, human resources, uniforms, property, travel, safety, communications, contracting, procurement and housing.

SUPERINTENDENT

The superintendent provides on-site management, planning, program direction and administers operation of resource and visitor protection, interpretation, maintenance, cultural and natural resource management. The superintendent oversees the overall operation of the monument by setting goals and priorities and establishing guidelines. One person fills the superintendent's position.

EXISTING PERMANENT (BASE-FUNDED) STAFFING:

- Division of Interpretation = 6.66
- Division of Law Enforcement & Protection = 5.28
- Division of Maintenance = 12.07
- Division of Resource Management = 8.35
- Division of Administration = 6.02
- Total = 38.38
- In addition to base-funded staff, seasonal employees are hired each year with project funds. Other staffing needs are met through term employees, student interns, and volunteers.

The current operating budget for Pinnacles National Monument is $3,600,000.

Law enforcement issues and concerns. During a ten-year period, from 1997-2007, there were approximately 400 law enforcement offenses. The biggest issues are theft and vandalism.

Emergency Services. During a ten-year period, from 1997-2007, there were a total of 58 search and rescue cases, an average of six per year. There were also a total of 127 visitors that were assisted by search and rescue operations staff. Most incidents were from hiking, followed by climbing. There were 74 cases, not including minor cases (19), that required emergency medical services – an average of seven per year.

Carbon Footprint

Pinnacles National Monument is a participant in the Climate Friendly Parks program and completed a climate action plan in 2010. This program enables the NPS to educate its staff about climate change issues, assess the monument's contribution to greenhouse gas (GHG) emissions, create short- and longterm strategies for reducing emissions, determine potential effects of climate change on monument resources, and develop skills and strategies for communicating these effects to the public. The monument's carbon emissions were analyzed in 2008, based on 2007 data. The Climate Leadership in Parks (CLIP) tool, software developed jointly by the Environmental Protection Agency and the NPS, was used to calculate the monument's greenhouse gas emissions. Calculations included the amount of electricity purchased, sewage pumped, waste sent to the landfill, and fuels consumed. Motor vehicle data was derived from a combination of 2007 road counter data and visitor use surveys.

GREENHOUSE GAS EMISSIONS

GHG emissions result from the combustion of fossil fuels for transportation and energy (e.g., boilers, electricity generation), the decomposition of waste and other organic matter, and the volatilization or release of gases from various other sources (e.g., fertilizers and refrigerants). At Pinnacles National Monument, the main sources of energy for monument operations are propane and purchased electricity.

In 2007, GHG emissions within Pinnacles National Monument totaled 540 metric tons of carbon dioxide equivalent (MTCO2E). This includes emissions from monument and concessioner operations and visitor activities, including vehicle use within the monument. For perspective, a typical single family home in the U.S. produces approximately 12 MTCO2 per year. Thus, the combined emissions from monument and concessioner operations and visitor activities within the monument are roughly equivalent to the emissions from the energy use of 46 households each year.

Based on the 2007 data, the largest emission sector for Pinnacles National Monument is transportation, totaling 370 MTCO2E. Visitor vehicles driving within monument boundaries generate about 68.5% of the transportation emissions. The energy sector (purchased electricity and stationary combustion) accounts for approximately 16.5%, and waste (landfilled waste and wastewater) accounts for approximately 15% of total gGHG emissions.

Although the monument's share of carbon emissions may be negligible when compared to state and regional emissions, the cumulative nature of countless small carbon sources and the expectation of National Park Service leadership on environmental issues justify significant actions to mitigate emissions from monument activities.

Regional Socioeconomics

Location

Pinnacles National Monument is located in central California, approximately 40 miles inland from the Pacific Ocean and about 80 miles south of the San Francisco Bay Area.

The monument lies primarily within San Benito County, although some southwestern portions fall within Monterey County. The City of Hollister, the San Benito County seat, is 35 miles to the north of the Monument on Highway 25; Soledad, in Monterey County is 8.5 miles to the west (NPS 2010). Local population centers include Salinas, Soledad, Greenfield, and King City, along with smaller towns, on US 101 in Monterey County. To the east, SR 25 connects Hollister with the smaller communities of Paicines and Bitterwater in the less populous San Benito County. The nearest major urban center is San Jose, with a population of approximately 945,942.

The land surrounding the monument in Monterey and San Benito Counties is primarily used for ranching and agriculture. The monument is located inland in the Central Coast Region of California -- a region noted for its scenic coastline and numerous recreational opportunities in one of the fastest growing regions in the state. Monument visitation has averaged 170,000 people annually over the past 20 years and 154,000 over the past decade (NPS Stats 2009, NPS 2010).

The communities in these counties serve as gateways to the monument, providing a variety of goods and services for monument visitors.

Demographics

The 2010 Monterey County population was 415,057, while San Benito County had a population of 55,269. The San Benito County population increased 3.8% between 2000 and 2010, while Monterey County grew 3.3%. For comparison, California as a whole grew by 10% in the same time period.

Monterey County has been projected to increase 31.7% between 2000 and 2030. San Benito County has been projected to nearly double, with a 94.1% increase by 2030, about twice as much as the average growth across California over the same 30 year period. The

two counties combined, however, will grow at a slightly slower pace (39%) than the state average (45.4%).

A complete breakdown of population by race/ethnicity is presented in the table below. Whites are the largest racial group in the affected area (56.5% of the total population). 55.5% of the total population identified themselves as Hispanic or Latino, significantly higher than the state average of 32.4%, and up from 47.5% in 2000. The percentages of Asians (5.7%) and African Americans (2.8%) are each about half of the state averages. The African American population showed a decline between 2000 and 2010.

Income

In 2005, Monterey County had a per capita personal income (PCPI) of $35,775, slightly below the California average of $36,936 (See table 27). San Benito County had a lower PCPI at $30,862, 90% of the national average.

The total personal income for the combined counties was more than $16 billion in 2005 (See table 28). This figure represents only a small percentage of the total personal income for California.

Employment

Major components of the local economy include agriculture, government, trade, and services. Commercial services including gas, groceries, restaurants, motels, and RV parks are available in nearby communities in close proximity to the monument. The combined counties had more than 187,650 jobs in 2000. Education, health, social services, agriculture, trade, entertainment, and recreational services were the sectors employing the most workers in the combined counties.

Due to the prevalence of seasonal jobs in agriculture and tourism, unemployment remains higher in the combined counties than the state averages.

San Benito County's primary industries in 2006 were manufacturing, agriculture, and government. The economic sectors that are produced the most new jobs in San Benito County were construction, wholesale and retail trade, and leisure services. (California Department of Transportation 2007).

In Monterey County, farming is an important part of the economy, accounting for 24 percent of the workforce and $3.4 billion in total crop value in 2006. The fastest growing sectors include construction, government, healthcare, and education sectors, while manufacturing has experienced a sharp decline. While farm jobs have also declined a slight amount in recent years, this sector is expected to hold steady over the next twenty years. (California Department of Transportation 2007).

Approximately 9% of the jobs in San Benito County and 12.3% in Monterey County were in leisure services. This sector is projected to decrease to 8.29% and 11.8%, respectively, by 2030. This is mostly due to expected gains in wholesale/retail trade and government jobs in San Benito County and healthcare, professional, and government jobs in Monterey County (California Department of Transportation 2007).

Poverty

In 2004, the percentages of residents living in poverty were 12.9 in Monterey County and 8.8 in San Benito County. Both were lower than the state average of 13.2%. 55,552 residents of the combined counties were living in poverty in 2004 (United States Census Bureau 2006).

Regional Tourism

Total travel spending in Monterey County for 2005 was $1.9 billion compared with $88.5 billion for the State of California. San Benito County saw total travel spending of $77 million for the same period. The combined travel spending for Monterey and San Benito Counties accounted for about 2.3% of the total travel spending for California in 2005 (Dean Runyan and Associates 2007).

For the combined counties, the tourism industry provided a total of 23,600 jobs in 2005. Total direct employment increased slightly (0.3%) from 1992 to 2005 in San Benito County, while Monterey County saw an increase of 1.3% (Dean Runyan and Associates 2007).

Visitor Spending

Pinnacles National Monument hosted 171,112 recreational visits in Fiscal Year 2009. Visitors traveling to Pinnacles National Monument spent a total of about $3.2 million in 2009. Local visitors within a 50-mile radius around the monument, including all of San Benito County, most of Monterey County, and small portions of five other counties spent about $500,000 while non-local visitors spent about $2.7 million. These figures include businesses selling goods and services directly to monument visitors as well as secondary effects seen as visitor spending circulates through the local economy. Non-local visitor spending helped to support approximately 31 full and part-time jobs and added $1.9 million to the local economy in profits, incomes, and taxes (National Park Service 2009).

TABLE 24: POPULATION

Counties	2000	2010	% Change 2000-2010
Monterey County, CA	401,764	415,057	3.3%
San Benito County, CA	53,234	55,269	3.8%
Combined Counties	454,998	470,326	3.4%
California	33,871,648	37,253,956	10.0%

Source: United States Census Bureau, 2010

TABLE 25: POPULATION PROJECTIONS

Counties	2000	2020	2030	% change 2000-2030
Monterey County, CA	401,764	476,642	529,145	31.7%
San Benito County, CA	53,234	83,792	103,340	94.1%
Combined Counties	454,998	560,434	632,485	39%
California	33,871,653	44,135,923	49,240,891	45.4%

Sources: United States Census Bureau, 2000, State of California, Department of Finance, July 2007

TABLE 26: RACE/ETHNICITY

	Monterey County		San Benito County		Combined Counties	
Race (2010)	**Number**	**%**	**Number**	**%**	**Number**	**%**
White	230,717	55.6	35,181	63.7	265,898	56.5
Black or African American	12,785	3.1	483	0.9	13,268	2.8
American Indian and Native Alaskan	5,464	1.3	895	1.6	6,359	1.4
Asian	25,258	6.1	1,443	2.6	26,701	5.7
Native Hawaiian and other Pacific Islander	2,071	0.5	94	.2	2,165	0.4
Some other race	117,405	28.3	14,471	26.2	131,876	28.0
Two or more races	21,357	5.1	2,702	4.9	24,059	5.1
Total Population	415,057	100.0	55,269	100.0	470,326	100.0
Hispanic or Latino*	230,003	55.4	31,186	56.4	261,189	55.5

Source: United States Census Bureau, 2010

TABLE 27: PER CAPITA PERSONAL INCOME

Area	1995	2005	% of State Average, 2005	State Rank, 2005
Monterey County	$24,536	$35,775	97	18th out of 58
San Benito County	$21,501	$30,862	84	26th out of 58
California	$24,161	$37,283	100	
United States	$23,076	$34,685		

Source: Bureau of Economic Analysis, U.S. Department of Commerce, 2007

TABLE 28: TOTAL PERSONAL INCOME

Area	1995 (Thousands)	2005 (Thousands)	% total state for 2005
Monterey County	8,772,120	14,751,660	1.1%
San Benito County	910, 240	1,728,453	0.1%
Combined Counties	9,682,360	16,480,113	1.22%
California	765,805,583	1,347,942,750	100.0%

Source: Bureau of Economic Analysis, U.S. Department of Commerce, 2007

TABLE 29: EMPLOYMENT BY INDUSTRY

Industry	Monterey County	% of Total	San Benito County	% of Total	Combined Counties	% of Total
Educational, health, and social services	29,891	18.2	3,855	16.3	33,746	18.0
Agriculture, forestry, fishing and hunting, and mining	20,298	12.4	1,512	6.4	21,810	11.6
Retail Trade	18,395	11.2	3,055	12.9	21,450	11.4
Arts, entertainment, recreation, accommodation and food services	16,965	10.3	1,478	6.2	18,443	9.8
Professional, scientific, management, administrative, and waste management services	14,674	8.9	1,727	7.3	16,401	8.7
Manufacturing	9,284	5.7	3,389	14.3	12,673	6.8
Construction	10,443	6.4	2,105	8.9	12,548	6.7
Wholesale Trade	9,781	6	1,272	5.4	11,053	5.9
Public administration	8,998	5.5	1,359	5.7	10,357	5.5
Finance, insurance, real estate, and rental and leasing	8,116	4.9	1,053	4.4	9,169	4.9
Other services (except public administration)	8,058	4.9	1,229	5.2	9,287	4.9
Transportation and warehousing, and utilities	5,341	3.3	1,060	4.5	6,401	3.4
Information	3,743	2.3	569	2.4	4,312	2.3
Total	163,987	100	23,663	100	187,650	100

Source: United States Census Bureau, 2000

TABLE 30: TRAVEL SPENDING AND EARNINGS

2005	Total Travel Spending (Millions)	Employment Jobs	Earnings (Millions)	Tax Receipts (Millions)
Monterey County	1,948.6	22,680	819.0	125.3
San Benito County	77.0	920	24.6	3.8
Combined Counties	1977	23,600	32.0	4.3
California	88,488.6	910,010	27,400.4	5,290.1

Source: Dean Runyan and Associates, 2007

Regional Land Use

County Zoning

San Benito County: Most of San Benito County is zoned Agricultural Rangeland, including all lands within an 18 mile radius of the monument. Allowed uses in this zone include grazing, agricultural, and accessory uses (barns, stables, etc.), along with a single family dwelling. The minimum building site area is 40 acres. Conditional uses, where a permit is required, include commercial feed lots, private camps, guesthouses, and bed and breakfasts, among others (San Benito County 2007).

Monterey County: Lands in Monterey County that border the monument are zoned Permanent Grazing. Allowable uses include agricultural uses and accessories, including up to three homes. Conditional uses include dairies, airports, commercial wind energy, farm worker housing, bed and breakfasts, and oil and gas exploration, among others. The minimum building site is 40 acres. Some portions of SR 146 leading into and up to the monument, along with lands surrounding and following US 101 at a distance of about five miles from the monument, are zoned Farmlands. Allowable uses and minimum building site size are identical to Permanent Grazing zoned lands. Conditional uses include those specified under Permanent Grazing, as well as public facilities such as parks and schools and large gatherings such as festivals (California Land Use Planning Information Network 2007).

Williamson Act

The Williamson Act creates an arrangement whereby private landowners contract with counties to voluntarily restrict land to agricultural and open-space uses. In return, restricted parcels are assessed for property tax purposes at a rate consistent with their actual use, rather than their potential market value. The state compensates counties for the decrease in tax revenue (Department of Conservation 2007).

Most of the lands bordering the monument are enrolled in the Williamson Act program. A notable exception is the land immediately adjacent to SR 146 on the west side of the monument. On the east side, much of SR 25 as it approaches the monument from either direction is bordered by Williamson Act-enrolled lands classified as "Prime."

As of the writing of this document, the future of the Williamson Act is uncertain due to state budget concerns. Because of this, many other efforts are underway to promote open working landscapes.

Future Development

Future development around the monument is limited by the topography, the Williamson Act contracts and county zoning. Although both counties are projected to grow dramatically in population, development associated with this growth is not expected proximate to the monument. In San Benito County, urban growth projections based on demand, job accessibility, current land use, neighboring uses, and regulatory variables show virtually no growth in development south of Hollister through 2050. More significant growth is anticipated along US 101 in Monterey County, but not along SR 146 leading into the monument. The projections show a continuous corridor of development in 2050 from Chualar, through Gonzales, to Soledad. Current urban densities in Soledad are expected to expand nearly a mile in each direction by 2050 (California Legacy Project 2002; Landis 2003).

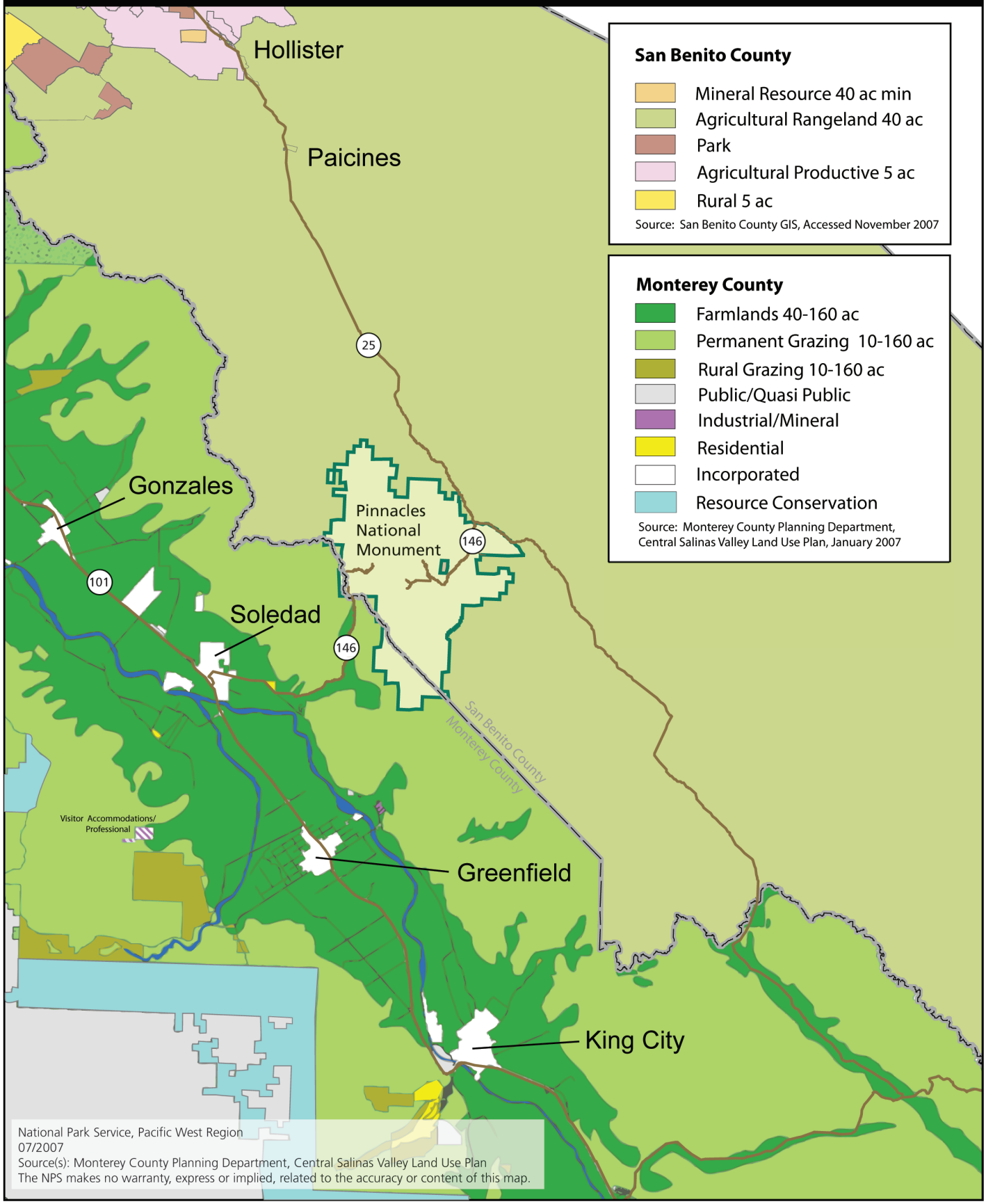
PRIVATE LANDS WITHIN THE MONUMENT BOUNDARY

There are two privately-owned parcels within the legislative boundary of the monument. One parcel is an 80-acre (32 hectare) private inholding fully surrounded by monument lands and abutting the western boundary of McCabe Canyon. The other is a 714-acre (289 hectare) parcel on the eastern boundary of the monument with direct access from Highway 25. The parcel contains an occupied cabin and typical ranch outbuildings and several dirt roads that connected the parcel to homesteads in Bear Valley (NPS 2010). This private inholding is accessed by an easement along the south eastern boundary of the bottomlands along Highway 25.

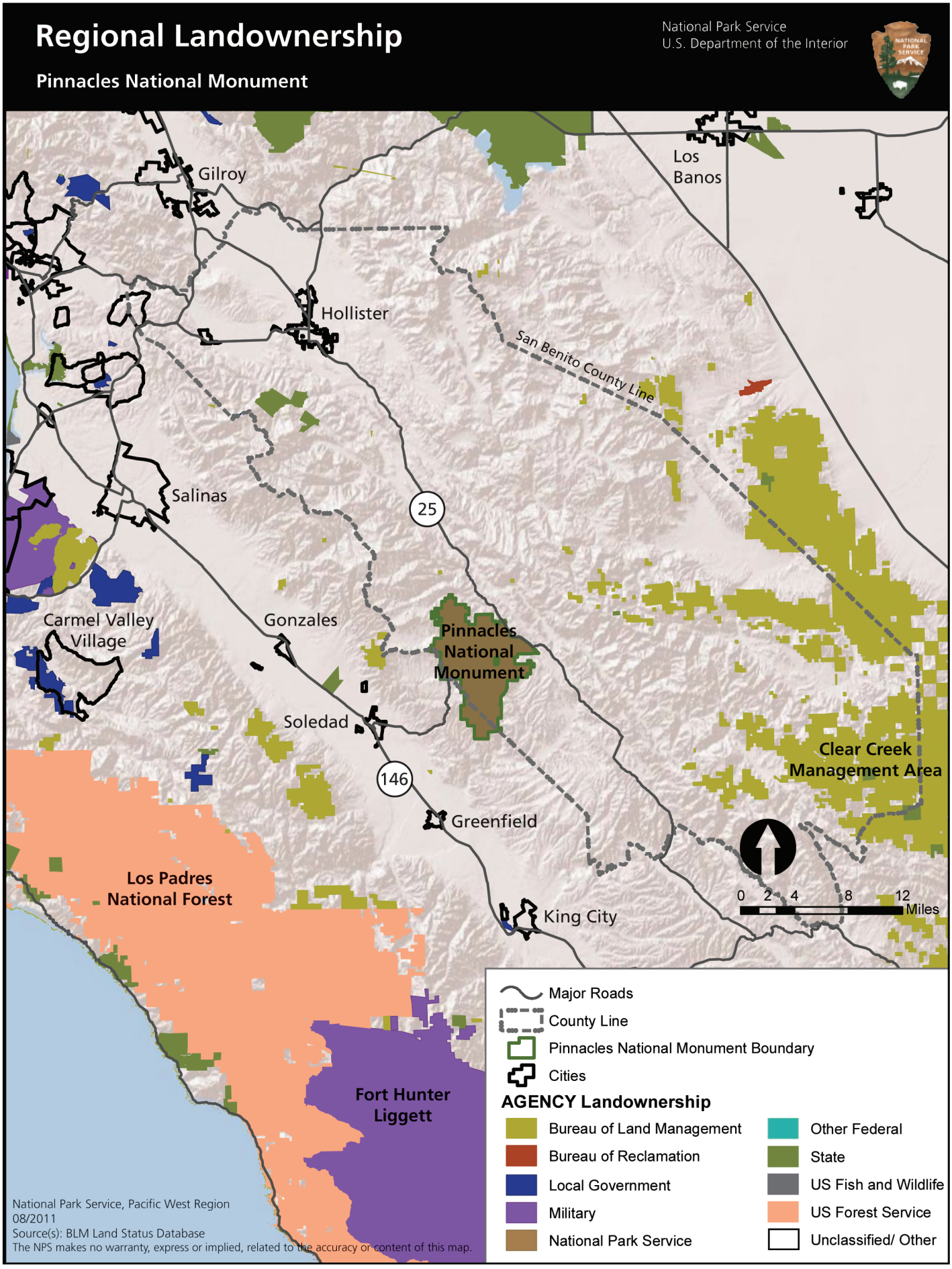
County Zoning

Pinnacles National Monument

National Park Service
U.S. Department of the Interior



National Park Service, Pacific West Region
07/2007
Source(s): Monterey County Planning Department, Central Salinas Valley Land Use Plan
The NPS makes no warranty, express or implied, related to the accuracy or content of this map.


Regional Landownership
Pinnacles National Monument
National Park Service
U.S. Department of the Interior
Gilroy
Los Banos
Hollister
San Benito County Line
Salinas
25
Carmel Valley Village
Gonzales
Pinnacles National Monument
Soledad
146
Greenfield
Clear Creek Management Area
Los Padres National Forest
King City
0 2 4 8 12 Miles
Fort Hunter Liggett
Major Roads
County Line
Pinnacles National Monument Boundary
Cities
AGENCY Landownership
Bureau of Land Management
Bureau of Reclamation
Local Government
Military
National Park Service
Other Federal
State
US Fish and Wildlife
US Forest Service
Unclassified/ Other
National Park Service, Pacific West Region
08/2011
Source(s): BLM Land Status Database
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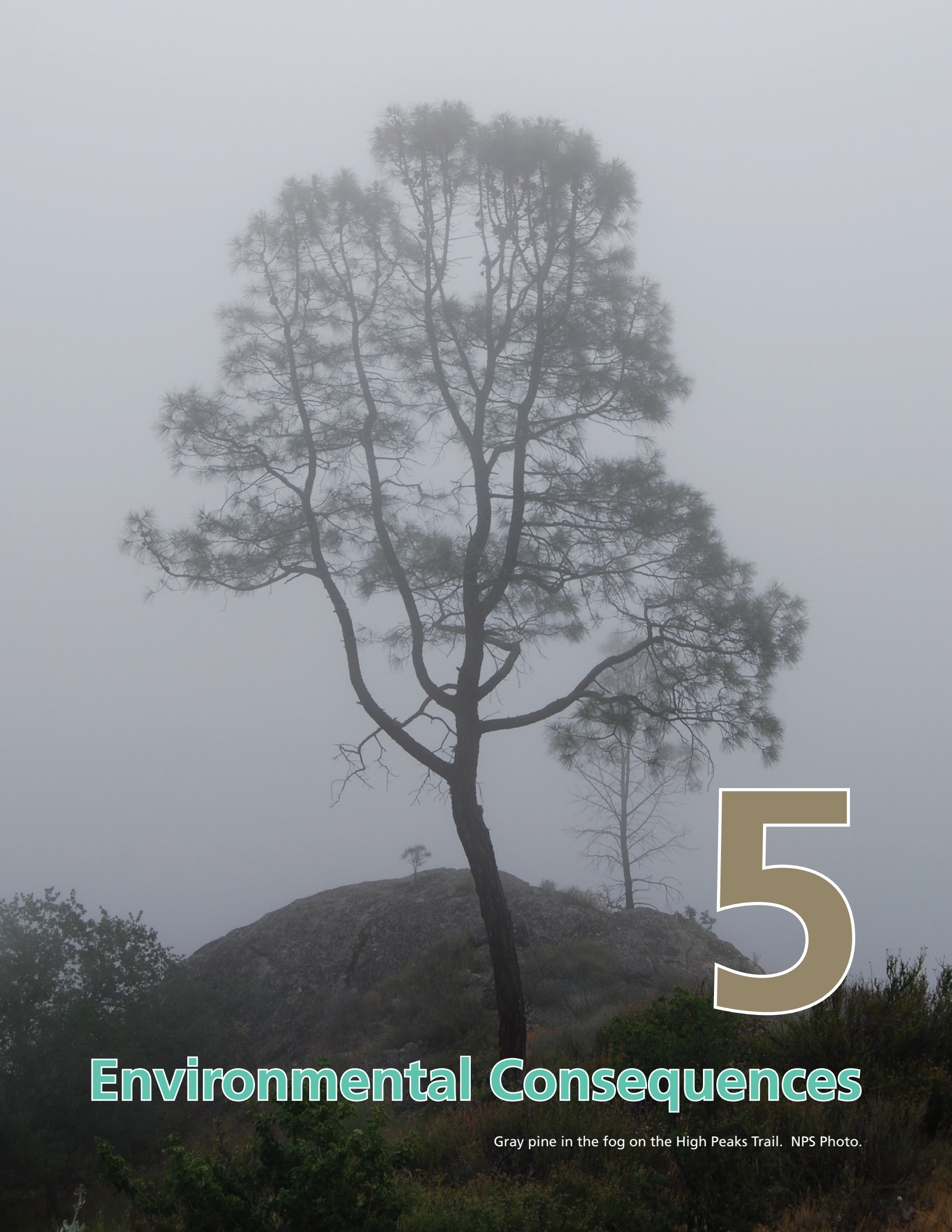


5

Environmental Consequences

Gray pine in the fog on the High Peaks Trail. NPS Photo.

Chapter 5: Environmental Consequences

The National Environmental Policy Act (NEPA) requires that environmental assessments disclose the environmental impacts of a proposed federal action and feasible alternatives to that action. In addition, compliance with NEPA is also based on other federal laws, including effects on historic properties considered in accordance with the National Historic Preservation Act (NHPA). In this case, the proposed federal action is the adoption of a general management plan for Pinnacles National Monument.

The alternatives in this general management plan provide broad management direction. Thus, this environmental assessment is considered a programmatic document. As specific developments or actions are proposed subsequent to this General Management Plan for implementation, appropriate detailed environmental, including cultural, analysis would be prepared in accordance with NEPA and NHPA requirements. Actions that implement guidance provided in the GMP may therefore tier from this document as they undergo additional environmental impact analysis.

This chapter begins with a discussion on terms and definitions used to analyze environmental consequences, followed by a discussion on policy related to cumulative impacts. The second part of this chapter describes the methods and assumptions used for analyzing each impact topic or resource category. The impacts of the alternatives are then analyzed. Each impact analysis section includes a description of the impacts of the alternative actions, a discussion of cumulative effects, and a conclusion. Where data are limited, professional judgment has been used to identify environmental impacts. Professional judgment is based, in part, on observation, analysis of conditions, and responses described for similar areas.

The impacts of each alternative are briefly summarized in the "Summary of Impacts" chart at the end of the Alternatives chapter.

Terms and Definitions

The following section defines the terms used for determining the environmental consequences of the actions in the alternatives. The environmental consequences are defined based on impact type, intensity, and duration, and whether the impact would be direct or indirect. Cumulative effects are also identified.

Impact Type

The effects that actions would have on specific resources are considered either adverse or beneficial. Adverse impacts involve a change that moves the resource away from a desired condition or detracts from its appearance or condition. Beneficial effects would improve the condition or appearance of a resource or would be a change that moves the resource toward a desired condition. In some cases, the action could result in both adverse and beneficial effects for the same resource.

Intensity

Defining the intensity or magnitude of an impact is taken directly from Director's Order 12: Conservation Planning, Environmental Impact Analysis and Decision-making (NPS 2001). Impact intensity is the magnitude or degree to which a resource would be adversely affected. Each adverse impact was identified as negligible, minor, moderate, or major. Because definitions of intensity vary by topic, separate intensity definitions are provided for each resource preceding the description of impacts. Due to the broad nature of actions called for in this GMP, most impact analysis is qualitative, rather than quantitative.

Duration

Duration refers to how long an impact would last. The following terms are used to describe the duration of the impacts:

Short term: The impact would be temporary in nature, generally lasting one to three years, such as disturbance associated with construction.

Long-term: The impact would last more than one year and could be permanent in nature, such as the loss of soil due to construction of a new facility. Although an impact may only occur for a short duration at one time, if it occurs regularly over a longer period of time the impact may be considered to be a long-term impact. For example, the noise from a vehicle driving on a road would be heard for a short time and intermittently, but because vehicles would be driving the same road for the foreseeable future life of the plan, the impact on natural soundscape would be considered to be long-term.

Except where otherwise specified, the impacts in this analysis are long-term in duration. Short-term impacts are always identified as such in the analysis.

California buckeyes turn shades of yellow and orange as they lose their leaves in late summer. NPS photo.

Direct versus Indirect Impacts

Direct effects would be caused by an action and would occur at the same time and place as the action. Indirect effects would be caused by the action and would be reasonably foreseeable but would occur later in time, at another place, or to another resource.

Except where otherwise specified, the impacts in this analysis are direct impacts on the resource being described. Some indirect impacts are also described and identified as such in the text.

Cumulative Impacts

Cumulative impacts result from the incremental impact of an action when added to other past, present, and reasonable foreseeable future actions, regardless of what agency or person undertakes the action. Cumulative impacts can result from individually minor, but collectively important actions taking place over a period of time.

Cumulative impacts are considered for all impact topics and alternatives. The National Park Service assumes the types of use that are occurring now would continue, but that there may be new or different future uses. These actions are evaluated in conjunction with the impacts of each alternative to determine if they have any cumulative effects on a particular resource. For most of the impact topics, the geographic area defined for the analysis was the monument. For some impacts, such as for air quality or threatened and endangered species as well as for analysis of cumulative impacts, the geographic area is broader.

To determine potential cumulative impacts, projects in the area surrounding the monument were identified. Projects included in this analysis were identified by examining other existing plans and by calls to local governments and to state and federal land managers.

Methods and Assumptions for Analyzing Impacts

The planning team based the impact analysis and the conclusions in this chapter on the review of existing literature and studies, information provided by experts in the NPS and other agencies, and park staff insights and professional judgment. The team's method of analyzing impacts is further explained below. Impacts have been assessed assuming that mitigation measures would be implemented. If mitigation measures were not applied, the potential for resource impacts and the magnitude of those impacts would increase.

The impact analyses for the no-action alternative describe resource conditions as existing conditions, based on the continuation of current management. The impact analysis for the action alternatives (alternatives B, C, and D) compares the action alternative to the no action alternative. In other words, the impacts of the action alternatives describe the difference between no action and implementing the action alternatives. To understand a complete "picture" of the impacts of implementation any of the action alternatives, the reader must also take into consideration that impacts would occur under the no-action alternative.

Mitigation Measures for the Action Alternatives

Congress charged the NPS with managing the lands under its stewardship "…in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (NPS Organic Act, 16 USC 1). In addition, NPS Management Polices (2006) requires NPS managers to "seek ways to avoid or minimize adverse impacts on the resources and values to the greatest degree possible." As a result, NPS staff routinely evaluates and implements mitigation measures whenever conditions occur that could adversely affect the sustainability of national park system resources.

To ensure that implementation of the action alternatives protects unimpaired natural and cultural resources and the quality of the visitor experience, a consistent set of mitigation measures would be applied to actions proposed in this plan. The National Park Service would prepare appropriate additional environmental analysis (as required by the National Environmental Policy Act (NEPA), National Historic Preservation Act (NHPA), and other relevant legislation) for proposed implementation of these future actions.

As part of the environmental review, the NPS would avoid, minimize, and mitigate adverse impacts when practicable.

The following mitigation measures and best management practices would be applied to avoid or minimize potential impacts from implementation of the action alternatives.

Mitigation Measures

Mitigation measures are the practicable and appropriate methods that would be used under all alternatives to avoid and/or minimize harm to monument natural and cultural, wilderness, and socioeconomic resources. These mitigation measures have been developed by using existing laws and regulations, best management practices, conservation measures, and other known techniques from past and present work in and around Pinnacles National Monument.

The GMP provides a management framework for the park. Within this broad context, the alternatives include the following measures that may be used to minimize potential impacts from the implementation of the alternatives. These measures would be applied to all alternatives, subject to funding and staffing levels. Additional mitigation would be identified as part of implementation planning and for individual projects to further minimize resource impacts.

Wilderness Values

MINIMUM REQUIREMENT / MINIMUM TOOL PROCESS

The Wilderness Act directs that agencies administer wilderness to preserve wilderness character. The purpose of the minimum requirement / minimum tool process is to reduce the effects of management on wilderness character and values. It provides a method for developing, evaluating, and selecting the actions that would be the least intrusive on wilderness character and values, while allowing the administration of the wilderness. The concept is applied to all management actions, programs, and activities within Pinnacles National Monument that might affect wilderness and potential wilderness (wilderness study areas).

The minimum requirement / minimum tool concept is applied as a two-step process. The first step (minimum requirement) is used to determine whether a proposed management action is appropriate and necessary for

the administration of the area as wilderness, and a determination that it would not cause unacceptable impacts on wilderness resources and character, in accordance with the Wilderness Act. The second step (minimum tool) is used to analyze the techniques and types of equipment needed to ensure that impacts on wilderness resources and character are minimized. If the project is found to be appropriate and necessary, then a management method (tool or technique) is selected that would result in the least amount of impact to the wilderness resources and character.

The minimum requirement / minimum tool process provides a formal method to develop alternative ways to take action in wilderness, and to evaluate each alternative with fewer effects on wilderness character and wilderness resources. The process assists NPS managers in determining an appropriate means to protect wilderness values.

Management and Protection of Natural Resources

AIR QUALITY

- Minimize NPS vehicle use and emissions and employ the best available control technology.
- Encourage the public and commercial tour bus companies to employ transportation methods that reduce emissions.
- Encourage employee carpooling and strive to accommodate employee work schedules to maximize carpooling ability.
- Implement a no idling policy for all government vehicles.
- Coordinate and consolidate trips to town and to westside facilities with park wide communication system to accomplish multiple tasks and carpooling, when possible.
- Implement sustainable practices in monument operations and building designs that reduce energy demands, thus reducing air pollution emissions.
- When feasible and if physically able, east side staff having duties on the west side should hike in lieu of driving. Park management will devise effective means of getting from Chaparral to the West Pinnacles visitor contact station until a connector trail is constructed.
- Strive for carbon neutral status in the monument by reducing greenhouse gas emissions while increasing appropriate carbon sequestration.

NATURAL SOUNDS

- Implement standard noise abatement measures during park operations, including: scheduling to minimize impacts in noise-sensitive areas, using the best available noise control techniques, using hydraulically or electrically powered impact tools when feasible, and locating stationary noise sources as far from sensitive uses as possible.
- Locate and design facilities to minimize above ambient noise.
- Avoid idling motors when power tools, equipment, and vehicles are not in use.
- Reduce use of mechanized leaf blowers and use hand tools (brooms) as a default.

DARK NIGHT SKIES (LIGHTSCAPES)

- Replace existing outdoor lighting in the monument with fixtures that do not contribute to nighttime light pollution.
- In frontcountry zones, install energy-efficient lights equipped with timers and/or motion detectors so that light would only be provided when it is needed to move safely between locations.
- In frontcountry zones, use low-impact lighting, such as diffused light bulbs, and techniques such as downlighting to prevent light spill and to preserve the natural lightscape.

HYDROLOGIC SYSTEMS, WATER QUALITY, AND WETLANDS

- Implement erosion control measures as appropriate, including minimizing unnatural discharge to water bodies, and regularly inspecting construction equipment for leaks of petroleum and other chemicals to prevent water pollution; and avoiding the use of heavy equipment in a waterway.
- Wash heavy equipment prior to use in or near water bodies.
- Use bio-lubricants (such as biodiesel and hydraulic fluid) in construction equipment.
- Develop and implement a spill plan and acquire supporting equipment.
- Integrate runoff management and mitigation systems into the designs of larger parking areas near water resources.
- Develop sediment control and prevention plans and implement best management practices, for projects that could impact water quality.
- Delineate wetlands and avoid all impacts (to the extent possible) to these sensitive environments.

Photos (left to right): 1. Prairie falcon fledglings spread their wings. Photo by Gavin Emmons © 2011. 2. Gavilan slender salamander. Photo by Paul G. Johnson.

- Conduct project activities near wetlands in a cautious manner to prevent damage from equipment, and related to erosion, siltation, etc. Apply protection measures during projects.
- Consult with NPS Water Resources Division regarding the wetlands Statement of Findings process for any potential wetland impacts.
- Avoid development in Regulatory Floodplains (generally the 100-year floodplain). Consult with NPS Water Resources Division regarding the floodplains Statement of Findings process for any action potentially in a floodplain.

SOILS

- Build new facilities on soils suitable for development.
- Minimize soil erosion by limiting the time that soil is left exposed and by applying other erosion control measures, such as erosion matting, silt fencing, and temporary sedimentation basins in construction areas to reduce erosion, surface scouring, and discharge to water bodies, while implementing the monument's noxious weed control program. Once work is completed, revegetate construction areas with appropriate native plants in a timely period according to revegetation plans.
- Limit equestrian uses to relatively level ground and only when soil conditions are dry.

VEGETATION

- Monitor areas used by visitors (e.g., trails, campsites) for signs of native vegetation disturbance. Use public education, revegetation of disturbed areas with native plants, erosion control measures, and barriers to control potential impacts on plants from erosion or social trails.
- Develop revegetation plans for disturbed areas and require the use of genetically appropriate native species. Revegetation plans should specify species to be used, seed/plant source, seed/plant mixes, site-specific restoration conditions, soil preparation, erosion control, ongoing maintenance and monitoring requirements, etc. Salvaged vegetation should be used to the extent possible.
- Continue to implement a noxious weed control program. Standard measures could include the following elements: use only weed-free materials for road and trail construction, repair, and maintenance; ensure equipment arrives on site free of mud or seed-bearing material; certify all feed as weed-free for administrative pack stock; identify areas of noxious weeds pre-project and treat noxious weeds or noxious weed topsoil before construction (e.g., topsoil segregation, storage, herbicide treatment); when depositing ditch spoils along the roads, limit the movement of material to as close as possible to the excavation site; scrupulously and regularly inspect areas that serve as introduction points for invasive plants (campgrounds, staging areas, maintenance areas, and corrals); revegetate with genetically appropriate native species; inspect rock and gravel sources to ensure these areas are free of noxious weed species; and monitor locations of ground-disturbing operations for at least three years following the completion of projects.

- Prior to allowing visitor equestrian use in the park, staff would develop Best Management Practices (BMP) to minimize the risk introduction of invasive plants and animals to the monument. BMPs could include only allowing weed-free certified hay into the monument and not allowing hay to be spread at trailheads.

WILDLIFE

- Employ techniques to reduce impacts on wildlife, including visitor education programs, restrictions on visitor and park activities when warranted, and law enforcement patrols.
- Implement a wildlife protection program. Standard measures would include project scheduling (season and/or time of day), project monitoring, erosion and sediment control, fencing or other means to protect sensitive resources adjacent to project areas, disposing of all food-related items or rubbish, salvaging topsoil, and re-vegetating.
- Implement measures to reduce adverse effects of nonnative plants and wildlife on native species.
- Protect and preserve critical habitat features, such as nest and granary trees, whenever possible.

SPECIAL STATUS SPECIES

Mitigation actions would occur during normal park operations as well as before, during, and after projects to minimize immediate and long-term impacts on rare, threatened, and endangered species. These actions would vary by project area, and additional mitigation measures may be added depending on the action and location. Many of the measures listed for vegetation, wildlife, and water resources would also benefit rare, threatened, and endangered species by helping to preserve or minimize impacts on habitat.

- Conduct surveys and monitoring for special status species as warranted.
- Locate and design facilities/actions/operations to avoid or minimize impacts on special status species habitat. If avoidance is infeasible, minimize and mitigate for adverse effects as appropriate and in consultation with technical experts.
- Minimize disturbance to special status species and migratory bird habitat through spatial and temporal planning.
- Develop and implement restoration and/or monitoring plans as warranted. Plans should include methods for implementation, performance standards, monitoring criteria, and adaptive management techniques.

Cultural Resources

The protection of Pinnacles National Monument's cultural resources is essential for understanding the past, present, and future relationship of people with the monument environment and the expressions of our cultural heritage. The monument would pursue strategies to protect its cultural resources, including museum collections and archeological, historic, ethnographic, and archival resources, while encouraging visitors and employees to recognize and understand their value. The strategies would allow the integrity of the monument's cultural resources to be preserved unimpaired. They would also ensure that Pinnacles National Monument is recognized and valued as an outstanding example of resource stewardship, conservation education and research, and public use.

Some of the monument's cultural resources are within designated wilderness. The Wilderness Act specifies that the designation of any areas of the park system as wilderness "shall in no manner lower the standards evolved for the use and preservation of" such unit of the national park system under the various laws applicable to that unit (16 USC 1133(a) (3)). Thus, the laws pertaining to historic preservation also remain applicable within wilderness but must generally be administered to preserve the area's wilderness character. In accordance with NPS management policies, cultural resources that have been included in wilderness would be protected and maintained according to the pertinent laws and policies governing cultural resources, using management methods that are consistent with the preservation of wilderness character and values (6.3.8). These laws include the National Historic Preservation Act, the Archeological Resources Protection Act, the American Indian Religious Freedom Act, the Native American Graves Protection and Repatriation Act, and Executive Order 13007 that addresses government-to-government consultation.

Except for the North Chalone Peak Fire Lookout, as explained under *Cultural Landscapes and Historic Structures*, adverse impacts on properties listed in or determined eligible for listing in the National Register of Historic Places, would be avoided if possible. If adverse impacts could not be avoided, mitigation would be developed through a consultation process with all interested parties.

ARCHEOLOGICAL RESOURCES

Archeological surveys would precede ground-disturbance required for new construction or removal of eligible historic properties. Known archeological resources would be avoided to the greatest extent possible. If national register-eligible or-listed

archeological resources could not be avoided, an appropriate mitigation strategy would be developed in consultation with the state historic preservation officer and associated tribes.

If unknown archeological resources are discovered during project work, work in the immediate vicinity of the discovery would be halted until the resources could be identified, evaluated, and documented and an appropriate mitigation strategy could be developed, if necessary, in consultation with the state historic preservation office and associated tribes.

HISTORIC STRUCTURES/BUILDINGS

All project work relating to historic structures/ buildings would be conducted in accordance with the guidelines and recommendations of the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. Typical mitigation measures for historic structures/ buildings include measures to avoid adverse impacts, such as rehabilitation and adaptive reuse, designing new development to be compatible with surrounding historic properties, and screening new development from surrounding historic resources to minimize impacts on cultural landscapes and values.

Adaptive reuse is the best strategy to ensure that buildings remain in good condition. When not being adaptively used, the best approach for preserving these structures is regular preservation maintenance, which ensures that roofs and walls as well as supporting structural elements are maintained in a sound, weather-resistant condition. An example of adaptive reuse is using historic structures to house park operations.

Historic structures would be maintained or stabilized until appropriate maintenance could be undertaken. Benign neglect would not be considered an appropriate management strategy. No national register-listed or –eligible structure would be removed or allowed to decay naturally without prior review by monument and region cultural resource specialists, including approval by the NPS regional director and consultation with the state historic preservation office. Before a national register-listed or –eligible structure is removed, appropriate documentation recording the structure would be prepared in accordance with Section 110(b) of the National Historic Preservation Act, and the documentation would be submitted to the

Photos (top to bottom): 1. Rappelling. 2. WNPA Register, Park Information Desk, and Fee Collections. 3. Butterfield Barn. NPS photos.

Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER) or Historic American Landscape Survey (HALS) program.

Historic structures that have been included within wilderness would be protected and maintained according to the pertinent laws and policies governing cultural resources using management methods that are consistent with the preservation of wilderness character and values. Laws pertaining to historic preservation remain applicable within wilderness but must generally be administered to preserve the area's wilderness character (16 USC 1133 (a) (3)). The responsible decision-maker would include appropriate consideration of the application of the provisions of the Wilderness Act in analyses and decision-making concerning cultural resources.

CULTURAL LANDSCAPES

All project work relating to cultural landscapes would be conducted in accordance with the guidelines and recommendations of the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. Typical mitigation measures for cultural landscapes include measures to avoid adverse impacts, such as designing new development to be compatible with surrounding historic properties and screening new development from surrounding cultural landscapes to minimize impacts on those landscapes. Adaptive reuse is the best strategy to ensure that landscapes remain in good condition.

VALUES, TRADITIONS, AND PRACTICES OF TRADITIONALLY ASSOCIATED PEOPLES

Also known as ethnographic resources, these resources and values would be protected through the identification of traditionally associated groups and documentation of their values, traditions, and practices. This would be done in collaboration with members and representatives of the groups themselves where possible. The culturally appropriate guardianship of these resources would include consultation with the public that use or may use them, incorporating their suggestions into management decisions to the fullest extent possible.

MUSEUM COLLECTIONS

Mitigation measures related to museum collections consist of conservation of a collection through proper storage, handling, and exhibit of objects as specified in the *NPS Museum Handbook* and NPS Director's Order No. 24, NPS Museum Collections Management.

Visitors boarding the park shuttle. NPS photo.

SCENIC RESOURCES

Mitigation measures are designed to minimize human-made visual intrusions. These include the following:

- Where appropriate, use facilities such as boardwalks and fences to route people away from sensitive natural and cultural resources while still permitting access to important viewpoints.
- Design, site, and construct facilities to minimize adverse effects on natural and cultural resources and visual intrusion.
- Provide vegetative screening, where appropriate.

SOCIOECONOMIC ENVIRONMENT

During the future planning and implementation of the approved management plan for Pinnacles National Monument, the National Park Service would pursue partnerships with tribes, local communities, and county governments to further identify potential impacts and mitigating measures that would best serve the interests and concerns of both the National Park Service and the local communities.

SUSTAINABLE DESIGN AND AESTHETICS

Sustainable practices would be used in the selection of building materials and sources and building location and siting. Design standards specific to the monument would be developed in all repair, rehabilitation, and construction projects.

Projects would use sustainable practices and resources whenever practicable by recycling, reusing, and minimizing materials, minimizing energy consumption during construction, and reducing energy needs throughout the lifespan of the project.

As required by Management Policies (NPS 2006), new buildings would be designed to meet a minimum silver LEED standard.

Visitor Experience

Access and Circulation

This section evaluates how each alternative would change access and circulation in the monument and the capacity of roads and facilities to accommodate that change. Beneficial impacts would be associated with a decrease in the level of visitor congestion or improvement in visitor access to new areas. Adverse impacts would be associated with the actions that reduce access to an area or increase the level of congestion.

The thresholds of change for the intensity of an impact are as follows:

Negligible: The effects would not be detectable and would have no discernible effect on the condition of roads and trails and/or traffic flow.

Minor: The effect would be slightly detectable, but there would not be an overall effect on the condition of roads and trails and/or traffic flow.

Moderate: Impacts would be clearly detectable, and the action could have an appreciable effect on the condition of roads and trails and/or traffic flow.

Major: Impacts would be substantial, with a highly noticeable influence, and the condition of roads and trails and/or traffic flow could be permanently altered.

ACCESS AND CIRCULATION – IMPACTS FROM ALTERNATIVE A (NO ACTION)

Few actions in alternative A would affect access and circulation in the monument. Most visitors would continue to access the monument via SR 146 which dead ends on the east and west sides. Once visitors are within the monument, they would continue to access developed areas, depending on the time of year, by either personal vehicle or via the internal shuttle system, during peak use periods. Shuttle access would continue to result in short delays to reach points of interest, such as Bear Gulch, caves or High Peaks area.

Existing parking areas and trailheads would continue to be available and these would continue to experience overcrowding during peak use. In times of peak use, on the east side, visitors often have to drive around looking for a parking spot, are unable to park near the main attractions, have to wait for a shuttle to get to the main attractions, or are unable to get in to the monument. Sometimes this results in visitors parking outside the entrance and walking into the monument, an unsafe condition due to the narrow entrance road and minimal shoulder area. Combined, these would continue to be seasonal long-term minor to moderate adverse effects, although existing roads and parking areas would continue to provide tremendous beneficial effects to most visitors attempting to access the monument on most days.

Ongoing maintenance and improvement of monument roads, sidewalks, and parking areas would continue to have a long-term beneficial effect on visitor access and circulation by accommodating vehicular and pedestrian access throughout the developed portion of the monument.

Public use of the noncontiguous Bear Valley School property, proposed under all alternatives, would create some traffic congestion and safety issues. The building is located on a curve in a narrow section of Highway 25. Minor to moderate, long-term adverse impacts would likely occur due to congestion and safety issues associated with vehicles turning into and exiting the property.

The use of monument trails is concentrated in the High Peaks area. Because this is also where the shorter-distance trails are located, these trails would continue to be crowded on peak days, a seasonal minor long-term adverse effect on visitor access and circulation. A South Wilderness Trail connection would not have more than a negligible impact on access, given its remoteness.

ACCESS AND CIRCULATION – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

Access and circulation impacts described under alternative A would largely continue. Alternative B would not change vehicle entry on either side of the monument. While most existing parking areas would remain the same in this alternative, there would be some modifications. Parking would be reduced at the Moses Spring parking area to reduce impacts on riparian resources. Because this could include the loss of about fifteen parking spaces at one of the most popular trailheads in the monument, congestion in Bear Gulch could increase slightly on busy weekends as visitors locate parking. Adverse impacts, however, would be minor because the relocated entrance station would provide the monument with the opportunity to better prepare visitors for current parking conditions and shuttle options. Visitors would also need to walk a short distance further to access this trailhead, resulting in a minor adverse impact to access and circulation. Similarly, on the west side, removal of the Chaparral parking lot out of the floodplain would also require visitors to walk a short distance from the overflow parking area to access the picnic area and trailheads. Conversely, removal of the Chaparral lot would also have beneficial effects on planning for long-term circulation and access by proactively relocating

parking to a more sustainable location out of the floodplain. Overall, parking changes under alternative B would have a minor adverse effect on visitor access and circulation. Both of these actions would have minor short-term effects due to operational activities associated with removal of material, including the use of large trucks on the road to transport materials. Because each project would occur at its road terminus, neither would require road closures or re-routes.

A larger visitor center in the campground, replacing the current East Pinnacles visitor center at the end of its useful life, could reduce congestion in the Bear Gulch area by providing an improved option for visitors to obtain information in an area where more parking is available, although it could also increase congestion in the vicinity of the replacement visitor center and campground, if more day use visitors remain longer at the visitor center or park longer to use the new trailheads nearby.

In contrast to alternative A, where the entrance station is located after the campground and visitor contact station, the new location of the entrance station would have a beneficial impact on circulation by providing drivers with information as they enter the monument that could guide them to less congested areas and opportunities before they arrive at these other areas. Because there would likely continue to be more visitors during some peak periods than could be accommodated at the monument, however, some amount of congestion near the replacement entrance station would continue. The redesign of the visitor center, entrance station, day use area, and campground entry would also have a beneficial effect on circulation by better separating day users from overnight users and reducing confusion through dissemination of parking and shuttle information before entry to the developed area. The short-term effects of construction would be adverse and moderate as traffic and parking are temporarily and periodically rerouted and rearranged.

In addition, alternative B would provide more trail use opportunities to disperse visitors and to provide access to newly acquired lands and previously inaccessible areas. Some of these would also be provided in wilderness, creating loops, connections, and dispersing visitors, protecting wilderness experiences during times of peak use. These new opportunities, along with expansion of the trail system within the monument to include new interpretive trails and more accessible trails to existing monument sites would result in long-term, beneficial impacts on trail access within the monument. Short-term effects would be negligible, as construction of new trails would not affect pedestrian traffic on the current trail network.

Group size limits, if instituted in the High Peaks area, could reduce crowding on climbing route trails in the High Peaks, a long-term adverse effect on visitor access and circulation if groups are turned away. Monitoring and management actions described in the User Capacity section of this GMP would mitigate this impact by allowing the monument to implement indirect management techniques early to achieve desired conditions without limiting visitor access.

Improved maintenance of trails would occur from additional trail crew staffing and could have beneficial effects by reducing impacts from crowding on trails and improving trail junction signage to ensure that visitors access their intended destinations.

ACCESS AND CIRCULATION – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

Impacts under alternative C would be the same as those described under alternative B, with the following exceptions.

First, as in alternative A, the Moses Spring parking area would be retained, benefitting visitors to this popular trailhead. In addition, the zoning scheme is less restrictive than alternative B and would allow greater access for groups to more areas within the monument. Also, with the addition of parking sufficient to serve the capacity of a larger East Pinnacles visitor center, alternative C provides the most parking of the alternatives.

Although there would be no provision for bicycle use on trails, bicycles could continue to use paved and unpaved roads and the provision of bicycle racks at trailheads could promote the use of this alternative means of transportation and provide a small beneficial impact on visitor access and circulation.

Enhancement of shuttle stops through shade structures, drinking water, and visitor information would encourage more people to ride shuttles which, in turn, would reduce congestion, improving visitor access and circulation.

ACCESS AND CIRCULATION – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

Impacts under alternative D would be the same as alternative C, except that alternative D proposes regional visitor / interpretive center staffing and greater enhancement of shuttle stops. In addition, alternative D proposes a site plan of the Moses Spring parking area to improve natural hydrologic conditions. If this site plan were to be implemented, the potential impacts of this action would be the same as described in alternative B.

Photos (top to bottom) 1. Ribbon cutting at the dedication of the new westside visitor center, April 2012. 2. Bear Gulch Nature Center. 3. Camping. NPS photos.

Providing staffing to assist with operation of regional visitor / interpretive centers could have a beneficial effect from providing information to visitors before they reach the monument, perhaps by directing visitors to other less used areas and decreasing impacts on access and circulation in currently congested areas.

ACCESS AND CIRCULATION – CUMULATIVE IMPACTS

Past projects, including the continuing development of the trail system and the provision of a shuttle system, have expanded access to the monument and improved circulation over time, resulting in beneficial impacts.

The narrowness and tight turns of Route 146 limit the size of vehicles that can enter the west side, making it difficult for school buses, in particular, to negotiate this entry. The condition of this route would continue to result in a moderate, adverse impact on monument access from the west. The effects of the proposed alternatives would not add to this adverse impact and would, overall, improve access and circulation on the eastern side of the monument, resulting in moderate, adverse cumulative impacts on the west side and beneficial impacts on the east side.

ACCESS AND CIRCULATION – CONCLUSION

The effects of proposed actions under alternative A would have overall long-term benefits on access and circulation within the monument, with some minor to moderate adverse impacts.

The effects of proposed actions under alternatives B, C, and D would have long-term benefits on access and circulation within the monument, primarily due to expansion of the trail system, increased trail crew staffing, and improved delivery of traffic and parking information to visitors. Alternative C provides the greatest benefits in terms of additional parking and trails.

Parking changes at Moses Spring (alternative B) and Chaparral (alternatives B, C, and D) would produce minor adverse impacts.

Visitor Use Opportunities

This impact analysis evaluates how visitor use opportunities might vary among alternatives as a result of implementing proposed actions and applying different management zones in the alternatives. The analysis is qualitative rather than quantitative because of the conceptual nature of a GMP. Professional judgment was used to reach reasonable conclusions regarding the intensity, duration, and type of potential impact. Impacts could be temporary or short-term (for

example, delays and inconvenience caused by the construction of facilities) or long-term (ongoing and lasting effects over time).

The following areas have been analyzed in this section:

Recreational Opportunities: this section analyzes the availability and variety of recreational opportunities for visitors in each alternative, such as hiking, camping, and picnicking.

Visitor Facilities: this section analyzes the different facilities available to visitors in each alternative, including visitor centers, campgrounds, trails, and other day use facilities, as well as commercial services, when applicable.

The thresholds of change for the intensity of an impact are as follows:

Negligible: Impacts would be barely detectable to visitors and would have no discernible effect on visitor experience related to recreational opportunities, visitor facilities and/or commercial services.

Minor: Impacts would be slightly detectable to visitors, but would not have an overall effect on visitor experience related to recreational opportunities, visitor facilities and/or commercial services.

Moderate: Impacts would be clearly detectable to visitors and could have an appreciable effect on visitor experience related to recreational opportunities, visitor facilities and/or commercial services.

Major: Impacts would be substantial, and have highly noticeable influences on visitor experience and could permanently alter access to and availability of various aspects of the visitor experience related to recreational opportunities, visitor facilities and/or commercial services.

VISITOR USE OPPORTUNITIES – IMPACTS FROM ALTERNATIVE A (NO ACTION)

Recreational Opportunities

Hiking, climbing, sightseeing (by car and on foot), and camping in the developed campground are common activities and would continue to be available in alternative A, a long-term beneficial effect. Activities such as equestrian use and backcountry camping are currently not accommodated by park facilities or programs.

As the demographics of the region and monument visitors change, the outdoor recreational needs of an increasingly diverse local community have shown a growing desire for areas suitable for large group picnicking. Although there are a few group picnic sites, the demand for these sites would continue to be greater than the supply. In addition, some visitors desire experiences not available at Pinnacles, such as backcountry camping and equestrian opportunities. Therefore, under the No Action alternative, some recreational opportunities, such as equestrian and bicycle use, backcountry camping and large group picnicking, would continue to be underutilized by, or unavailable to, visitors -- a long-term minor to moderate adverse impact.

Because the visitor center is located adjacent to the campground, day use visitors sometimes park in the campground and campers sometimes occupy day use areas. During peak use conditions, this can cause conflicts, a long-term minor adverse effect.

Although prepared food and/or drinks and wireless internet in the campground would continue to be unavailable, the Western National Parks Association and the campground concessioner would continue to supply a limited variety of health, safety and educational sales items, as well as other sales items such as pre-packed snacks, souvenirs, and cold drinks at the East Pinnacles visitor center, a long-term beneficial effect.

Visitor Facilities

In alternative A, there would be no changes in visitor use facilities. A variety of activities would continue to be accommodated, including a small visitor center and nature center on the east side, a visitor contact station on the west side, overnight camping on the east side, and picnicking, trails and interpretive features on both sides. There would continue to be long-term beneficial effects from these facilities, although the visitor center on the east side would continue to be cramped, providing very limited opportunities for interpretation and education.

The use of monument trails is not evenly distributed. Because the trail system would remain the same, except for the South Wilderness Trail connection, some popular trails, such as the High Peaks, talus cave, and climbing access trails, would continue to have greater use than the rest of the monument's trail system. This would continue to concentrate visitors in a few areas. Some visitors may not use one-way trails if they are reluctant to take hikes that involve retracing their steps. Other longer trails have no specific destinations mapped or designated, and visitors may not use these unless monument staff specifically directs them to sites or activities in these areas.

Because of insufficient space, the East Pinnacles visitor center provides minimal interpretive and educational services. The visitor center lacks space for indoor interpretive and educational programming and cannot

adequately serve large groups. This lack of space is noticeable to visitors and has an appreciable effect on the ability of the monument to provide services, a moderate adverse effect.

Although camping was a part of the visitor experience on the west side (destroyed by flooding in the 1990s), this activity is no longer offered, limiting overnight visitor use, particularly for climbers who have indicated an interest in longer visits. The small number of group picnic sites and the lack of camping on the west side would continue to have long-term, minor to moderate, adverse impacts on the visitor experience, as many visitors to the west side come in large family groups and many other visitors have expressed a desire to remain overnight as they once were able to do.

Shuttle stops on the east side would continue to be unimproved, generally with only a sign to indicate where visitors should wait. As a result, visitors would continue to wait in all types of weather without shelter, a long-term minor adverse effect.

Although accessibility guidelines have been implemented in some areas, including access into some campsites, the visitor center, restrooms, and some monument waysides, there is currently no accessible trail route from which to view the High Peaks area on the west side. Although the High Peaks can be viewed from several accessible locations on the west side, the lack of a trail experience to do the same would continue to have an appreciable long-term moderate adverse impact on some visitors.

VISITOR USE OPPORTUNITIES – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

Recreational Opportunities

Recreational opportunities would continue to be the same as in alternative A. As in alternative A, there would be no new facilities for large groups, however some accommodations for smaller groups would be provided.

In addition, there would be expanded opportunities for hiking from the construction of new trails. Some of these trails would provide access to previously remote areas and some would allow for short excursions to newly available features. These new trails could include a medium-length loop trail accessing the bottomlands and its historic ranch sites and a connection to the North Wilderness Trail from the campground. Trails on the Bottomlands and in McCabe Canyon could disperse visitors from heavily used areas and the wilderness connection would provide new opportunities to experience wilderness, resulting in beneficial impacts on recreational opportunities.

New zoning in alternative B would result in a narrower focus on permissible or encouraged visitor activities in localized areas, because more areas would be zoned as "primitive", including some non-wilderness areas. Because there could also eventually be group size limits instituted to protect solitude in primitive zones, the availability of visitor use opportunities in these zones could be limited. On the other hand, those seeking a wilderness-type experience would benefit from improved solitude and other wilderness qualities due to fewer visitors. Overall, minor to moderate adverse impacts could occur for some visitors, along with beneficial effects on the visitor experiences of others.

The availability of concession items and services would remain the same as those described under alternative A, with a similar long-term negligible adverse impact on visitor experience for some visitors.

Removal of the Moses Spring parking lot could benefit some visitor experiences by enhancing solitude and quiet in this area and by providing the opportunity to see a restored riparian area. Removal and transportation of material from the site would have moderate short-term adverse impacts due to the noise and visual impacts associated with heavy machinery and trucks.

Visitor Facilities

Most facilities would remain the same as in alternative A. In addition to new trails, however, new facilities would include a small visitor center in the vicinity of the campground, a new entrance station to the east side, and a small picnic area at the campground. The visitor center would provide some additional exhibit space and the ability to handle groups more efficiently, and additional small group picnicking sites would provide a long-term benefit for some visitors. Short-term adverse impacts to visitor use opportunities would be moderate, as day users would be temporarily displaced during construction. The monument would still be able to display some exhibits and provide indoor visitor information during construction by using the Bear Gulch Nature Center.

Some visitors would experience a minor to moderate adverse impact due to removal of the swimming pool, especially campers who visit during the summer and who have been using the pool as an important part of their experience, even before the monument's acquisition of the campground and pool.

VISITOR USE OPPORTUNITIES – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

Recreational Opportunities

In addition to existing recreational opportunities, there would be new opportunities for hiking, picnicking, camping, equestrian use and bicycling in alternative C.

As in alternative B, trail improvements would include new trails, with some providing access to previously remote areas and some allowing for short excursions to newly available features. Unlike alternative B, a trail in the bottomlands would accommodate new users including equestrians and bicyclists. Although there would be new equestrian use, the trail would be short and would not be connected to other nearby equestrian trails in the region. Similarly, bicycling opportunities would also be limited by the trail's length because it would be provided primarily as an additional recreational opportunity for campground visitors.

While the addition of an equestrian and bicycle trail would improve recreational opportunities for some, a long-term beneficial effect, it would also have potential adverse effects on other visitors from the potential to encounter animal waste on the trail and from the potential for trail user conflicts.

A relatively easy loop trail into McCabe Canyon from the campground would provide a new hiking opportunity outside of the popular High Peaks area. These new trails would disperse visitors and provide new opportunities to experience wilderness, resulting in beneficial impacts on visitor use opportunities.

Backcountry camping would provide a new overnight wilderness experience. West side camping would also allow climbers and other visitors to extend their visits and their time on the trail or rock. Combined, these new opportunities would enhance the diversity and availability of overnight experiences, but may also increase the number of visitors on trails at one time due to extended visits or on previously rarely visited backcountry trails, leading to minor adverse impacts.

Because alternative C has the least amount of primitive zoning, it would also have the most potential for infrastructure and interpretive development at trailheads and other visitor use areas. More information could be perceived as a beneficial impact or could degrade anticipated experiences related to expectations of low levels of development. As a result, there could be both long-term minor adverse and beneficial effects, depending on visitor expectations. In alternative C, both large and small groups would find more opportunities from changes in zoning that would accommodate larger groups on popular trails and provide facilities designed for group use.

In addition to the concession sales items that would continue to be offered in alternatives A and B, the monument would consider authorizing bicycle rentals, climbing gear sales and rental, and wireless internet services. There would be a beneficial effect on some visitors from providing these opportunities. Other visitors could find new amenities such as wireless access unnecessary or intrusive, a long-term minor adverse effect.

Visitor Facilities

In addition to new trails, other new facilities would include a larger replacement visitor center in the vicinity of the campground, a new entrance station to the east side, an improved picnic area designed for groups near the campground, and new equestrian facilities. The entrance to the visitor services and campground area would be redesigned to better separate day and overnight uses and improve the arrival experience. The replacement visitor center would provide additional exhibit space, as well as opportunities for indoor and outdoor group use, providing long-term benefits to visitor experiences. Some short-term, minor to moderate adverse impacts would occur to visitor experiences due to the noise, confusion, and visual impacts associated with construction and the reconfiguration of a primary visitor services area.

VISITOR USE OPPORTUNITIES – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

Recreational Opportunities

Recreational opportunities under this alternative would increase in quantity and availability compared to alternative A. Impacts would be the same as those described for alternative C, with the exception of impacts related to equestrian use and facilities, which are not proposed in this alternative.

Visitor Facilities

Impacts from the construction of a replacement visitor center, reconfigured campground, new day use picnic area and other facilities would be the same as in alternative C, except that the proposed visitor center would be slightly smaller. While this would increase the space of the existing visitor center, compared to alternative C, this smaller visitor center could potentially provide fewer opportunities for group uses. Establishing backcountry campsites, a west side walk-in campground and other changes in visitor facilities would also have the same short-term minor to moderate adverse impacts on visitor experience from noise and

disturbance and potential changes in short-term access identified in alternative C as well as long-term beneficial effects from providing these new uses.

VISITOR USE OPPORTUNITIES – CUMULATIVE IMPACTS

Ample recreational opportunities would continue to be available regionally that complement opportunities available at the monument. Additional recreational opportunities available in the region include equestrian and stock use, hunting, backcountry camping, and off-road vehicle use at several county, regional, state, and federal sites. Climbing opportunities are less common in the region, making it important to continue current opportunities at the monument.

Many commercial services and facilities, including lodging, food services, and additional recreational, cultural, and educational opportunities would continue to be provided in the broader region, although opportunities close or adjacent to the monument are few.

Outside of the monument, rapid regional population growth has contributed to an increasing number of visitors competing for limited parking areas and trail use opportunities. This minor adverse effect is likely to continue in the lifespan of this GMP. Past and ongoing projects, including a shuttle system to transport visitors within the monument and new land acquisition has expanded visitor use opportunities. The beneficial effects provided by the additional lands include the ability to provide for overnight camping within the monument and to open new areas for public access and enjoyment.

Taken as a whole, the reasonably foreseeable past, present, and future cumulative actions would continue to provide diverse and expansive visitor experiences, recreational opportunities, and visitor services and facilities in the region, resulting in long-term benefits to visitors and a minor adverse effect due to population growth.

Combined with the effects of alternative A, there would continue to be both minor to moderate cumulative adverse and beneficial impacts. Alternative B would contribute more long-term beneficial effects from a small number of new visitor use opportunities and facilities and minor adverse impacts from potential regulation of visitor use. Alternatives C and D would contribute more long-term beneficial effects from a wider range of visitor use opportunities and facilities, with fewer impacts from additional regulation of visitors. Based on this, alternatives B, C and D would continue to have long-term minor cumulative adverse effects and long-term cumulative beneficial effects in the region.

VISITOR USE OPPORTUNITIES – CONCLUSION

Overall, alternative A would have a long- term, minor to moderate, adverse impact on the visitor experience, primarily from deficiencies in visitor facilities based on changing visitor needs, and from limited staffing.

Alternative B provides high quality wilderness-centered experiences, benefitting users who seek experiences typically associated with designated wilderness. Adverse impacts on visitor experience and use would be minor, while many benefits would be realized for wilderness users.

Alternatives C and D provide a high diversity of recreational experiences and amenities, benefitting many visitors. Adverse impacts on visitor experience and use would be minor to moderate, while many benefits would be realized for a variety of visitor types.

Interpretation and Education

This section analyzes two aspects of the visitor experience: education and interpretation, including the elements of visitor information, orientation, and inspiration. These two visitor experience components evaluate opportunities for and the quality of visitor information and orientation, as well as interpretive and educational experiences. Impact analysis was based on whether there would be a change in the access to high quality, diverse media and programs throughout the monument in order to achieve the desired conditions called for by the alternatives.

This assessment focused on the intensity and duration of adverse impacts that would result from the proposed actions in the plan relative to the aspects of the visitor experience related to interpretation and education, as well as the beneficial effects of the proposed actions.

The thresholds of change for the intensity of an adverse impact are as follows:

Negligible: Adverse impacts would be barely detectable to the visitor and would be expected to have no discernible effect on opportunities for interpretation or education.

Minor: Adverse impacts would be slightly detectable to the visitor, but would not affect opportunities for interpretation or education.

Moderate: Adverse impacts would be clearly detectable to the visitor and could have an appreciable effect on opportunities for interpretation or education.

Major: Adverse impacts would have a substantial, highly noticeable influence on visitor experience and could permanently alter access to and availability opportunities for interpretation or education.

INTERPRETATION AND EDUCATION – IMPACTS FROM ALTERNATIVE A (NO ACTION)

Quality interpretive programs would continue to be offered, and all interpretive and environmental education opportunities for visitors would continue to be comprehensively planned, a long-term beneficial impact. Since no new employees would be added, however, monument interpretive staff would not be able to meet visitor demand during the spring and fall seasons and during summer holidays, nor would the monument be able to expand its variety of topics. Limited Junior Ranger programming would be offered via activities that children complete on their own. Ranger-guided activities such as plant walks, night hikes, and bird watching would be offered sporadically.

A limited number of non-personal interpretive services would continue to be available to visitors and potential visitors, such as museum exhibits, brochures, an in-depth monument website, and bulletin board/wayside displays throughout the monument. Without additional staffing, the replacement of waysides over time would be intermittent, having an adverse effect on the ability of the monument to use this medium for interpretive messages.

Under this alternative, staff would continue to be limited in their availability to present educational programs both on-site and in the classroom. Teacher involvement in monument programs is well below expectations set by NPS policy. Staffing levels are insufficient to allow the monument to fill many of its frequent requests for outreach education programs.

The monument's interpretive staff, with contributions from members of all divisions, participates in a fair number of in-park and community outreach activities, but there is room for improvement since demand for outreach is not currently being met.

Staffing constraints would continue to limit the number of interpretive and educational programs provided over time, having a long-term, and minor to moderate, adverse impact on interpretive and educational opportunities, given ongoing and unmet demand for these services.

INTERPRETATION AND EDUCATION – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

All of the beneficial effects described under alternative A would continue under this alternative. Alternative B would emphasize interpretation and education related to wilderness values, but would also increase the level of interpretive programming focused on cultural resources. Because self-reliance and indirect management (de-emphasizing direct staff-visitor engagement) are key components of alternative B, most formal interpretation and education would be conducted away from the core of the monument and outside of the monument when possible. This would allow visitors within the monument to enjoy high-quality wilderness experiences, while the monument focuses its interpretive staff more on community engagement, outreach, and local educational needs.

Interpretive efforts in the monument would focus on exterior exhibits at visitor centers, as well as other non-personal information and interpretive services. A replacement visitor center on the east side would provide additional exhibit space. Several staff positions would be added to the division, allowing the monument to seek to maintain current levels of visitor understanding while enhancing its outreach and education programs. While it would be difficult, given the lack of personal interpretive services, to increase visitor understanding above current levels in the monument itself, substantial strides would be made in creating effective outreach and educational programs off-site, resulting in more engaged and informed classrooms and local participants. Alternative B would result in limited, but overall beneficial impacts on the provision of interpretation and education.

INTERPRETATION AND EDUCATION – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

All of the beneficial effects described under alternative A would continue under this alternative. New staff positions, including an educator, interpreter, and park guides, would increase the monument's capacity to fulfill educational requests and in-monument programming needs. A replacement visitor center on the east side, with ample space for exhibits and indoor programming, would facilitate a higher level of programming. The emphasis on serving multiple audiences through a wide variety of media and increased programming would allow the interpretive staff to reach more visitors. Because these actions would provide expanded interpretation and education, both within and outside the monument, they would have a long-term beneficial impact on the monument's capacity for interpretation and education.

INTERPRETATION AND EDUCATION – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

All of the beneficial effects described under alternative A would continue under this alternative. New staff positions, including an educator, interpreters, a media specialist, and park guides, would increase the monument's capacity to fulfill educational requests and in-monument programming needs, having a greater beneficial effect than the other alternatives. As in alternative C, a replacement visitor center on the east side would facilitate a higher level of programming, although not to the same extent because there would be less space allotted for group use and exhibits. The emphasis on serving visitors through a range of "outdoor classroom" opportunities, as well as an emphasis on involving people in science and stewardship activities, would allow interpreters to make more meaningful connections between visitors and the resources. Similar to alternative C, these actions would have a long-term beneficial impact by expanding capacity for interpretation and education both within and outside the monument.

Participation in regional visitor / interpretive centers will also have beneficial impacts, providing more opportunities for outreach and distribution of materials.

INTERPRETATION AND EDUCATION – CUMULATIVE IMPACTS

Regional population growth is expected to increase visitation at a rapid pace; and changing demographics would likely bring an ever greater diversity of visitors to the monument. Therefore, it is reasonably foreseeable that the demand for interpretive and educational services, such as in-classroom programs, may continue to exceed the monument's capacity to provide them. Interpretive programming available to off-season visitors would continue to be limited and the monument may have difficulty keeping pace with changing technologies that would allow visitors to receive information and interpretation in new ways.

Outside of the monument there are limited opportunities to obtain interpretive materials through a variety of local, state, and federal resources in the region, a minor to moderate adverse effect. Visitor surveys indicate that the public desires more information about the monument and the greater region.

Monument staff would continue to work with regional partners such as the Bureau of Land Management and the U.S. Forest Service in coordinating interpretive training and outreach events as staffing and funding allows, a beneficial long-term effect. There is currently little coordination of educational or recreational planning, however, with other nearby units (Clear Creek Recreation Area and Los Padres National Forest).

The above impacts, in combination with the adverse and beneficial impacts of alternative A as described in the analysis section, would continue to result in minor to moderate, adverse cumulative impacts on educational and interpretive opportunities. Alternatives B, C, and D would each reduce this cumulative adverse impact, primarily through additional staffing and programming. These benefits, however, would be greater under alternatives C and D because of their emphasis on both internal and external interpretation and education.

INTERPRETATION AND EDUCATION – CONCLUSION

Educational and interpretive programs under alternative A would provide beneficial effects to the monument visitors, school groups and teachers, local communities, and organizations. In the long-term, however, staffing and programmatic constraints would result in fewer interpretive and educational opportunities resulting in minor to moderate, adverse cumulative impacts on education and interpretation.

Educational and interpretive programs under alternative B would provide beneficial effects to monument visitors, school groups and teachers, local communities, and organizations.

Educational and interpretive programs under alternatives C and D would provide greater beneficial effects than in alternative B, to monument visitors, school groups and teachers, local communities, and organizations.

Camp Pinnacles participants play corner-to-corner. NPS photo.

Wilderness

Working from definitions included in the Wilderness Act, Management Policies (NPS 2006), interagency wilderness monitoring strategies, and the tradition of wilderness preservation and management at the monument, the following wilderness qualities have been identified for consideration in this analysis:

Untrammeled: The Wilderness Act states that wilderness is "an area where the earth and its community of life are untrammeled by man." Essentially, wilderness is unhindered and free from modern human control or manipulation. This quality is degraded by modern human activities or actions that control or manipulate the components or processes of ecological systems inside the wilderness.

Undeveloped: The Wilderness Act states that wilderness is an area of undeveloped land retaining its primeval character and influence, without permanent improvements or human habitation." This quality is degraded by the presence of structures, installations, habitations, and by the use of motor vehicles, motorized equipment, or mechanical transport that increases people's ability to occupy or modify the environment.

West side stream. Photo by Paul Johnson.

Natural: The Wilderness Act states that wilderness "is protected and managed so as to preserve its natural conditions." Wilderness ecological systems are substantially free from the effects of modern civilization. This quality is degraded by intended or unintended effects of modern people on the ecological systems inside the wilderness since the area was designated.

Solitude or a primitive and unconfined type of recreation: The Wilderness Act states that wilderness has "outstanding opportunities for solitude and/or a primitive and unconfined type of recreation." This quality is about the opportunity for people to experience wilderness. This quality is degraded by settings that reduce these opportunities, such as visitor encounters, signs of modern civilization, recreation facilities, and management restrictions on visitor behavior.

Impacts on natural and cultural resources, visitor access, soundscape, night sky, and other resources are evaluated elsewhere in the environmental consequences section. The analysis for this topic focuses on wilderness character and wilderness experience, which are integrally related because much of wilderness character can only be subjectively determined by the visitor's experience (for example, solitude or freedom of movement).

The thresholds of change for the intensity of an impact are as follows:

Negligible: Impacts would not be detectable to most visitors and would have no discernible effect on wilderness qualities.

Minor: Impacts would be slightly detectable to some visitors but would not be expected to have an overall effect on wilderness qualities.

Moderate: Impacts would be clearly detectable by many visitors and could have an appreciable effect on wilderness qualities.

Major: Impacts would have a substantial and noticeable effect for most visitors on wilderness qualities and could permanently alter various aspects of the visitor experience.

WILDERNESS CHARACTER – IMPACTS FROM ALTERNATIVE A (NO ACTION)

Under alternative A, the monument's designated wilderness would continue to be managed as it is now. The minimum requirement analysis would continue to be used to determine if, when, and how actions that might impact wilderness character could be implemented.

Untrammeled

Much of the Pinnacles Wilderness is essentially unhindered and free from modern human influence or manipulation. A few ongoing actions within designated wilderness manipulate or constrain the biophysical environment, especially the existence and maintenance of Bear Gulch Reservoir and the pig exclusion fence, have components located in wilderness. Although these installations are used for resource management purposes, including retention of the reservoir to support California red-legged frogs and use of the fence to exclude non-native feral pigs from core areas of the monument, both actions constitute human manipulation or control of wilderness. The pig fence is a direct manipulation of the biophysical environment, influencing some wildlife movement along its length. The reservoir manipulates the natural stream flow, particularly through Bear Creek Cave. Both are clearly detectable by visitors. Maintenance of both installations would continue to have a long-term moderate adverse effect on the untrammeled quality of wilderness. Invasive exotic plant control along wilderness trails and monitoring California condors and prairie falcons would continue. Because the exotic plant control is accomplished without power tools this action would not rise above minor in intensity. Altogether, alternative A would continue to have a minor to moderate adverse impact on this wilderness quality.

Undeveloped

Non-recreational infrastructure and facilities within wilderness include old roads and road traces, the pig exclusion fence, the Bear Gulch Reservoir, and data loggers in caves. Some of these installations, like the data loggers and many old road traces are only slightly detectable to visitors. Some, like the pig exclusion fence and the reservoir are more obvious. Because these installations are human-built intrusions on the primeval character of the landscape, they have a minor to moderate adverse effect on this wilderness quality.

Natural

Natural resource impacts due to current management would only be slightly detectable to most visitors. Long-term adverse impacts on the natural quality of wilderness character from the implementation of this alternative would range from minor to moderate. The Bear Gulch Reservoir is an alteration of natural hydologic flow within wilderness. Extirpated species, such as the foothill yellow-legged frog, have also altered natural regimes. The continued effort to re-establish formerly extirpated species such as the California condor, the California red-legged frog, and the peregrine falcon provide ongoing benefits. The maintenance of natural fire regimes through the use of prescribed fire is consistent with the restoration and preservation of naturalness, and would have long-term beneficial impacts on this wilderness quality. However, the monument would not conduct prescribed fires within designated wilderness until it has an approved Wilderness Stewardship Plan. The pig fence provides a beneficial effect to this quality by limiting the damage otherwise caused by non-native pigs.

Solitude or a primitive and unconfined type of recreation

Opportunities for visitors to experience wilderness would continue to be abundant. Such opportunities are limited, however, in certain areas. In the High Peaks, some wilderness trails experience high levels of seasonal use. The regional population is expected to increase substantially in the next 20 years, potentially increasing visitation to the monument. Because many of the monument's popular hiking destinations are found in wilderness, increased visitation without dispersal could further decrease opportunities for solitude.

Existing recreational development in wilderness, including 32 miles of trails and various visitor aids such as handrails, signs, and steps, is primarily concentrated in the heavily used High Peaks area. These existing facilities have a moderate adverse effect on this wilderness quality as they are designed to facilitate increased visitation.

A remote, approximately two mile connection between the South Wilderness Trail and the Chalone Peak Trail would be constructed under this alternative. The monument expects that this trail would be rarely used by visitors (much like the North Wilderness Trail). Therefore, it would have a minor adverse effect on this quality.

Trail maintenance and resource management projects sometimes use mechanized equipment in wilderness. Although these projects are evaluated and approved using a minimum requirement / minimum tool analysis, they have localized, short-term impacts on both the undeveloped quality of wilderness and opportunities for solitude and unconfined recreation. As discussed later in the soundscape analysis, some portions of designated wilderness, particularly in the High Peaks area, would continue to experience unintentional operational and visitor use noise impacts due to their proximity to popular areas and the character of the rocky canyon landscape which carries sound from the canyon bottoms upward. Adverse impacts on this wilderness quality would range from minor to moderate. Likewise, minor to moderate visual impacts, including dark sky pollution and loss of visibility due to air pollution, occur from activities outside of wilderness.

Visitor use restrictions in wilderness, including current bans on camping and visitor stock use, diminish "unconfined" recreational opportunities, resulting in minor to moderate adverse impacts. These restrictions, along with temporary closures to protect vulnerable bat and bird populations, constitute minor to moderate adverse impacts on this wilderness quality, but are often necessary to protect the natural quality of wilderness character or to meet park mandates.

WILDERNESS CHARACTER – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

Under alternative B, the monument would focus on protecting and enhancing wilderness values. The minimum requirement analysis would continue to be used to determine if, when, and how actions that might impact wilderness character could be implemented.

Untrammeled

Impacts would be the same as in alternative A. No additional actions under this alternative would impact the untrammeled quality of wilderness beyond its current condition.

Undeveloped

The impacts on this wilderness quality would largely be the same as described under alternative A, although the potential for future additional non-recreational development impacts is diminished by a broad application of primitive zoning throughout the monument.

Natural

The impacts on this wilderness quality would largely be the same as described under alternative A.

Solitude or a primitive and unconfined type of recreation

As in alternative A, a nearly two-mile long South Wilderness Trail connection to the Chalone Peak Trail would be constructed. To the north, a new McCabe Canyon trail would connect the campground with the North Wilderness Trail. Approximately five miles of this trail would be located in designated wilderness. Because the wilderness portions of these trails are remote, they would be lightly used and would be constructed to be narrow and unobtrusive in character, resulting in minor long-term adverse effects.

Opportunities for visitors to experience wilderness would continue to be abundant and, in some cases, would be enhanced. Alternative B would provide high quality backcountry experiences by minimizing development and infrastructure and reducing crowding. The use of research equipment in the field would be minimized under this alternative. New uses and large group facilities are not accommodated in this alternative, reducing the potential levels of use compared to alternatives C and D. More of the monument would be zoned primitive, reducing opportunities for recreational development, group use, and motorized vehicles throughout the monument, all of which impact solitude in adjacent wilderness areas. New east side facilities outside of designated wilderness would not impact this quality because the visible development footprint would not change substantially, nor would these facilities be designed to promote or support higher levels of wilderness use. Removal of the Chaparral parking area on the west side would enhance this wilderness quality by relocating development and concentrated visitor use further from the adjacent wilderness boundary. North Chalone Peak would be restored, improving previously impacted viewsheds from designated wilderness.

WILDERNESS CHARACTER - IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

Under alternative C, the monument would focus on providing a wider variety of visitor experiences, including high quality wilderness experiences and backcountry camping. The minimum requirement analysis would continue to be used to determine if, when, and how actions that might impact wilderness character could be implemented.

Untrammeled

The impacts on this wilderness quality would be the same as described under alternative A.

Undeveloped

The impacts on this wilderness quality would be the same as described under alternative A.

Natural

The impacts on this wilderness quality would be the same as described under alternative A.

Solitude or a primitive and unconfined type of recreation

Opportunities for visitors to experience wilderness would continue to be abundant and, in some cases, would be enhanced.

As in alternative B, the South Wilderness Trail connection to the Chalone Peak Trail and a McCabe Canyon trail would have minor long-term adverse effects. Alternative C would also include a trail to access the peak of Mt. Defiance, creating a short loop with the South Wilderness trail. Most of this trail's approximately three miles would be located in designated wilderness. This trail may attract slightly more visitors

than the other new wilderness trails due to its easier access, but would not have appreciably greater impacts.

A few backcountry campsites could be constructed, potentially in designated wilderness. These primitive campsites would have minimal development footprints and would require further environmental analysis prior to location and construction. Backcountry campsites would have a long-term, minor, adverse impact on this wilderness quality. Backcountry camping would also benefit this quality by opening up a mode of wilderness recreation previously not allowed in the monument.

The new Mount Defiance trail would provide a new moderate-length opportunity to experience wilderness in a previously inaccessible area. New east side facilities outside of designated wilderness would adversely impact this quality through slight modification of wilderness viewsheds. Because most non-wilderness development would take place in previously developed footprints (campground reconfiguration and replacement visitor center) or on the bottomlands (away from designated wilderness), impacts would be negligible to minor. Removal of the Chaparral parking area on the west side would enhance this wilderness quality by relocating development and concentrated visitor use further from the adjacent wilderness boundary. Constructed out of sight of trails, backcountry campsites would have minor adverse effects on opportunities for solitude. Further design, analysis, and environmental compliance would be required to determine locations and scope.

Most of the High Peaks and McCabe Canyon areas are zoned semi-primitive under this alternative, allowing trail design and backcountry management to serve larger group sizes and higher numbers of people at one time. While the intent of this zoning is to allow the highest number of visitors to experience this part of the Pinnacles Wilderness while protecting wilderness character, some degradation to solitude, along with some beneficial effects on the availability of primitive unconfined recreation, would occur with increased use. The adverse impacts due to crowding and user conflicts would be minor to moderate.

WILDERNESS CHARACTER - IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

As in alternative C, the monument would continue to provide high quality wilderness experiences and would introduce backcountry camping. A minimum requirement analysis would continue to be used to determine if, when, and how actions that might impact wilderness character could be implemented.

Untrammeled

Impacts under alternative D would be the same as described in alternative A.

Undeveloped

Impacts under alternative D would be the same as described in alternative A.

Natural

Impacts under alternative D would be the same as described in alternative A.

Solitude or a primitive and unconfined type of recreation

Impacts under alternative D would the same as described in alternative C, except that the Mount Defiance trail would not be built and slightly more primitive zoning would be applied throughout the monument.

WILDERNESS CHARACTER – CUMULATIVE IMPACTS

Regional population growth is expected to increase visitation at a rapid pace. Changing demographics would bring an ever greater number and diversity of recreational users to the monument and the Pinnacles Wilderness. These changes have the potential to affect wilderness character by increasing crowding, user conflicts, and resource degradation due to higher use levels. In addition, development along the monument boundary, visible from designated wilderness within the boundary, would likely continue to increase incrementally. The potential for landscape-scale changes, especially from invasive species, fire suppression, prescribed fire, climate change, dark sky pollution, and decreased visibility due to air pollution, would continue to exist. These factors would continue to contribute to minor to moderate adverse impacts, particularly to the qualities related to primitive and unconfined recreation, solitude, and development. None of the action alternatives would add appreciably to this impact. Therefore, cumulative impacts under alternatives B, C and D would remain minor to moderate, similar to alternative A.

WILDERNESS CHARACTER – CONCLUSION

Alternative B provides the greatest benefits and the least adverse impacts on wilderness qualities of the four alternatives, followed by alternative A. Alternatives C and D do not appreciably differ among the four wilderness qualities, except that solitude, in certain areas, would potentially be diminished by the adverse effect of accommodating semi-primitive (rather than primitive) zoning in alternative C.

Natural Resources

Air Quality

The area of consideration for this impact topic is the region. Changes to baseline data and/or national standards from proposed actions as measured at authorized stations would constitute impacts on air quality. The thresholds of change for the intensity of an impact are as follows.

Negligible: There would be no perceptible visibility impacts above background conditions.

Minor: There would be slightly perceptible visibility impacts on less than 180 days per year.

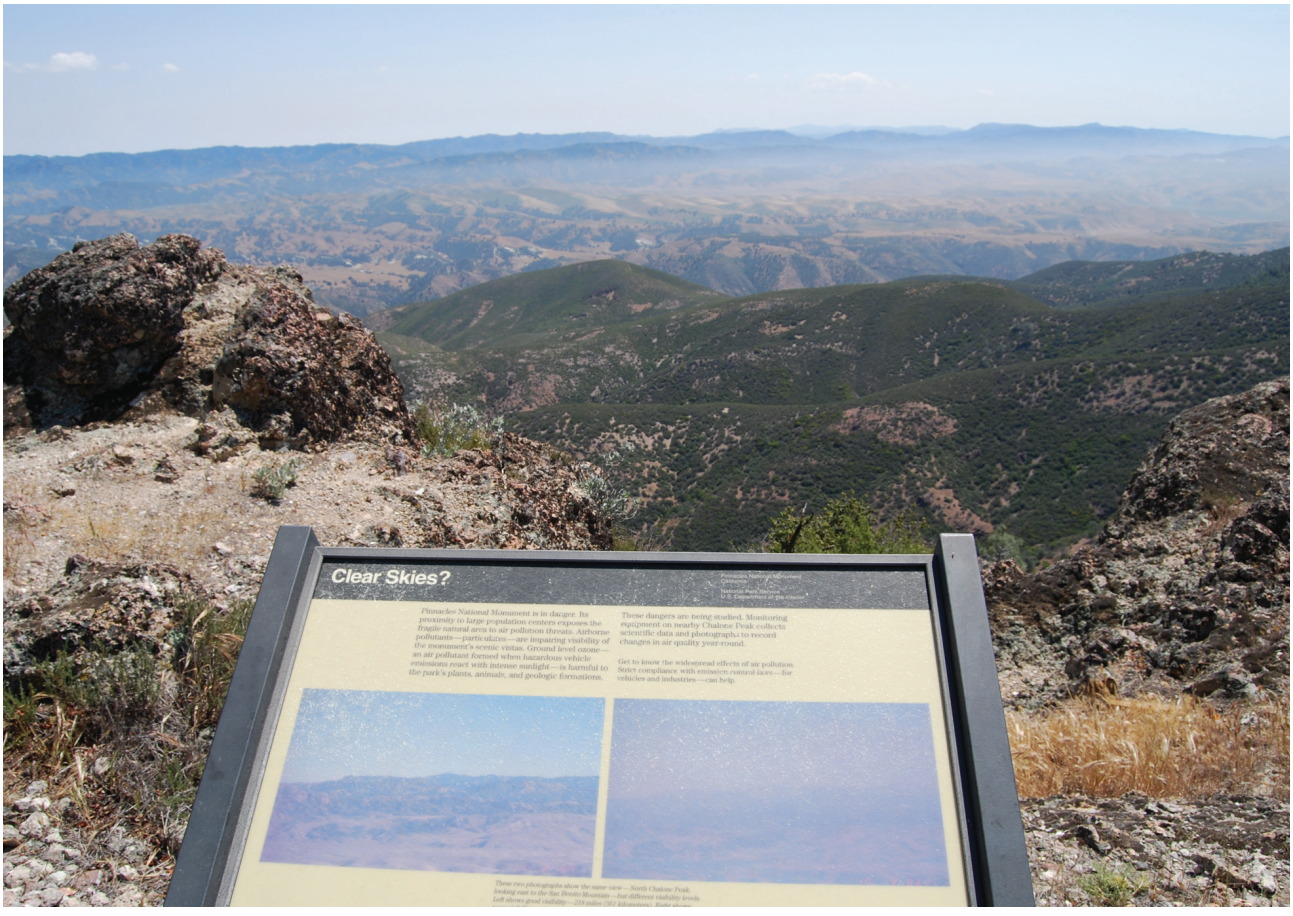
Moderate: There would be moderately perceptible visibility impacts on less than 180 days per year or slightly perceptible visibility impacts on 180 days or more per year.

Major: There would be highly perceptible visibility impacts on 180 or more days per year.

AIR QUALITY – IMPACTS FROM ALTERNATIVE A (NO ACTION)

Because it contains designated wilderness, Pinnacles National Monument is one of 48 units of the National Park System designated as a mandatory Class I area for air quality (USEPA, 2002) under the 1977 Clean Air Act Amendments (CAAA). Class I airsheds receive the greatest protection under the CAAA, and the NPS is required to do all it can to ensure that air quality-related values are not adversely affected by air pollutants. To this end, NPS personnel review all permit applications for industrial or other facilities that may contribute to the deterioration of air quality in the region surrounding the monument.

Of particular concern in class I areas is visibility, which is critical to preserving views of outstanding scenery and landscapes for which national parks are famous. Both the scattering and the absorption of light by particles in the atmosphere reduce visibility. Impacts on air quality arise from the introduction of pollutants into the air from sources such as combustion and activities that create airborne dust. The impacts of air pollution fall off exponentially with distance from the source, although factors such as air circulation patterns concentrate pollutants in some areas more than others.



Interpretive display of "Clear Skies" overlooking Pinnacles NM. NPS photo.

In this alternative, no new action would occur that would increase the degradation of air quality and visibility within the monument. Sources of air pollution within the monument tend to be small but, due to proximity, may have noticeable effects, especially when locally concentrated due to atmospheric conditions. The primary sources of pollution arising from within the monument are from motor vehicles, including visitor, staff, and shuttle uses, and campfires/barbecues. Due to the relatively low level of vehicle use by visitors and NPS staff, vehicles do not produce detectable levels of air pollution within the monument. When atmospheric inversion conditions exist in the vicinity of the Pinnacles Campground, however, smoke from campfires may be concentrated there and in adjacent areas in the valley bottoms, as well as where the resulting layer of smoke meets the edges of the valley. These adverse impacts are short-term and minor to moderate in nature, occurring much less than 180 days per year. These impacts are minimized by a prohibition on campfires during the summer since they only occur intermittently during the camping season.

In alternative A, because there would be no changes in the number or types of facilities that produce air pollutants or the way these are used in the monument, there would be no change in local pollution sources. No new roads would be constructed or opened to traffic, therefore vehicle miles driven on monument roads would remain similar (associated only with increased visitation from the ever-increasing surrounding population) and no new sources of pollution, such as campground or picnic (barbecue) facilities would be constructed.

Although NPS fire management activities which result in the discharge of air pollutants (e.g. smoke, carbon monoxide, and other pollutants from fires) would continue, these are subject to, and must comply with, all applicable federal, state, interstate, and local air pollution control requirements, as specified by Section 118 of the Clean Air Act, as amended (42 USO 7418). Direct adverse impacts on air quality under this alternative would continue to be short term, and minor to moderate. These impacts would be dependent on fuel loading and burn intensity and duration. Under current policy, if national ambient air quality standards (NAAQS) cannot be met during treatment with prescribed fire or fire incidents or if visibility thresholds would be exceeded, ignition would be halted and the burn would be suppressed or contained. Prescribed fires ignited to meet resource and protection objectives (i.e., hazard fuel reduction, etc.) and naturally ignited wildfires managed for resource benefits can collectively reduce years of fuel accumulation. This can result in long-term benefits to regional and local air quality by spreading out emissions over time, rather than from a larger wildfire at one time.

AIR QUALITY – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

As in alternative A, the current level of localized and minor to moderate adverse air quality impacts due to vehicles, campfires, and barbeques would continue. In addition, there would continue to be minor to moderate impacts from the fire management program. Although some parking areas would be removed, moved or reconfigured (Chaparral and Moses Spring), there would be little effect on total vehicle miles driven. Alternative B would also have additional short-term negligible to moderate localized impacts, including from exhaust, evaporative and particulate emissions from construction of new facilities. The short-term impacts associated with visitor center and day use construction on the east side would be greater than those associated with modifications to historic structures and trails.

Also, under alternative B, an increased focus of interpretation and education on wilderness values (including clean air and clear skies with unimpeded views) and on audiences outside the monument could have a long-term beneficial impact on reducing air quality impacts through increased regional awareness and opportunities for collaboration.

AIR QUALITY – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

The impacts under alternative C would be similar to those described under alternatives A and B with the additional potential for adverse impacts from a small walk-in campground on the west side combined with some additional beneficial impacts. This new campground would, if campfires were allowed, result in occasional short-term localized negligible to minor adverse air quality impacts. Additional picnicking in this alternative would also result in a slight increase in air quality emissions if more use of barbecue grills occurred.

New parking areas to facilitate visitor use near the replacement East Pinnacles visitor center and campground could result in somewhat lower exhaust emissions, with more visitors likely to find parking spaces and utilize the shuttle system than in alternatives A or B.

Alternative C would have the highest level of short-term, adverse impacts related to construction. Construction of trails and structures, including an east side entrance station, equestrian facilities, an east side visitor center, a walk-in campground on the west side, and picnicking facilities would create minor to moderate localized adverse impacts.

Overall, adverse impacts on air quality under alternative C would be minor to moderate.

AIR QUALITY – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

The impacts under alternative D would be the same as those described under alternative C, with slightly fewer construction-related impacts. As in alternative B, roads would be very slightly reduced by the elimination of the Chaparral parking area, having little effect on total visitor vehicle miles driven. Overall, adverse impacts on air quality under alternative D would be minor to moderate.

AIR QUALITY – CUMULATIVE IMPACTS

Based on monitoring since 1987, most of the year Pinnacles National Monument has superb "class I" air quality. The NPS Air Quality Division and EPA established a monitoring station near the east entrance in 1987. An air clarity study (using a transmissometer) was completed. Particulate, ozone, dry and wet deposition, and meteorological monitoring continues. Occasionally north winds and a persistent inversion layer draw air pollutants from the Santa Clara Valley into the monument. This usually happens in the summer, and in recent years Pinnacles has had as many as four nonattainment days, when the air quality standard exceeded federal levels. Despite the occasional hazy days, the air quality at Pinnacles is a defining feature of the park and an important resource. However, an encroaching urban landscape due to rapid population growth is steadily decreasing the distance between pollution sources and the park, with a resulting trend towards declining air quality (NPS 1999a), resulting in a minor to moderate long-term adverse effect. All alternatives have short-term, localized, minor to moderate adverse effects, which would not add appreciably to the adverse impacts from outside the monument. Alternative B, however, would have the greatest beneficial effect on cumulative impacts by promoting regional education on wilderness-related values. Overall cumulative impacts would remain minor to moderate in all alternatives.

AIR QUALITY – CONCLUSION

Most impacts are cumulative and originate from outside of the monument. Thus, impacts do not vary substantially among the alternatives. Most impacts due to actions in the alternatives would be localized and would arise from fires, barbeques, and vehicle use as well as from construction projects. While vehicle use doesn't change markedly among alternatives, alternatives C and D would add camping to the west side, adding impacts from campfire smoke in an area currently unaffected by campfires. Adverse impacts under all alternatives would be localized and minor to moderate.

Dark Night Skies

The area of consideration for this topic is the monument. Potential impacts from management actions are based on professional judgment and experience with similar actions. The thresholds of change for the intensity of an impact are as follows:

Negligible: The effects would be barely detectable and have no discernible effect on dark night skies.

Minor: The effects would be slightly detectable, but wouldn't have an overall effect on dark night skies.

Moderate: The effects would be clearly detectable and could have an appreciable effect on dark night skies.

Major: The effects would have substantial, highly noticeable influence and could permanently alter dark night skies.

DARK NIGHT SKIES – IMPACTS FROM ALTERNATIVE A (NO ACTION)

Impacts on dark night skies are typically associated with unshielded and high output lighting on facilities, roads, and residences. Glare and impacts due to light pollution increase near developed areas within the monument. Remote areas of the monument often provide high-quality dark night sky experiences.

In alternative A, no new development is proposed that would increase degradation of dark skies or nocturnal habitats within the monument. There would be ongoing beneficial effects from existing reduced output lamps or shields from reduced glare levels. In the campground, low levels of impact temporarily occur with high visitation levels. Night lighting from monument operations, vehicles, and camping activities would continue to have minor long-term adverse impacts on the monument's dark skies, as these impacts do not have an appreciable or noticeable effect.

DARK NIGHT SKIES – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCE)

In alternative B, the monument would reduce its development footprint. Some facilities could be removed (Chaparral parking lot, unused buildings, swimming pool), resulting in beneficial impacts when accompanying lights or vehicle use is removed. New or replacement facilities (e.g. East Pinnacles visitor center) would be limited to existing development footprints and would incorporate previously described mitigation strategies, resulting in no change to the current negligible to minor long-term adverse impacts on dark skies.

Interpretation and education would be focused on wilderness values, including dark night skies, and an effort would be made to provide more education outside of the monument and to encourage night lighting ordinances in nearby communities. This focus on educating local communities about wilderness values and lighting ordinances could have a beneficial impact on dark night skies through increased local awareness and opportunities for collaboration.

DARK NIGHT SKIES – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

New or replacement infrastructure development in this alternative includes a visitor center between Highway 25 and the campground and an entrance station near the monument entrance. These developments would be served by additional parking in the vicinity of the visitor center. The Bacon house would be adaptively reused as office space for monument staff. Lighting on these facilities could increase emissions of stray light in localized areas. The equestrian improvements would not be lit. As in the other action alternatives, the monument would follow dark night sky protocols to reduce impacts, keeping adverse impacts at negligible to minor levels. An emphasis on serving multiple audiences with increased interpretive and educational programming could have long-term beneficial impacts, if such programming raises local awareness of dark night sky issues.

DARK NIGHT SKIES – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

New infrastructure development in alternative D is nearly the same as alternative C. As with alternative C, these improvements would have long-term negligible to minor localized impacts on dark night skies, depending on the outside lighting designs and the types of fixtures used.

DARK NIGHT SKIES – CUMULATIVE IMPACTS

The projected rapid population growth in the Salinas Valley is expected to produce an increase in light pollution from adjacent communities and residences, particularly as new development encroaches on the monument boundary. Minor to moderate adverse impacts can be expected from future development. The monument is currently working with local communities to adopt light ordinances and would continue to do so. Alternative A would contribute no additional adverse impacts on dark night skies, while alternatives B, C, and D would contribute negligible to minor cumulative adverse impacts on dark night skies. Overall impacts would remain minor to moderate under all alternatives.

DARK NIGHT SKIES – CONCLUSION

Alternatives C and D would have the greatest impacts on the monument's dark night skies due to development, including some areas on the bottomlands that haven't been lit since acquisition by the monument. Impacts under these alternatives would be adverse, long-term, and minor. Alternative B would have the least adverse impact, due to the removal of structures and the most restrictive zoning outside of designated wilderness. Impacts under alternatives A and B would be adverse, long-term, and negligible to minor. Increased education and outreach efforts under alternatives B, C and D could have some positive effects, if such efforts influenced local community ordinances.

Geological Resources and Soils

The area of consideration for this topic is the monument. Potential impacts from management actions are based on professional judgment and experience with similar actions. The thresholds of change for the intensity of an impact are as follows:

Negligible: The action could result in a change to a geologic feature or process, but the change would be so small that it would not be of any measurable or perceptible consequence.

Minor: The action could result in a change to a geologic feature or process, but the change would be small and localized and of little consequence.

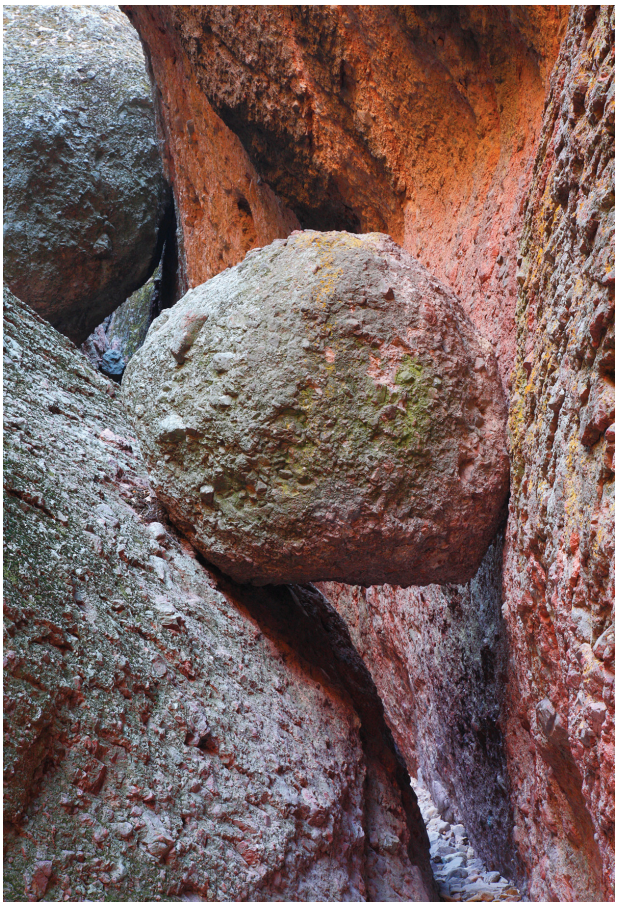
Moderate: The action would result in a change to a geologic feature or process; and the change would be measurable and of consequence.

Major: The action would result in a noticeable change to a geologic feature or process; the change would be measurable and the level of disturbance would be severe.

GEOLOGICAL RESOURCES – IMPACTS FROM ALTERNATIVE A (NO ACTION)

Many of the monument's primary visitor sites are nonrenewable geologic features. This includes the High Peaks, climbing routes, Bear Gulch Cave, and Balconies Cave. The elements of alternative A would have minor adverse impacts on the monument's geologic resources. The geologic features of the monument would likely continue to be worn, damaged, and/or degraded by visitor activities in localized areas, particularly adjacent to existing trails, near visitor facilities, around climbing locations, and wherever social trails exist.

Construction of the South Wilderness Trail connection would not impact geological resources.



Boulder wedged in Balconies Cave, demonstrating how talus caves are formed. Photo by Gavin Emmons © 2011.

Climbing use would continue to be managed through the Climber Access Plan and Raptor Monitoring Protocol until a Climbing Management Plan is completed. Climbing-related activities, such as drilling for the placement of bolts, sometimes cause pieces of rock to break off and may increase erosion rates at bolting sites, potentially resulting in minor long-term adverse effects.

GEOLOGICAL RESOURCES – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

The addition of new trails may provide more climber access, increasing the area impacted by climber-associated activity. As noted above, climbing occasionally causes rock to break off and may increase erosion at bolt sites. Because most of the rocks suitable for climbing occur in the core of the park and are currently accessible to climbers, any potential future adverse effects to geological resources would likely be minor.

Most new trails would be in valley bottoms on alluvial fill material, which would not result in impacts on geologic resources. Some trails, however, may be located through rocky areas, requiring some cutting into rock and resulting in minor long-term adverse impacts.

Adding a physical scientist to the staff would provide long-term beneficial effects from an increased ability to proactively monitor and respond to geologic impacts.

GEOLOGICAL RESOURCES – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

Under this alternative, potential localized negligible to minor adverse effects from trail construction and climbing access would be the same as described in alternative B, although slightly more new trail access is proposed. In addition, backcountry camping under this alternative has the potential to increase climber access to rocks. Because backcountry campsites are likely to be sited in areas distant from potential climbing areas, there would be negligible effects from climbing on geologic resources.

The new walk-in campground on the west side, however, would have a greater potential for impact. Former camping on the west side was often used by rock climbers and the same use could be expected in the future. Camping makes it more convenient for climbers to remain at Pinnacles, increasing the number of participants and the duration of time spent on the rocks. Although the effects of climbing on the monument's geologic resources are largely unknown, it is possible that there would be additional minor adverse impacts. In addition, authorization of commercial sale of climbing gear in the monument could increase similarly negligible impacts by making it easier for more visitors to climb. Zoning more of the High Peaks area as semi-primitive, would allow for higher use levels by individuals and groups and the associate negligible use impacts due to wear.

As in alternative B, adding a physical scientist to the staff would have long-term beneficial effects.

GEOLOGICAL RESOURCES – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

Impacts on geological resources under alternative D are likely to be very similar to the impacts described under alternative C. Additional trails, a small number of backcountry campsites, a walk-in campground on the west side, and commercial sale of climbing gear are all actions likely to result in a small increase in climbing activity and minor short- and long-term adverse impacts. Unlike alternative C, however, more of the monument would be zoned primitive, an indirect long-term beneficial effect from a decreased emphasis on increasing visitor capacities. As in the other action alternatives, beneficial effects would also occur from adding a physical scientist.

GEOLOGICAL RESOURCES – CUMULATIVE IMPACTS

Regional increases in air pollution may increase erosion through the effect of pollutants on rock, or may otherwise alter natural erosional processes by, for example, adversely impacting lichens. These effects are negligible to minor and adverse. The actions described in the alternatives above are not expected to add to the effects of pollution on rock surfaces in any perceptible way. Alternatives A and B would have minor long-term adverse effects on geological resources; and impacts in alternatives C and D would be slightly higher. Adverse impacts in alternatives B, C, and D would be partially offset by the addition of a physical scientist to the park staff. Overall cumulative impacts would remain minor under all alternatives.

GEOLOGICAL RESOURCES – CONCLUSION

Most of the monument's geologic resources would not be affected by the actions in the alternatives. Some features could be degraded or altered due to new developments, access opportunities, and increased visitor use in localized areas. These adverse impacts would be minor and long-term, although impacts could be slightly higher in alternatives C and D due to more trail development.

SOILS – IMPACTS FROM ALTERNATIVE A (NO ACTION)

Soils would likely continue to be disturbed, compacted, and eroded by visitors in localized areas, particularly along existing trails, near visitor facilities, and near social trails. Monument staff and visitors would continue to use existing trails and social trails, producing long-term, negligible to minor, adverse impacts, as long as travel is dispersed and infrequent. In some areas, new visitor-created, social trails may form with increased visitation or changes to visitation patterns, particularly in areas with high visitor use. These long-term, adverse visitor impacts on soils would likely be minor and limited in extent. A new South Wilderness Trail connection could also have localized negligible to minor impacts on soils.

SOILS – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

As in alternative A, soils would continue to be disturbed, compacted, and eroded by visitors in localized areas, particularly along existing trails, near visitor facilities, and in the vicinity of social trails. In alternative B, some soils would be degraded or lost to compaction, disturbance, erosion, or substantially altered in local areas due to development of new trails, relocation of the Chaparral parking area, and removal of buildings and structures. Site preparation and landscaping work would disturb soils temporarily, and soils would be modified in the footprint. Construction equipment would also disturb and compact soils in proposed project areas. With mitigation required by policy, these actions would have minor to moderate, adverse, short-term impacts on soils. Restoration of the Chaparral and Moses Spring parking areas to natural surfaces would have long-term beneficial impacts.

Efforts to remove social trails would help reduce soil degradation and result in long-term, localized, beneficial impacts on soils. Compaction and disturbance would be reduced compared to present conditions, a long-term, and beneficial effect. Instituting and monitoring user capacity indicators and standards should help ensure that an unacceptable increase in the number of visitor-created trails (and resulting increased soil disruption) does not occur. Compared to the no-action alternative, this alternative would result in a long-term, beneficial effect.

In some areas of the monument, new social trails may be created as visitation patterns change and new access trails are built. The long-term, adverse impacts on soils would likely be negligible to minor and localized.

Adding a physical scientist to the staff would result in an increased ability to proactively protect, monitor and respond to soil impacts, providing a beneficial long-term effect.

SOILS – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

In alternative C, some soils would be lost to degradation or substantially altered in local areas where ground disturbance occurs due to the development of new or expanded facilities, or the removal of facilities. Expanded recreational opportunities and additional trails could lead to minor to moderate adverse impacts. Diversification and intensification of recreational use could have minor to moderate impacts on soils along newly designated trails and adjacent areas. New construction of facilities in previously undisturbed areas, including an entrance station on the east side, new trails, primitive campsites on the west side, backcountry campsites, and equestrian staging areas, would cause minor to moderate, long-term, adverse impacts on the immediate area and minor, long-term impacts radiating outward from the sites. Other actions would occur in areas that have already been disturbed. These include facility improvements and redesign in the east side campground area. Little additional soil disturbance would be required for these projects, resulting in minor, long-term, adverse impacts on soils.

As in alternatives A and B, soils in the monument would likely continue to be compacted and degraded by hikers in local areas, such as along the sides of trails,

an ongoing minor adverse impact. In some areas, new social trails may form with increased visitation and new designated trails, particularly in areas with high visitor numbers. Instituting and monitoring user capacity indicators and standards would ensure that an unacceptable increase in the creation of visitor-created trails does not occur. Compared to the no-action alternative, this mitigation measure would result in a long-term, beneficial effect.

In this alternative, an equestrian trail would be constructed in the bottomlands area. Some portions of the trail would necessarily follow drainages and climb hill slopes, leading to the potential for new impacts from erosion. These adverse impacts could be minor to moderate, due to accelerated vegetation loss, trail widening, erosion, muddiness, and informal trail development often associated with equestrian use.

As in alternative B, adding a physical scientist would have beneficial long-term effects.

SOILS – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

Impacts on soils in alternative D would be the same as those in alternative C, with a few exceptions. Alternative D does not include equestrian use. Because more of the monument would be zoned primitive, there could be reduced trail use in some areas. Overall adverse impacts in alternative D would be minor to moderate, with the same beneficial effects as in alternative C.

SOILS – CUMULATIVE IMPACTS

Soils throughout the monument have been altered by past grazing practices and infrastructure development. The loss and alteration of soils due to past land uses and ongoing management actions under the alternatives would result in minor to moderate, adverse cumulative impacts on area soils.

When the potential minor long-term adverse effects from actions in alternatives A and B are added to past and future impacts external to the monument, there would continue to be a localized, minor to moderate, adverse overall cumulative impact on area soils. Alternatives C and D would have minor to moderate long-term adverse effects, which would not add appreciably to the minor to moderate cumulative impacts described above.

SOILS – CONCLUSION

Most of the monument's soils would not be affected by the actions proposed in these alternatives. In some areas, however, soils would be compacted and disturbed, and soil properties would be altered due to new developments and increased visitor use in localized areas such as along trails.

In alternatives A and B, adverse impacts would likely be minor, adverse, and long-term, with somewhat more potential for impacts in alternative B due to a higher level of trail development.

Alternative C would have a higher level of impacts, as well as the addition of equestrian use and a similar level of trail development to alternative B. These adverse impacts would likely be minor to moderate and long-term. Alternative D would have the same overall level of impact, but without equestrian use.

Establishing and monitoring user capacity indicators and standards would prevent the establishment of new visitor-created (social) trails and prevent resulting soil degradation resulting in long-term beneficial effects. Cumulative impacts would be long-term, minor to moderate, and adverse.

Hydrologic Systems and Processes, Including Wetlands and Floodplains

The area of consideration for this topic is surface waters within the monument. Available information on surface hydrologic systems, including surface hydrology, wetlands, and floodplains, was compiled. Potential impacts from management actions are based on professional judgment and experience with similar actions. The primary sources of impacts on hydrologic systems at the monument arise from modifications to streams and wetlands or changes to the flow, amount and/or timing of water and/or debris flowing into them. Modifications to streams and wetlands include structures in stream channels such as bridges and riprap or structures on floodplains such as buildings and elevated roads or trails, while the amount and/or timing of water or debris flowing into water may be affected by the amount of vegetation or paved areas in a watershed. The thresholds of change for the intensity of an impact are as follows.

Negligible: Effects on hydrologic systems, floodplains, or wetlands would be at or below the level of detection, would occur in a small area, and the changes would be so small that they would not be of any measurable or perceptible consequence.

Minor: Effects on hydrologic systems, floodplains, or wetlands would be detectable, but localized, small, and of little consequence.

Moderate: Effects on hydrologic systems, floodplains, or wetlands would be readily detectable and have

localized consequences or a measurable change to a hydrologic system.

Major: Effects would be obvious and would have widespread, substantial consequences on hydrologic systems, floodplains, or wetlands that would result in either a severely adverse or beneficial impact with regional consequences.

HYDROLOGIC SYSTEMS AND PROCESSES – IMPACTS FROM ALTERNATIVE A (NO ACTION)

Under alternative A, no new structures are planned that would either affect stream flow, alter or be developed in floodplains, affect wetlands, or increase the amount of hardened surfaces in the monument, with the exception of the South Wilderness Trail connection which would mostly be located on ridge tops and would have a negligible to minor localized adverse impact in a small area.

HYDROLOGIC SYSTEMS AND PROCESSES – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

Alternative B includes the possibility of removing/reconfiguring the Moses Spring parking lot to restore hydrologic processes in Bear Creek and to reduce impervious surfaces in Bear Gulch. This would produce long-term beneficial impacts on hydrology and restore natural floodplain and wetland values to the current parking area and below.

The Chaparral parking area and approach road would also be removed, allowing West Fork Chalone Creek to access its floodplain in that area and reducing hardened surface area on the west side, with expected long-term beneficial impacts on hydrology from increased infiltration and slower runoff.

Removal of the Chalone Peak fire lookout along with restoration of that site, as well as restoration of more perennial grasses in the bottomlands and along Sandy Creek, would have long-term beneficial impacts by reducing erosion due to storm runoff and increasing percolation in the former case and increasing resilience to the erosive nature of episodic flood events in the latter.

If the campground swimming pool is removed, long-term, minor to moderate, adverse impacts on streambanks in Sandy Creek and Chalone Creek could occur if visitors and campers enter those waters instead to cool off, increasing erosion along steep streambanks.

Alternative B includes the construction of additional trails in up to five areas. Trails sometimes alter runoff from hillsides and can also increase erosion. NPS Management Policies, however, require the monument to build sustainable trails that minimize these effects. These trails would also be subject to further environmental analysis as they are planned and designed. As a result, the trails would likely have minor, long-term, adverse effects.

The addition of a physical scientist to the staff would result in an increased ability to monitor, respond and proactively protect hydrologic systems and processes, providing a beneficial long-term effect.

HYDROLOGIC SYSTEMS AND PROCESSES – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

Equestrian use and bicycling on the bottomlands administrative road, as proposed in alternative C, could contribute to increased erosion, especially during the wet season when roads are muddy. These effects would be largely mitigated by limiting use when trail conditions are wet and because the proposed trail does not have any in-stream water crossings. Therefore, equestrian and bicycle use on the bottomlands park road would likely have negligible, long-term, adverse impacts.

Similar to alternative B, the construction of additional trails would have minor, long-term, adverse effects.

Construction of new or replacement facilities such as the East Pinnacles visitor center, backcountry campsites, picnic facilities, equestrian facilities, entrance station, and shuttle stop structures would take place on level ground outside of the 100-year floodplain and would therefore have minor adverse impacts on hydrologic systems and processes. Hardened parking, road widening, and pullouts to support these new services, however, would add to the amount of impervious surfaces on the east side and produce long-term, moderate, localized adverse effects. Additional environmental analysis would occur to support proposed construction once designs have identified building and circulation footprints.

The west side walk-in campground would be located and designed to minimize impacts on water resources but would increase the amount of bare ground and could contribute to additional runoff from compaction.

As in alternative B, removal of the Chaparral parking area, comfort station, picnic area, and approach road and the addition of a physical scientist to the staff would have long-term beneficial impacts on hydrologic systems and processes.

HYDROLOGIC SYSTEMS AND PROCESSES – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

Similar to Alternatives B and C, construction of additional trails would have minor long-term adverse effects on hydrologic systems and processes.

As in alternative C, the construction of new or replacement facilities such as the East Pinnacles visitor center, entrance station, and shuttle stop structures would be outside the100-year floodplain and would have minor to moderate long-term adverse impacts on hydrologic systems and processes from construction and from associated impervious surfacing for circulation. A better understanding of these impacts will result from additional environmental analysis. Because these facilities would be slightly smaller, there would be fewer impacts than in alternative C. However, these impacts would likely remain minor to moderate, and adverse.

Beneficial effects, similar to alternatives B and C, would include removal of the Chaparral parking area, comfort station, picnic area, and approach road and the addition of a physical scientist to the staff would have long-term beneficial impacts on hydrologic systems and processes.

HYDROLOGIC SYSTEMS AND PROCESSES – CUMULATIVE IMPACTS

Due to the generally steep terrain at the monument, most development has occurred in the relatively flat valley bottoms where it is most likely to impact hydrology. Many of the buildings, as well as roads, trails, parking lots, bridges, culverts, riprapped stream banks, and rock walls contribute cumulatively to degraded hydrologic function. These past actions have led to localized moderate, long-term, adverse impacts where these facilities occur within the monument. Alternatives A and B would contribute negligible to minor adverse effects on hydrology, while alternatives C and D could have moderate adverse impacts. The action alternatives would mitigate some impacts by the removal of some buildings and facilities, such as reconfiguration of the Moses Spring parking area (alternative B), removal of some facilities at Chaparral located in the floodplain (alternatives B, C and D), and constructing facilities out of floodplains (alternatives B, C and D). Compared to the effects of past development, however, these actions and modifications would not add appreciably to existing impacts on hydrological systems and processes. As a result, overall cumulative impacts under all alternatives would remain moderately adverse, with some long-term beneficial effects.

HYDROLOGIC SYSTEMS AND PROCESSES – CONCLUSION

Each alternative would benefit hydrologic systems and processes in some way. Long-standing cumulative impacts, due to the history of bottomland development both in the monument and by neighboring ranches, would continue to have moderate cumulative adverse impacts.

Alternative A would not contribute further impacts because it does not propose additional development that would affect hydrologic systems, floodplains, or wetlands. Alternative B combines increased restoration efforts, and associated beneficial impacts, with a limited amount of trail and recreation development, resulting in negligible to minor adverse impacts. Alternatives C and D propose more development, including a larger east side visitor center, a west side walk-in campground, and new trails, with moderate adverse impacts.

Water Quality

The area of consideration for this topic is the monument. Available information on water quality in the monument was compiled. Potential impacts from management actions are based on professional judgment and experience with similar actions. The thresholds of change for the intensity of an impact are as follows.

Negligible: Impacts (chemical, physical, or biological effects) would not be detectable, would be well within water quality standards or criteria, and/or would be within historical or desired water quality conditions.

Minor: Impacts (chemical, physical, or biological effects) would be detectable, but would be well within water quality standards or criteria, and/or within historical or desired water quality conditions. Short-term impacts would diminish quickly.

Moderate: Impacts (chemical, physical, or biological effects) would be detectable, but would generally be within water quality standards or criteria. There could, however, be short-term alteration of baseline or desired water quality conditions that would last longer or would be more widespread.

Major: Impacts (chemical, physical, or biological effects) would be detectable and long-term, or would be altered from the historical baseline or desired water quality conditions. Chemical, physical, or biological water quality standards or criteria would be periodically exceeded.

WATER QUALITY – IMPACTS FROM ALTERNATIVE A (NO ACTION)

Because water is relatively scarce in the environment, effects of management actions would continue to be localized and would affect specific water bodies, such as the Bear Gulch Reservoir, or Bear, Sandy or Chalone creeks. Surface water would continue to be affected by existing recreational use and existing development.

Maintaining access to and retaining facilities in the current condition would be unlikely to increase impacts on water quality. Long-term impacts in the monument would continue, including effects from development located in the floodplain that would continue to alter the passage and quality of water flow in some areas. In these areas water would flow around, rather than seep into the ground, thereby picking up and discharging contaminants into nearby water bodies more quickly, depending on how close these are to roads and parking areas. In these locations, contaminants in storm water from vehicle fluids that are deposited on hardened or surfaced and gravel roads would alter water quality conditions, including chemical and physical properties, with long-term negligible to minor impacts, during and following storms. Periodic storms could also cause dust from gravel roads in the bottomlands to wash into nearby streams, affecting turbidity. Ongoing erosion associated with existing facilities, such as trails, would also continue to occur.

Periodically, water quality at Pinnacles may also be affected by inadvertent spills (oil, paint, chemicals, etc.), removal of shade, loss or alteration of organic material (leaves, logs, etc.) entering streams or increased turbidity from erosion due to trampling/removal of vegetation or construction of trails, road maintenance activities, etc.

Because the creeks within the monument originate outside of it, there would also continue to be impacts on water quality from sources outside the boundary. Sources within and outside of the monument would continue to produce localized minor to moderate impacts on water quality throughout the monument (see cumulative impacts).

The existing Chaparral parking area and other facilities, located within the floodplain, would continue to contribute to long-term, minor to moderate, adverse

Bear Gulch Reservoir. NPS photo.

effects to water quality from runoff. Similarly, the existing Moses Spring parking lot, located within a major drainage, would continue to produce minor to moderate adverse impacts.

WATER QUALITY – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

Impacts on water quality from alternative B would be similar to those described under alternative A. Alternative B also includes the possibility of removing/reconfiguring the Moses Spring parking lot to restore hydrologic processes in Bear Creek. This would likely have long-term beneficial impacts on water quality. At Chaparral, the parking area and approach road would also be removed, allowing West Fork Chalone Creek to follow a more natural path and allowing for natural revegetation to occur, with expected beneficial impacts on water quality. As in alternative A, restoration in the bottomlands and along Sandy Creek would also have long-term beneficial effects.

The construction of new trails under alternative B could alter runoff from hillsides and increase erosion. Although mitigation measures would minimize these effects, it is likely that these trails would have negligible to minor long-term adverse effects, depending on their location. Additional site-specific environmental analysis would occur as plans for these are developed.

Construction would be designed to avoid impacts on water quality, with anticipated short-term minor adverse effects. In alternative B, this includes construction of a replacement East Pinnacles visitor center and entrance station. These structures would be built outside of the 100 year floodplain, would be constructed under current sustainability standards, and would be subject to future site-specific environmental analysis.

Removal of the existing campground swimming pool could have long-term minor adverse impacts on water quality in Sandy and Chalone creeks because visitors may seek an alternative water-based experience in and around Sandy Creek, a nearby natural source of water that could be degraded by additional recreational use. During hot summer days, visitors are drawn to water sources to cool off. If this recreational use occurs in Sandy or Chalone creeks, it would adversely affect water quality from the use of sunscreen, insect repellent, lotion, etc. entering the water, as well as from increased erosion due to trampling of stream bank vegetation. The portion of Sandy Creek within the campground is currently a high quality riparian habitat with perennial stream flow that supports many plant and animal species.

WATER QUALITY – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

Many of the same impacts in alternative B would also occur in alternative C, with some exceptions. The Moses Spring parking area would not be removed in alternative C. Also, the size and location of the replacement east side visitor center and entrance station would be different. Some additional uses would be allowed in alternative C, including equestrian use and bicycling. Slightly more miles of new trail would be constructed.

Equestrian and bicycling on dirt roads can contribute to increased erosion, especially during the wet season when roads are muddy. These effects, however, would be largely mitigated by limiting use when wet conditions exist. Thus, only minor to moderate long-term adverse effects would occur from equestrian and bicycle use. Because of the limited areas available for equestrian use, it would likely be limited to relatively flat areas and/or away from streams, therefore adverse impacts on water quality from horse feces or trampling would be minor.

Although there would be more new trails than in alternative B, mitigation measures would be the same and impacts would remain negligible to minor and localized.

As in alternative B, new construction on the east side (visitor center and entrance station) would be designed to avoid contributing to water quality impacts. Because this alternative calls for a larger east side development footprint, there would likely be more hardened (impervious) surfaces. Overall impacts, however, would remain short-term and minor. Water quality degradation due to runoff would be mitigated by developing sediment control plans and implementing best management practices.

WATER QUALITY – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

Impacts from actions in alternative D would be the same as in alternative C with minor adverse impacts occurring from the construction of a replacement visitor center, and entrance station, as well as beneficial impacts from restoration of the same areas. Unlike alternative C, there would be an increased emphasis on education and interpretation that would focus on the monument in its broader regional context. This would have long-term beneficial impacts on water quality at Pinnacles by raising awareness of water quality issues, likely resulting in fewer adverse impacts.

WATER QUALITY – CUMULATIVE IMPACTS

Due to the generally steep terrain at Pinnacles, most development and activities occur in the relatively flat valley bottoms where they are most likely to impact water quality. Runoff from hardened and/or impervious surfaces, including buildings, roads, trails, parking lots, campgrounds, and picnic areas may adversely affect water quality, due to sedimentation, introduction of contaminants, and increases in water temperature. The existing hardened surfaces in Pinnacles would continue to contribute to minor to moderate localized cumulative adverse impacts throughout the developed corridors. Potential sources of water quality degradation also exist upstream of monument boundaries, with possible external sources including ranching and other agricultural activities. Minor to moderate adverse effects from alternative A when combined with these ongoing impacts would result in moderate overall cumulative impacts. Actions in alternatives B, C, and D would have minor adverse impacts with some localized beneficial impacts from restoration and redevelopment (moving facilities out of the floodplain) However, these restoration and redevelopment actions would not outweigh the effects of most existing impacts, resulting in overall moderate adverse impacts on water quality.

WATER QUALITY – CONCLUSION

Alternative A would continue to produce minor to moderate adverse impacts on water quality throughout the monument due to the continuing impacts of existing infrastructure and activities in and upstream of monument watersheds and streams, particularly the existing campground, Moses Spring parking, and Chaparral parking areas.

Alternative B would produce minor adverse impacts on water quality due to the new construction of trails, an entrance station, and a visitor center. Beneficial impacts include removal of the Moses Spring and Chaparral parking areas.

Adverse impacts from alternative C would be minor, from a higher level of hardened surfaces to support increases in visitor facilities.

Adverse impacts from alternative D would also be minor, similar to alternative C. Increased outreach efforts would provide additional beneficial effects.

Natural Sounds

The area of consideration for this topic is the monument. The impacts described here are generalized, due to a lack of specific data, and apply to both visitors and wildlife. More direct examples of soundscape impacts to wildlife are described in the Wildlife and Federally Listed Threatened and Endangered Species sections. Context, time, and intensity together determine the level of impact for an action or activity related to soundscapes. Noise for a certain period and intensity would be a greater impact in a highly sensitive context, and a given intensity would be a greater impact if it occurred more often, or for longer duration. For example, in very low-level ambient soundscapes, like the wilderness, noises can be much more audible, thereby having greater impact intensities. It is usually necessary to evaluate all three factors together to determine the level of noise impact.

Negligible: Noise would rarely be greater than natural ambient sound levels, and/or there would usually be lengthy periods each day between noise events. Noise in a specific area would rarely result in a value for any noise metric that is more than a very small increment above the value for natural ambient sounds in the same area. Natural sounds would predominate.

Minor: Noise would be greater than natural ambient sound levels for a small portion of the day, and/or there would often be substantial periods each day between noise events. Noise in a specific area would rarely result in a value for any noise metric that is more than a small increment above the value for natural ambient sounds in the same area.

Moderate: Noise would be greater than natural ambient sound levels for an intermediate portion of the day, and/or there would rarely be more than intermediate periods each day between noise events, or the noise would be due to a short-term facility construction project. Noise in a specific area would rarely result in a value for any noise metric that is more than an intermediate increment above the value for natural ambient sounds in the same area

Major: Noise would be greater than natural ambient sound levels for a large portion of the day, and/or there would rarely be more than short periods each day between noise events. Noise in a specific area would often result in a value for a noise metric that is more than an intermediate increment above the value for natural ambient sounds in the same area.

NATURAL SOUNDS – IMPACTS FROM ALTERNATIVE A (NO ACTION)

The monument would continue to maintain existing facilities and roads with their associated sound levels. In developed zones, soundscapes would have minor to moderate, adverse impacts depending on increases or decreases in visitor use levels. During heavy visitor use periods, frequently used caves can be noisy, causing short-term, moderate, adverse impacts on soundscapes in the Bear Gulch and Balconies caves.

Large groups, including school groups, climbing groups, and other organized groups, sometimes adversely impact soundscapes on a short-term basis. In popular climbing areas, individuals often shout to communicate to fellow climbers. Park operations also contribute to soundscape impacts when machinery is used. Wilderness areas in many parts of the monument, particularly in the High Peaks area, are susceptible to unintentional operational and visitor use noise impacts because of their proximity to developed areas, their high levels of use, and the character of the rocky canyon landscape which carries sound from the lowlands up to the peaks. These adverse impacts would continue to be minor, with some minor to moderate localized impacts on peak days.

A South Wilderness Trail connection would be developed under this alternative. Due to its remoteness, this trail would likely receive little regular use. Therefore, adverse impacts on this previously rarely visited area would be negligible to minor. Short-term impacts associated with construction of this trail would also be negligible to minor, because the use of machinery would be limited by the minimum tool requirement.

NATURAL SOUNDS – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

New trails would be developed under this alternative, increasing the number of visitors in infrequently visited areas and creating short-term construction-related impacts. The actual construction of trails would have short-term, minor to moderate, adverse impacts. Because most (up to 10 miles) of the trail construction would occur in designated wilderness or areas zoned as primitive, construction impacts would be mitigated by the use of a minimum requirement / minimum tool analysis, as well as by time of day and time of year restrictions. Levels of visitor use on new trails would also be managed in accordance with primitive zone guidelines set to limit impacts on a variety of resources, including soundscapes, resulting in negligible to minor, long-term, adverse impacts on the monument's soundscape resources.

The new development or other ground-disturbing activities proposed in alternative B, including construction of an entrance station, and replacement of the east side visitor center, would have minor to moderate, short-term, adverse impacts on the monument's soundscape during construction, but would not increase long-term impacts because the development is located in areas currently used for visitor services.

Alternative B would have several beneficial impacts on soundscapes as a result of zoning more of the monument as "primitive" to protect wilderness character by managing overall levels of use. Large groups, in general, would not be encouraged and new facilities to accommodate them would not be built. The addition of new trails, a potential adverse effect, also would have beneficial effects from redistribution of use and dispersal of visitors away from heavily used areas. In addition, interpretation and education in the monument would be focused on wilderness values, including solitude and natural quiet. Visitors would learn the effects of their behavior on these values and behavioral change would be promoted.

NATURAL SOUNDS – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

Trail access would be developed in several new areas, increasing the number of visitors in infrequently visited areas. The actual construction of trails would cause short-term, negligible, adverse impacts. Most of these trails would improve access to rarely visited areas like Mt. Defiance and McCabe Canyon, causing visitor use impacts, including noise, in relatively undisturbed areas. These new trails could disperse some visitors away from currently heavily used trails, providing some beneficial impacts throughout the monument, even as localized impacts increase in specific areas. Localized, adverse noise impacts would be minor on most of the new trails, because of their more remote locations. The proposed bottomlands, valley oak, and west side interpretive loop trails may experience the most use due to their ease of access. These trails could experience minor to moderate adverse impacts. The construction of new trails in alternative C would have similar negligible to minor, short-term, adverse impacts for trails located in wilderness areas as described under alternative B. Construction of new trails outside of wilderness could bring minor to moderate adverse impacts, depending on whether mechanized construction tools are used. The impacts of trail design and construction, along with alternatives, would be further analyzed through site-specific trail planning before any construction is undertaken.

Other new development or ground-disturbing activities in alternative C, including construction of a replacement entrance station and East Pinnacles

visitor center, a new west side walk-in campground, new backcountry campsites, new equestrian staging areas, campground reconfiguration, and the removal of the Chaparral parking area would have minor to moderate, short-term, adverse impacts on the monument's soundscape during installation. These facilities would also accommodate more visitor and vehicle use in the monument, potentially increasing noise levels in the campground area and causing minor to moderate localized, long-term, adverse impacts.

On the infrequently visited bottomlands, noise levels would increase with equestrian use, new operational uses at the Bacon House, and the new culturally immersive visitor experiences at the Butterfield homestead. These new uses, taken together, would have minor to moderate adverse impacts on natural soundscapes.

NATURAL SOUNDS – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

Impacts on natural quiet and soundscapes would be similar to those described for alternative C, except that long-term effects would be slightly less adverse in the bottomlands because equestrian facilities and access would not be provided.

NATURAL SOUNDS – CUMULATIVE IMPACTS

Soundscape levels associated with human activities outside of the monument vary depending on location within the monument. The main impacts are from high altitude commercial jets and general aviation traffic, agricultural activities on private lands, and vehicle noise from nearby roads. The sound of passing vehicles on Highway 25 can be heard from the bottomlands and adjacent canyons, including portions of the Ben Bacon Ranch Historic District, with minor to moderate adverse impacts. During several months of the year, vineyards use propane cannons to deter birds from feeding on grapes. These cannons produce a loud "bang" approximately twice per minute. Currently they can be heard on the extreme east side of the monument (portions of the Ben Bacon Ranch Historic District) and for the uppermost mile of the North Chalone Peak Trail and all of the South Chalone Peak Trail (primarily designated wilderness). Visitors to these areas experience moderate seasonal impacts on the natural soundscape. When the minor to moderate long-term adverse effects of the actions under alternatives A, B, C, and D are added to the effects of actions outside the monument, they would continue to result in a long-term, minor to moderate, adverse overall cumulative impact on the monument's soundscape.

NATURAL SOUNDS – CONCLUSION

New facility proposals, including trails, are conceptual in nature and illustrate the desired condition for visitor services and facilities in particular areas. All of the new construction described in the alternatives would require site-specific planning, siting, and design, including further environmental compliance.

Long-term adverse impacts under alternative A would be minor to moderate, due to ongoing impacts in developed areas, along trails, and in caves. Some negligible to minor short-term impacts would occur due to construction of the South Wilderness Trail connection.

Long-term impacts associated with monument operations and visitor use in alternative B would have a minor to moderate, adverse impact. Short-term adverse impacts due to construction of trails and facilities would be minor to moderate. Some beneficial effects would be realized from the interpretive programming focus on wilderness values.

Long-term impacts associated with monument operations and visitor use in alternatives C and D would have minor to moderate adverse impacts. In some specific areas with visitor facilities there would be short-term, minor to moderate adverse impacts from visitors, vehicles, construction, and maintenance.

Vegetation

The area of consideration for this topic is the monument. Available information on vegetation in the monument was compiled. Potential impacts from management actions are based on professional judgment and experience with similar actions. The thresholds of change for the intensity of an impact are as follows.

Negligible: Impacts on vegetation (individuals or communities) would not be measurable. There would be no detectable change in the native plant community. The abundance or distribution of individuals would not be affected or would be slightly affected. Local or regional populations and communities would not be affected.

Minor: Actions would affect the abundance or distribution of individuals in a localized area but would not affect the viability of local or regional populations or communities. The impact would be slight, but detectable. The overall native plant community would not be affected and, left alone, would recover.

Moderate: Actions would affect a local population sufficiently to cause a change in abundance, distribution, quantity, or quality, but would not affect the viability of the regional population or communities. The impact would be localized and restricted in size.

Major: The impact to the native plant community would be substantial, highly noticeable, and long-term. Actions could also affect a regional or local population of a species sufficiently to cause a change in abundance or in distribution to the extent that the population or communities would not be likely to return to its/their former level. Ecological processes would be altered.

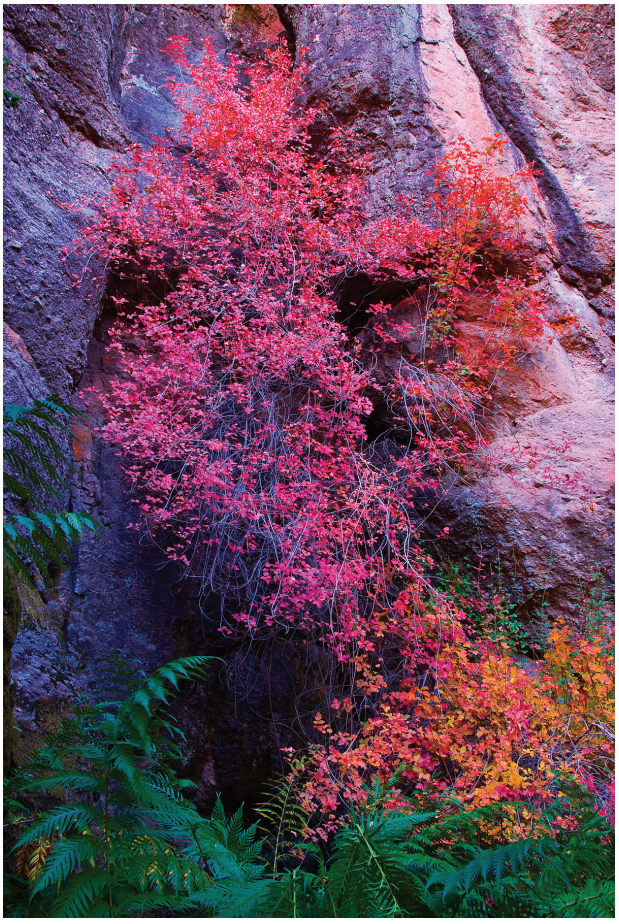
VEGETATION – IMPACTS FROM ALTERNATIVE A (NO ACTION)

Ongoing vegetation impacts would include damage to or loss of native vegetation due to maintenance activities, minor modifications to developed areas, recreational use, including trampling and soil compaction, and the spread of non-native species. Among the actions in alternative A that would have adverse effects include actions related to development such as stabilization or rehabilitation of historic structures, trail maintenance and construction, recreational use, and nonnative invasive plant introduction. Ongoing treatment and restoration efforts would provide beneficial impacts.

Alternative A contains some planned small-scale development, including a new South Wilderness Trail connection and work on historic structures, which would likely result in the loss or disturbance of vegetation, providing ways for invasive species to establish, resulting in long-term, localized, negligible to minor adverse impacts. Shade structures in the Chaparral picnic area would have negligible to minor impacts on vegetation because of existing compaction and sparse plant growth on this already compacted site.

Reconfiguration of the campground to protect sensitive resources by removing campsites from the riparian corridor would have long-term beneficial impacts from restoration of native communities.

Some vegetation may be damaged or lost near popular use areas in the monument due to human created social trails. Although these impacts would be unlikely to affect the integrity, distribution, or presence of native plant communities in the monument, they would have localized effects and would encourage additional loss of vegetation over time as more people used the social trail. Overall, visitor use would likely continue to have a localized long-term minor adverse impact on the monument's native vegetation.



Photos (top to bottom): 1. Miner's lettuce. Photo by Debbie Delatour, Artist in Residence. 2. Poison oak shows its fall colors. Photo by Gavin Emmons © 2011. 3. Shooting stars. Photo by Debbie Delatour, Artist in Residence.

In addition to direct loss of vegetation through the creation of social trails or trampling, there would be localized, long-term, minor adverse impacts from current visitor use levels and from the potential for increased visitor use levels to impact native plant populations through the introduction and spread of nonnative invasive plants. Current nonnative invasive plant control, including selective treatment of nonnative invasive plants and prescribed fire would continue to result in long-term beneficial effects on native vegetation. Ongoing use of integrated pest management (IPM) measures would also continue to contain the spread of some nonnative invasive species in limited areas. Even with IPM and visitor education efforts, some nonnative invasive plants might be introduced or spread by visitors (as well as by wildlife and vehicles) in the monument.

Pockets of nonnative species would continue to be present in the monument and would potentially spread to new developed areas. It is difficult to determine the impact this would have on native species, due to uncertainties about the type of species that might be introduced and the locations and frequencies of such introductions. It is likely that even with continuing monitoring and weed control efforts the impacts would be long-term, adverse, and minor to moderate.

Long-term beneficial impacts would be realized from ongoing restoration efforts, including habitat areas in the bottomlands and McCabe Canyon. Some restoration is also planned for the west side where facilities are being replaced. Current efforts to eradicate nonnative species and replace them with native species on the bottomlands would continue.

VEGETATION – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

The monument's commitment to removing unnecessary structures and minimizing its development footprint would result in long-term beneficial impacts, because revegetation would follow construction activities. Alternative B would have a greater degree of restoration and would remove infrastructure from the primitive zone. This would result in long-term beneficial impacts by restoring native plant communities and populations in those areas.

Revegetation of the riparian area currently impacted by the Moses Spring parking area would have additional beneficial impacts by increasing the overall area of vegetation and eliminating impacts associated with road run-off in this area.

A replacement visitor center, replacing the current building in the same location and an entrance station would be provided in the vicinity of the campground. Because these facilities would be concentrated in the already developed and disturbed campground area or along the road corridor, adverse impacts associated with these facilities would be negligible.

New trail access in little used areas could potentially provide new opportunities for the spread of invasive species. Adverse impacts could occur on the trail accessing the bottomlands and the adjacent hills to the east. This trail is likely to experience frequent use, because it connects directly to the visitor center and campground, and would traverse previously disturbed areas. Minor to moderate adverse impacts could result. Connections to the North Wilderness Trail through or above McCabe Canyon could also produce negligible to minor adverse impacts through the introduction of invasives in previously unimpacted areas.

VEGETATION – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

Alternative C would have many of the same impacts as the other action alternatives, with additional adverse impacts from new equestrian use in the bottomlands. Although the monument would allow equestrian use only after high priority non-native invasive weeds have achieved control status, only on the bottomlands, and away from riparian areas, such use would likely bring in new non-native species from outside of the park. Best practices cannot provide absolute control of invasive species. Thus, equestrian use by visitors is likely to result in minor to moderate long-term adverse effects. Because, however, equestrian use would not occur in riparian areas, there would be fewer impacts.

In addition, facilities that accommodate equestrian use, such as trailer parking, watering troughs, and hitching posts have the potential to cause further damage. These facilities, however, would be limited to previously disturbed areas in the vicinity of the campground and bottomlands, keeping adverse impacts to minor levels.

A small number of backcountry campsites may be designated, leading to long-term negligible adverse effects from the small increase in disturbance to vegetation and potential associated spread of invasive species from increasing bare ground. On the west side, a new walk-in campground would likely bring moderate adverse impacts to that area for similar reasons.

The larger replacement visitor center on the east side could cause long-term minor adverse impacts due to its increased footprint. Existing infrastructure necessarily locates the visitor center in already disturbed areas, but the development footprint would be larger when parking is also added. Mitigation on this site would include native plant landscaping, revegetation, and early detection of nonnative plant populations.

New trails connecting the campground to the North Wilderness Trail and providing access to McCabe Canyon would be provided, creating increased vector opportunities for invasive species in this large area and minor to moderate adverse impacts. Likewise, other proposed trails in similarly unfrequented locations could potentially provide new opportunities for invasive species.

Because the focus of invasive plant control would be in visitor use areas, other areas may receive less attention, resulting in long-term minor to moderate adverse effects on native vegetation, due to the loss or alteration of native communities in some areas.

VEGETATION – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

Alternative D would have the same impacts as alternative C, with several exceptions, listed below.

The focus of invasive plant control measures would not be as limited to high use areas as described in alternative C. Generally, invasive plant control under alternative D would be a beneficial impact on the monument's vegetation.

Equestrian uses would not occur under alternative D.

A greater emphasis on science and history learning would elevate visitor awareness of invasive species spread and could prompt behavior that mitigates some of the impacts of visitor use, resulting in beneficial effects.

VEGETATION – CUMULATIVE IMPACTS

Actions outside of the monument would likely continue to affect the area's native vegetation. Over time, many native plant communities have been affected by human activities such as agricultural operations, grazing, construction, and other development both within and outside of the monument, causing moderate, long-term, adverse impacts on native vegetation in the monument. Minor to moderate impacts from alternatives A-D would not add appreciably to these cumulative impacts because they would primarily occur in developed areas and would be small in comparison. Ongoing and proposed restoration efforts, however, would benefit some areas, resulting in overall minor to moderate adverse effects on native vegetation in the monument.

VEGETATION – CONCLUSION

Under alternative A, long-term, moderate, adverse impacts would occur in local areas due to visitor use, the continuing spread of weeds, and small-scale development. Current weed control efforts would continue to result in long-term beneficial effects in other areas.

Long-term, minor to moderate, adverse impacts would occur in local areas under alternative B, due to current visitor use levels and the introduction of visitors to new areas. An emphasis on restoration, however, would lessen this overall impact.

Alternative C would have moderate, long-term, adverse impacts on native vegetation, primarily from equestrian use, visitor use in remote areas and new infrastructure. Alternative D would have minor to moderate, long-term, adverse impacts on native vegetation, primarily from new visitor use in remote areas and new infrastructure. Regional issues with invasive species would continue to affect the monument, and added to the actions in this alternative, would result in minor to moderate adverse impacts on vegetation.

Viewsheds and Scenic Resources

The area of consideration for this topic is the monument. Potential impacts from management actions are based on professional judgment and experience with similar actions. Important viewsheds within the monument include those areas visible from the High Peaks, including the Chaparral area on the west side, and views near the two monument entrances. The thresholds of change for the intensity of an impact are as follows:

Negligible: The effects would be barely detectable and would not be expected to have a discernible effect on scenic/visual resources and viewsheds.

Minor: The effects would be slightly detectable, though would not be expected to have an overall effect on scenic/visual resources and viewsheds.

Moderate: The effects would be clearly detectable and could have an appreciable effect on scenic/visual resources and viewsheds.

Major: The effects would have substantial, highly noticeable influence and could permanently alter scenic/visual resources and viewsheds.

VIEWSHEDS AND SCENIC RESOURCES – IMPACTS FROM ALTERNATIVE A (NO ACTION)

In alternative A, no new developments are proposed that would impact scenic views within the monument.

Some existing structures and improvements within the monument, including roads and trails, are visible from backcountry and wilderness areas, the High Peaks, and monument entrances, and would continue to impact viewsheds within the monument with minor effects.

VIEWSHEDS AND SCENIC RESOURCES – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

Under alternative B, much of the monument would be zoned primitive. This zoning would limit development, resulting in beneficial impacts. Negligible to minor adverse long-term impacts on viewsheds could occur with the construction of a replacement entrance station on the east side, depending on its exact location. Because the proposed small visitor center, would replace the existing visitor center in its current location, it would not add to viewshed impacts. Activities related to construction, maintenance, and rehabilitation of facilities would have minor to moderate, short-term visual impacts.

Additional trail access to new areas is proposed under alternative B. Because the trails would primarily fall within the primitive zone, they would be designed to be compatible with wilderness resources, and would therefore have negligible long-term adverse impacts on viewsheds.

Removal of the highly visible Chaparral parking area and road from the overflow lot turnoff to the parking area would benefit viewsheds from the western side of the High Peaks.

VIEWSHEDS AND SCENIC RESOURCES – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

Negligible to minor impacts associated with new trails and a new entrance station, minor to moderate short-term impacts associated with construction, maintenance, and rehabilitation, and beneficial impacts from the removal of the Chaparral parking area would be the same as in alternative B.

In addition, the construction of a replacement visitor center, picnic area, equestrian staging areas, and the additional parking to serve these facilities could have varying effects on views from the High Peaks or east entrance, depending on location. Although these facilities would be located in the vicinity of the existing

developed campground area, they could slightly increase the development footprint or slightly increase the facilities visible from some trails, resulting in long-term negligible to minor impacts.

VIEWSHEDS AND SCENIC RESOURCES – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

Impacts under alternative D would be the same as those under alternative C, but with slightly fewer potential impacts due to the lack of equestrian facilities on the bottomlands.

VIEWSHEDS AND SCENIC RESOURCES – CUMULATIVE IMPACTS

Several communities and homes outside of the monument, along with many agricultural facilities, fields, and vineyards can be seen from various areas within the monument, including the High Peaks, the east entrance, and backcountry areas. Potential future development outside of the monument could affect visual resources by altering scenic landscapes. As both San Benito and Monterey counties continue to grow in population, further impacts are foreseeable. These adverse impacts are currently minor but are reasonably foreseeable to become moderate in intensity. The negligible to minor long-term adverse effects in alternative A combined with these cumulative impacts would result in overall minor to moderate impacts. The beneficial and negligible to minor adverse effects of the action alternatives combined with cumulative impacts would also range from minor to moderate in overall impacts.

VIEWSHEDS AND SCENIC RESOURCES – CONCLUSION

Alternative A would have negligible to minor, long-term, adverse impacts on visual resources, primarily from visible infrastructure both within and outside of the monument.

Under alternative B, primitive zoning in many areas of the monument would limit development, resulting in beneficial impacts. Overall impacts from additional development and infrastructure would be negligible to minor. Alternatives C and D would also have negligible to minor long-term adverse impacts on scenic resources, primarily from development.

Minor to moderate short-term impacts would occur due to construction, maintenance, and rehabilitation projects under all alternatives.

Wildlife and Wildlife Habitat

The area of consideration for this topic is the region. Impacts on wildlife are closely related to impacts on habitat. The evaluation considered whether actions would be likely to displace some or all individuals of a species in the park or would result in loss or creation of habitat conditions needed for the viability of local

or regional populations. Available information on wildlife and wildlife populations was analyzed. Focal species include rare and endemic species, Species of Special Concern, migratory birds, and all other wildlife species other than those listed as federally threatened or endangered. Predictions about short- and long-term impacts were based on previous studies of impacts on natural resources and recent monitoring data from the park. The thresholds of change for the intensity of an impact are as follows.

Negligible: Effects on wildlife would be at or below the level of detection, would be short term, and the changes would be so slight that they would not be of any measurable or perceptible consequence to the species' population.

Minor: Effects on wildlife would be detectable, but localized, small, and of little consequence to the species' population.

Moderate: Effects on wildlife would be readily detectable but localized, with consequences at the population level.

Major: Effects on wildlife would be obvious and would result in substantial consequences to the wildlife populations at the regional level. The change would result in a severe adverse or major beneficial impact, and possible permanent consequence on the species' extent in the monument.

WILDLIFE AND WILDLIFE HABITAT – IMPACTS FROM ALTERNATIVE A (NO ACTION)

In this alternative, existing natural resource management activities would continue. Management decisions would continue to be science-based, including results presented in peer-reviewed journals and from monitoring programs focusing on raptors, exotic pigs, and bats in the caves. Removal of nonnative invasive species and restoration of degraded areas such as in the bottomlands would also continue, resulting in long-term beneficial effects on wildlife species through habitat improvement.

New construction, such as the South Wilderness Trail connection and shade structures at the Chaparral picnic area would have negligible short- and long-term adverse impacts on wildlife and wildlife habitat, primarily from noise and activity associated with construction as well as from use of the trail corridor when complete.

Provision of wireless internet services may have an unknown level of adverse impact on species. The biological effects of EMF radiation from devices such as wireless internet transmitters are unknown, but some evidence suggests it may be biologically harmful.

WILDLIFE AND WILDLIFE HABITAT – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCE)

Under this alternative, limitations on intrusive research and monitoring methods could result in minor long-term adverse impacts due to reduced staff and public awareness of trends and conditions related to habitat.

Removal of the swimming pool is likely to increase recreational use of streams which may disturb frogs, damage habitat, and introduce chemicals into the aquatic system, resulting in minor long-term adverse impacts.

Long-term beneficial impacts would be expected from removal/reconfiguration of the Moses Spring parking area and removal of the Chaparral parking area, due to improved stream function, riparian habitat, and habitat connectivity. A greater emphasis on detection and prevention of invasive species throughout the monument, as well as increased restoration efforts in the bottomlands and riparian areas along Sandy Creek, would also result in long-term beneficial effects.

The emphasis of this alternative on dispersing visitor use would likely have mixed effects. New trails would bring people into areas previously visited only rarely by humans, potentially increasing wildlife disturbance and habitat degradation in those areas. But visitor use of existing trails would presumably decrease, lessening such effects there. The possible institution of group size limits might also benefit wildlife, although the resulting lower intensity but more constant human presence might cause comparable levels of disturbance to wildlife. New trails have the potential to spread invasive plants to new areas of the monument, with long-term negligible to minor adverse impacts on wildlife due to habitat loss or alteration, but ongoing invasive control efforts will reduce the adverse impacts.

WILDLIFE AND WILDLIFE HABITAT – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

Under Alternative C, the monument would emphasize serving multiple audiences through a wide variety of media and programming, increasing opportunities for visitor involvement in conservation and understanding of wildlife issues. This higher level of engagement would increase visitor and public support, understanding, and cooperation, resulting in potential long-term beneficial impacts for all species.

Adaptive re-use of the Bacon Barn and replacement of the visitor center with a larger structure would increase noise and human presence in those areas.

More of the monument (especially the riparian and valley oak woodlands which are critical for wildlife) will be zoned to as "semi-primitive" and "frontcountry" and a greater variety of group sizes and visitor activities will be encouraged. Together, these actions are expected to result in long-term minor to moderate adverse wildlife impacts.

Equestrian use and backcountry camping have the potential to adversely impact wildlife. The provision that these will only be allowed if they do not detract from resource values is intended to minimize such impacts.

Bicycle use will introduce novel noise pollution and fast-moving objects, likely resulting in minor long-term adverse impacts on wildlife through disturbance.

Impacts from new hiking trails are expected to be similar to those in alternative B.

The new west side walk-in campground is expected to have localized minor long-term adverse effects on wildlife and wildlife habitat, in part because it will increase human presence at night where currently there is very little use.

Because the focus of invasive plant control would be in visitor use areas, other areas may receive less attention, resulting in long-term minor adverse effects on wildlife, due to the loss or alteration of native habitat in some areas.

WILDLIFE AND WILDLIFE HABITAT – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

This alternative's strong emphasis on natural resource stewardship and ecological restoration throughout the monument would result in long-term beneficial impacts on wildlife.

Alternative D is otherwise expected to have similar impacts on wildlife and wildlife habitat as alternative C, with the exception of those related to equestrian use, which is not included in this alternative, and invasive plant control measures, which will be applied to more areas of the monument.

WILDLIFE AND WILDLIFE HABITAT – CUMULATIVE IMPACTS

Over time, the conversion of some of the lands surrounding the monument to intense agricultural and housing developments has resulted in the loss of wildlife and wildlife habitat. Combined with the purposeful eradication of predators throughout the early part of the twentieth century, this has resulted in reduced populations or extirpation of some species. Ongoing efforts to control "varmints" on neighboring lands may upset the natural predator-prey relationships in the area, and may also result in taking or poisoning of wildlife species that move across monument boundaries. With ongoing changes to nearby private lands, a wide range of long-term adverse impacts on wildlife is possible, especially through habitat loss. However, some activities on neighboring lands have resulted in long-term beneficial impacts on wildlife and wildlife habitat. For example, artificial stock ponds provide habitat for aquatic species that may have inhabited backwaters of the Salinas River, a habitat that has largely disappeared.

Some ongoing NPS activities have never been thoroughly analyzed and may not be addressed elsewhere in this document because they are common to all alternatives, yet they may contribute to impacts on wildlife and wildlife habitat. The visitor shuttle has changed the distribution and numbers of visitors on trails in the core of the monument. Whereas visitor use of these trails was historically regulated by the size of nearby parking lots which filled up quickly on busy days, the shuttle now delivers people to trailheads in waves throughout the day, resulting in increased human disturbance to wildlife. Management has focused on how to maximize the number of visitors served by the shuttle, rather than mitigating its effects on resources.

Most of the monument's parking lots, picnic areas, and buildings and many of the roads and trails are located in riparian and valley oak woodland habitat. These areas are flat and shady, making them desirable to humans and easy locations for construction. The Moses Spring Parking lot, Pinnacles Campground, and

Turkey vultures on the High Peaks. NPS photo.

Bear Gulch area adversely impact wildlife by altering habitat and stream hydrology and disturbing natural wildlife behavior and movements. Noise and light pollution and trimming/removal of trees for human safety lower the quality of wildlife habitat in these portions of the park's limited riparian and valley oak woodland habitat. This directly and indirectly impacts a wide variety of wildlife species including nesting raptors and other birds, aquatic and terrestrial amphibians and invertebrates, and large mammals and other animals that visit streams to drink. Plans to remove/reconfigure the Moses Spring parking lot and reconfigure the campground to protect sensitive riparian areas, if implemented, would reduce, but not eliminate these minor to moderate, adverse impacts. When proposed actions are evaluated in the context of the limited extent of these habitats and existing developments, the importance of their adverse impacts is magnified.

All alternatives would have minor beneficial impacts from research, interpretation, and restoration efforts, with slightly higher beneficial impacts from restoration of the Moses Spring parking lot in alternative B and Chaparral parking lot in alternatives B and D and from increased visitor education and engagement in alternatives C and D. When the likely minor to moderate effects of alternatives A-D are added to these beneficial impacts and the minor to moderate cumulative impacts described above, there would continue to be long-term minor to moderate overall cumulative adverse impacts on wildlife.

WILDLIFE AND WILDLIFE HABITAT – CONCLUSION

Alternative A would have minor to moderate adverse impacts on wildlife and wildlife habitat from new and existing developments and the visitor shuttle. Minor beneficial impacts would result from the continuation of research, interpretation, and restoration efforts.

Alternative B would have moderate adverse impacts due to a decrease in research, the removal of the swimming pool, and new hiking trails. Minor to moderate beneficial impacts would arise from restoration of the Moses Spring and Chaparral parking lots and the greater emphasis on controlling invasive species throughout the monument.

Alternative C would have minor to moderate adverse impacts due to a shift of focus for invasive plant control from park-wide to visitor use areas, in addition to impacts from equestrian and bicycle use, backcountry camping, the shuttle, existing developments, and new developments focused in riparian and valley oak woodland habitat. Minor to moderate beneficial impacts would result from an increased emphasis on interpretation and engaging the public in stewardship activities.

California red-legged frog eggs. Photo by Paul G. Johnson

Adverse impacts from alternative D would be similar to impacts from alternative C, minus those related to equestrian use and a narrower focus on invasive plant control. Beneficial impacts would also be similar to those of alternative C, with additional benefits to wildlife and wildlife habitat from increased visitor and citizen engagement in wildlife and habitat issues along with greater restoration efforts focused on areas with the greatest ecological benefit.

Federally Listed Threatened and Endangered Species

The area of consideration for this topic is suitable and known occupied habitat in the monument. Information on federally listed Threatened and Endangered species was gathered from responsible agencies, research, and specialists. Known locations of habitat associated with these species were compared with locations of proposed development and facilities, and modifications of existing facilities. Effects on other sensitive wildlife species (State Species of Special Concern, rare/endemic species, etc.) are addressed in the Wildlife and Wildlife Habitat section, as these species are so numerous and varied that impacts on them closely mirror impacts on wildlife in general.

In accordance with language used to determine effects on Threatened and Endangered species under the

federal Endangered Species Act (ESA) potential effects are categorized as follows (USFWS 1998):

No Effect: The project (or action) is located outside suitable habitat and there would be no disturbance or other direct or indirect impacts on the species. The action would not affect the listed species or its designated critical habitat (USFWS 1998).

May Affect, Not Likely to Adversely Affect: The project (or action) occurs in suitable habitat or results in indirect impacts on the species, but the effect on the species is likely to be entirely beneficial, discountable, or insignificant. The action may pose effects on listed species or designated critical habitat but given circumstances or mitigation conditions, the effects may be discounted, insignificant, or completely beneficial. Insignificant effects would not result in take. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not 1) be able to meaningfully measure, detect, or evaluate insignificant effects or 2) expect discountable effects to occur (USFWS 1998).

May Affect, Likely to Adversely Affect: The project (or action) would have an adverse effect on a listed species as a result of direct, indirect, interrelated, or interdependent actions. An adverse effect on a listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions and the effect is not discountable, insignificant, or beneficial (USFWS 1998).

Is likely to jeopardize proposed species / adversely modify proposed critical habitat: This is the appropriate conclusion when the National Park Service or the U.S. Fish and Wildlife Service identifies situations in which an action could jeopardize the continued existence of a proposed species or adversely modify critical habitat for a species within or outside park boundary.

The thresholds of change for the intensity of an impact are defined as follows.

Negligible: The action would have no measurable effect to a listed species, suitable, potential, or critical habitat, resulting in a "no effect" determination.

Minor: The action would be discountable (extremely unlikely to occur) or insignificant (not able to be meaningfully measured, detected, or evaluated) and would result in a "may affect, but not likely to adversely affect" determination. It would require informal consultation with the U.S. Fish and Wildlife Service.

Moderate: An action that would result in an insignificant change to a population or individuals of a species or designated critical habitat. Any change would be small and localized and of little consequence, and would most likely result in a "may affect, and is likely to adversely affect" determination. It would require formal consultation with the U.S. Fish and Wildlife Service.

Major: An action that would result in a noticeable change to a population or individuals of a species or designated critical habitat. Any adverse effect to the species that may occur as a direct or indirect result of the alternative and the effect is not discountable, insignificant, or completely beneficial. Incidental take is anticipated to occur as a result of the action. The change would result in a "may affect, and is likely to adversely affect" determination and would require formal consultation with the U.S. Fish and Wildlife Service.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES – IMPACTS FROM ALTERNATIVE A (NO ACTION)

One federally listed Endangered species, the California condor (*Gymnogyps californicus*), and two federally listed Threatened species, the California red-legged frog (*Rana aurora draytonii*) and California tiger salamander (*Ambystoma californiense*), are found in Pinnacles National Monument. In this alternative, existing natural resource management activities would continue, including raptor monitoring, reestablishment of the California condor, control of exotic species, and restoration efforts in the bottomlands and other degraded areas. These activities would result in long-term beneficial effects on all three listed species.

There would be a continuing minor to moderate long-term adverse impact to California red-legged frogs at the Moses Spring parking lot. Its use and its hardened surface disrupt the movement of frogs up and down this important corridor, and it may have been built on the site of a breeding pond. Frogs' behavior may be disturbed by cars and people, and frogs may be killed when they venture onto roads. The alteration to stream hydrology caused by the presence of the parking lot is likely causing adverse impacts on downstream habitat. The location of the campground along prime perennial stream habitat in the monument would continue to have minor to moderate effects on California red-legged frogs. This is primarily due to high levels of human presence, with associated noise and light pollution, and the inadvertent feeding of raccoons which may then prey on frogs. An unstudied possibility which has been documented elsewhere is that chemicals such as pharmaceuticals may enter groundwater from septic systems and end up in streams, potentially affecting frogs. Leach fields in the campground and elsewhere in the monument are located adjacent to streams. Similar effects to all of the above may occur due to the presence of roads, parking lots, and Park Headquarters in the Bear Gulch area.

New construction, such as the South Wilderness Trail connection and shade structures at the Chaparral picnic area would have negligible adverse impacts on listed species and their habitat. The new trail would bring a small number of additional visitors into areas that are currently rarely visited, but would not impact critical habitat. The trail would have no measurable effect to a listed species, suitable, potential, or critical habitat, resulting in a "no effect" determination

Provision of wireless internet services in the campground area may have an unknown level of adverse impact on listed species. The biological effects of electromagnetic radiation (EMF), from devices such as wireless internet transmitters, are unknown, but some evidence suggests it may be harmful. Because the effects cannot at this time be meaningfully measured, detected, or evaluated, these adverse impacts are considered to be negligible and would result in a "no effect" determination under the ESA for all listed species.

Continuation of the California condor reestablishment program would have beneficial effects on the recovery of this listed species. Currently, the monument manages 32 free-flying condors, monitoring each bird and providing health checks after its wild release from captive breeding efforts to increase its chance of survival. The monument works with academia and other technical experts to inform and direct restoration efforts. Other partners in condor recovery include the Amah Mutsun Tribal Band and other California Indian tribes to acknowledge, incorporate and perpetuate the cultural importance of the condor.

Successful recovery of the California condor is jeopardized by fatalities and compromised health caused by lead exposures. The leading anthropogenic cause of death and debilitation of California condors is lead toxicity. The primary source of lead exposures among condors is from ammunition sources inadvertently ingested from animal carcasses. Pinnacles National Monument works with partners across the nation to disseminate information on lead impacts on wildlife and viable non-lead ammunition alternatives. The Special Research zone would continue to remain closed under all alternatives. Alternative A would not have a measurable adverse effect to California condors or their habitat, resulting in a "no effect" determination.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCE)

Removal of the swimming pool could indirectly increase visitor use of California red-legged frog stream habitat, disturbing frogs, damaging habitat, and introducing chemicals into the aquatic system, resulting in localized adverse impacts. Reconfiguring the campground, however, to protect sensitive resources, would benefit red-legged frog habitat. Monitoring of the riparian zone, as described in the *User Capacity* section, would further mitigate adverse impacts. Impacts due to removal of the swimming pool on California red-legged frogs would be long-term and minor, resulting in a determination of "may affect, likely to adversely affect" determination under the ESA.

Although short-term impacts could be minor and adverse, long-term beneficial impacts would result from removal of the Moses Spring parking area, due to improved habitat and habitat connectivity for California red-legged frogs. This action, coupled with a greater emphasis on detection and prevention of invasive species throughout the monument, as well as increased restoration efforts in the bottomlands and riparian areas along Sandy Creek, would likely result in long-term beneficial effects for all three listed species.

Other actions proposed in this alternative, including the replacement of the entrance station and the East Pinnacles visitor center, and the proposed new trails would require further environmental analysis to ensure that effects are minimized. With mitigation, impacts on California red-legged frogs would be minor to moderate due to the direct and indirect effects of facility placement in and near riparian habitat (see *Common to All Alternatives*), resulting in a "may affect, likely to adversely affect" determination. These actions would not meaningfully affect the other listed species.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

Many of the same actions in alternative A, such as the condor recovery program, would continue and would have similar effects. Restoration of additional areas in the bottomlands would also occur, to a lesser degree than in alternative B, and would also have beneficial impacts. The monument would emphasize serving multiple audiences through a wide variety of media and programming, increasing opportunities for visitor involvement in conservation and understanding of wildlife issues. This higher level of engagement would likely increase visitor and public support, understanding, and cooperation with resource protection measures, potentially resulting in long-term beneficial impacts for all listed species.

Under alternative C, more of the monument would be zoned frontcountry, but future development would be sited and designed to minimize or prevent impacts on listed species (see *Common to All Alternatives* and *Mitigation Measures for the Action Alternatives*).With mitigation, new development proposed in alternative

C, including the entrance station, the replacement East Pinnacles visitor center, backcountry campsites, equestrian amenities, the west side walk-in campground, and the proposed new trails, would not likely affect California condors or California tiger salamanders. Impacts on California red-legged frogs would be minor to moderate due to the direct and indirect effects of facility placement in and near riparian habitat, resulting in a "may affect, likely to adversely affect" determination. As in the other action alternatives, these projects would require further environmental analysis.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

Impacts under alternative D would be the same as those described for alternative C, with some additional beneficial effects from more widespread restoration and a stronger emphasis on resource stewardship, and fewer adverse impacts due to the prohibition of equestrian use in the monument.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES – CUMULATIVE IMPACTS

Over time, impacts from loss of habitat, modifications to that habitat and direct loss of individual animals have resulted in species being listed or considered for listing under the Endangered Species Act. Near the monument, if development of adjacent private lands occurred it could have a wide range of long-term adverse impacts on California tiger salamanders, California red-legged frogs and California condors through habitat loss, wildlife control, and trespass livestock. However, current nearby uses which maintain an open landscape, including cattle ranching and hunting, can be compatible with protection of these species.

Cumulative effects on California tiger salamanders in the region have been minor to moderate and adverse, with the greatest threats being habitat loss and hybridization with non-native tiger salamanders. None of the alternatives are likely to affect California tiger salamanders, resulting in overall minor to moderate adverse impacts when combined with cumulative impacts.

Past effects related to California red-legged frogs have been major, with the species having been entirely extirpated from its regional stronghold, the Salinas River. The monument now supports one of the few remaining populations in the region. Habitat loss (due to agriculture and development), non-native species introduction (bullfrogs), and urban encroachment have all adversely affected the California red-legged frog throughout its historic range. Ongoing causes of decline include direct habitat loss due to stream alteration and disturbance to wetland areas, indirect effects of expanding urbanization, and competition or predation from non-native species. The adverse effects of proposed actions in alternatives A, B, C or D, mixed with the beneficial effects of riparian restoration efforts and visitor education, would be minor to moderate. These minor to moderate adverse impacts do not appreciably add to the major cumulative effects described above; and the continued beneficial effect of visitor education can reduce this overall cumulative impact.

Past adverse effects related to California condors have been major, but the California Condor Recovery Program has brought the species back from the brink of extinction through conservation breeding programs and reintroductions, a continuing beneficial effect. Continuation of the condor reestablishment program at Pinnacles and public education efforts regarding the adverse effects on condors caused by the use of lead ammunition would continue under all alternatives, providing beneficial effects. None of the proposed actions would adversely affect condors. Overall cumulative effects on California condors would be beneficial.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES – CONCLUSION

New facility proposals, including trails, are conceptual in nature and illustrate the desired condition for visitor services and facilities in particular areas. New construction described in the alternatives would require site-specific planning, siting, and design, including further environmental analysis.

Alternative A would continue to have moderate adverse impacts on the monument's federally-listed threatened and endangered species from monument operations and visitor use. In alternative B, adverse impacts would be minor.

Impacts on listed species from alternatives C and D would likely be mixed. Future environmental analysis on proposed development would minimize effects on listed species, but the presence of existing developments in and near riparian habitat, and plans to locate new development there as well, will adversely impact California red-legged frogs both directly and indirectly. Increased education efforts on wildlife issues would benefit special status species by changing visitor and community behavior affecting those species. The emphasis in alternative D on enhanced restoration efforts and encouragement of visitor participation in park stewardship would provide additional benefits.

Cultural Resources

Cultural Resources Listed, or Eligible to be Listed in the National Register of Historic Places

Potential impacts on those resources listed or eligible for listing on the National Register of Historic Places (NRHP) were identified and evaluated. The categories considered include archeological resources, cultural landscapes and historic buildings and structures. Evaluation was completed in accordance with the Advisory Council on Historic Preservation's regulations implementing Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800, Protection of Historic Properties). This evaluation was done by (1) determining the area of potential effect; (2) identifying cultural resources in the area of potential effect that are listed in or eligible for listing in the National Register; (3) applying the criteria of adverse effect to affected resources; and (4) considering ways to avoid, minimize or mitigate adverse effects. Information used in this assessment was obtained from relevant literature and documentation, maps, and consultation with cultural resource professionals, as well as from interdisciplinary team meetings, field trips, and site visits.

Under the regulations of the Advisory Council on Historic Preservation, a determination of adverse effect or no adverse effect must be made for affected National Register-listed or National Register-eligible cultural resources. The following definitions are provided:

No effect: There are no historic properties in the Area of Potential Effect (APE); or, there are historic properties in the APE, but the undertaking would have no impact on them.

No adverse effect: There would be an effect on the historic property by the undertaking, but the effect does not meet the criteria in 36 CFR Part 800.5(a)(1) and would not alter characteristics that make it eligible for listing on the National Register. The undertaking is modified or conditions are imposed to avoid or minimize adverse effects. This category of effects is encumbered with effects that may be considered beneficial under NEPA, such as restoration, stabilization, rehabilitation, and preservation projects. Undertakings determined to have no adverse effect by a qualified cultural resource manager can be documented under the streamlined process of the 2008 Programmatic Agreement.

Adverse effect: The undertaking would alter, directly or indirectly, the characteristics of the property making it eligible for listing on the National Register. An adverse effect may be resolved by developing a memorandum of agreement in consultation with the SHPO, ACHP, tribes, other consulting parties, and the public to avoid, minimize, or mitigate the adverse effects (36 CFR Part 800.6(a)).

The thresholds of change for the intensity of an impact are defined as follows.

Negligible: The effects on cultural resources would be at the lowest levels of detection, barely measurable without any perceptible consequences, either beneficial or adverse to cultural landscape resources, historic buildings or structures, ethnographic, or archeological resources. For the purposes of Section 106 of the National Historic Preservation Act, the determination of effect would be *no effect*.

Minor: The effects on cultural resources would be perceptible or measurable, but would be slight and localized within a relatively small area. The action would not affect the character or diminish the character-defining features of a National Register-eligible or listed cultural landscape, historic structure, or archeological site, and it would not have a permanent effect on the integrity of any such resources. For the purposes of Section 106 of the National Historic Preservation Act, the determination of effect would be *no adverse effect*.

Moderate: The effects would be perceptible and measurable. The action would change one or more character-defining features of a cultural resource, but would not diminish the integrity of the resource to the extent that its NRHP eligibility would be lost. For the purposes of Section 106 of the National Historic Preservation Act, the cultural resources' NRHP eligibility would be threatened and the determination of effect would be *no adverse effect* or *adverse effect*.

Major: The effects on cultural resources would be substantial, discernible, measurable, and permanent. For NRHP eligible or listed cultural landscapes, historic structures, or archeological sites, the action would change one or more character-defining features, diminishing the integrity of the resource to the extent that it would no longer be eligible for listing in the National Register. For purposes of Section 106, national register eligibility would be lost and the determination of effect would be *adverse effect*.

All preservation, restoration, and rehabilitation treatments proposed under all of the alternatives would be in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

McCabe Canyon. NPS photo.

Archeology

ARCHEOLOGY – IMPACTS FROM ALTERNATIVE A (NO ACTION)

Under alternative A, the regional office and staff from other NPS units would continue to support monument staff in performing site condition assessments and archeological surveys. This work would contribute to long-term preservation and enhanced understanding of archeological resources and human use in the monument, resulting in beneficial impacts. Less than a quarter of the monument, however, has been surveyed for archeological resources to date. New surveys would continue to be done only in response to specific actions which trigger Section 106 (NHPA) compliance. Ongoing assessment of known and recorded sites would continue to meet legal requirements by regional office staff as time permits, but the backlog of condition assessment documentation would continue to grow.

Resources adjacent to or easily accessible from trails or day-use areas would continue to be vulnerable to surface disturbance, inadvertent damage, and vandalism. Loss of surface archeological materials, alteration of artifact distribution, and a reduction of contextual evidence could result in loss of site integrity. Some beneficial impacts would be realized under alternative A, including baseline documentation for two proposed west side historic archeological districts, as funding becomes available, continuing archeological site monitoring by law enforcement rangers, and the increased involvement of traditionally associated peoples in the research and protection of cultural resources. The latter action would help to identify and provide local site stewards for archeological resources who could assist with monitoring, particularly of locations infrequently visited by park staff. Both actions, however, would continue to be limited by the availability of staff or volunteers to implement them.

Known archeological resources would be avoided to the greatest extent possible whenever ground disturbing activities such as road and trail maintenance or construction of new facilities was needed. Archeological surveys would precede any ground disturbance for construction or removal of facilities,

as required by the mitigation identified in this plan. If National Register-eligible or listed archeological resources could not be avoided, impacts on such resources could be minor to moderate and adverse with mitigation. As additional detailed plans and APEs for each undertaking are developed, the monument would ensure that archeological resources would be minimally affected by surveying the proposed sites and monitoring actions so that inadvertent discovery of subsurface resources does not occur.

Installation of shade structures at the Chaparral picnic area has the potential to affect known archeological resources. Therefore, mitigation measures requiring monitoring of excavation would be employed to avoid adverse impacts. If archeological resources were found, the shade structures would be moved to an area where no impacts would occur or they would not be constructed. Given these mitigation measures and the fact the project would occur in an already highly disturbed area, this action has the potential for a negligible to minor impact, resulting in a determination of "no adverse effect" under Section 106.

ARCHEOLOGY – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

Actions and impacts in alternative B would be similar to alternative A. In addition, alternative B would include development of a cultural resources program, the construction of more new trails and other facilities that could affect archeological resources. As in alternative A, however, the new facilities and trails would be designed and constructed in concert with the mitigation measures identified in this plan. Surveys would precede action and known archeological resources would be avoided. If previously unidentified archeological resources are later found, actions would be taken to alter the location or alignment of these to avoid impacts.

The addition of a full-time cultural resource specialist (program manager) position would allow the monument to initiate and manage a viable cultural resources program and ensure opportunities to undertake projects necessary to document and protect the monument's resources. On-site staffing would facilitate prioritization of work and result in greater efficiencies and savings. Resources would benefit directly from the ability of local staff to provide closer, more frequent attention, and from a stronger feeling of stewardship which results from an on-site presence. This program would provide the monument with the capacity to conduct proactive field surveys and baseline documentation of the remaining unsurveyed lands within the monument. It would also allow the monument to make regular and timely condition assessments of previously recorded sites.

Several new trails would be built under this alternative, increasing visitation to previously remote areas. These trails would be sited and designed with the mitigation measures identified in this plan, including surveys in previously undisturbed areas. The siting and design of these trails would be subject to further environmental review to ensure impacts are avoided on a site-specific basis. Monitoring through the new cultural resource program would also mitigate potential disturbance to known archeological sites along these routes in the future, although the potential for minor to moderate adverse impacts on unknown resources would continue to exist.

Replacement of the visitor center and construction of the east side entrance station under alternative B would avoid adverse impacts, because these new facilities would be limited to existing developed footprints, where no archeological resources are known to occur.

ARCHEOLOGY – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

Similar to alternative B, the addition of a full-time cultural resource specialist (program manager position would allow the monument to initiate and manage a viable cultural resources program and ensure continued opportunities to undertake projects necessary to document and protect the monument's resources.

Impacts due to trail construction and use would be the same as described under alternative B, except that there would be more new trails. The concentration of visitors in these newly opened areas may result in additional discovery and/or degradation of undocumented archeological resources. Some mitigation, however, would be provided through the beneficial impact of visitor education and cultural resource program monitoring. Construction activities associated with alternative C, including the East Pinnacles visitor center, an east side entrance station, equestrian amenities, backcountry campsites, shuttle stop improvements, picnic structures, and parking, would have a greater potential for adverse impact than alternatives A or B. With mitigation measures, these actions would likely result in minor, localized adverse impacts, resulting in a determination of no effect or no adverse effect under Section 106. The potential for a moderate adverse impact, resulting in a determination of adverse effect under Section 106, from the development of a walk-in campground on the west side would be avoided by carefully siting the campground facilities away from known archeological resources.

ARCHEOLOGY – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

Impacts on archeological resources under alternative D would be essentially the same as alternative C, with the exception that alternative D includes slightly less disturbance potential due to construction of facilities. As in alternative C, the addition of cultural resource program and interpretive staff would provide numerous overall benefits. Similarly, potential adverse impacts from a walk-in campground on the west side, new trails, and other proposed construction activities, as described under the analysis for alternative C, could be minor to moderate depending on the ability of the new program to adequately mitigate those impacts and the site planning and review process.

ARCHEOLOGY – CUMULATIVE IMPACTS

An expected increase in visitation, along with the change in dispersal of visitors due to recent west side development, has the potential for minor to moderate adverse impacts on proposed historic archeological districts due to direct and indirect visitor damage to known and unknown sites and features. These impacts may be partially mitigated by the recent increase in staff presence on the west side which will provide greater capacity for monitoring of the resources, law enforcement, and visitor education.

Over the years, visitors have caused direct damage to known sites throughout the monument. Indirect damage by visitors is more difficult to measure but likely has affected sites that are adjacent to high public use areas such as roads, trails, geologic features, and visitor service areas. Natural processes, including erosion, also affect archeological sites. Dam, road, and other facility construction in the past likely resulted in cumulative adverse impacts on cultural resources, including archeological resources.

Some archeological sites in the monument have probably experienced long-term, minor to major adverse cumulative impacts in the past, ranging from gradual deterioration to loss of sites and artifacts. A backlog of archeological survey and condition assessment work continues to contribute to this cumulative impact. The ongoing inventory efforts described under all alternatives, however, would benefit these resources. Implementation of alternatives A, B, C, or D would not increase the overall adverse cumulative effects on archeological resources.

ARCHEOLOGY – CONCLUSION

The continuation of current management under alternative A to preserve and document archeological resources is in keeping with NPS responsibilities as they pertain to NHPA, resulting in beneficial impacts. Negligible to minor adverse impacts, from limited understanding of the extent of archeological resources would also continue and planned actions would have minor adverse impacts, resulting in a determination of no adverse effect under Section 106.

The actions identified in alternative B would generally benefit the preservation and interpretation of archeological sites and associated collections. New construction, limited to existing developed footprints, and trail access to new areas could result in overall minor to moderate adverse impacts.

Minor to moderate adverse impacts could occur under alternatives C and D due to construction activities, including trails that open new areas to visitors and the development of a walk-in campground on the west side. Actions that might result in a determination of adverse effect under Section 106 will be avoided. Both alternatives contain higher potential for minor to moderate impacts than alternatives A or B, from more construction. Beneficial impacts would include the addition of a cultural resource program.

Impacts in alternatives A-D result in a determination of adverse effect under Section 106 of the NHPA.

Cultural Landscapes and Historic Structures

CULTURAL LANDSCAPES AND HISTORIC STRUCTURES – IMPACTS FROM ALTERNATIVE A (NO ACTION)

In alternative A, the monument would continue to follow current management objectives, preserving and maintaining cultural resources associated with the Pinnacles East Entrance District, including the High Peaks Trail System, and the Ben Bacon Ranch Historic District. To appropriately preserve and protect historic buildings, structures, and cultural landscapes that are listed or eligible for listing on the National Register of Historic Places, all stabilization, preservation, and rehabilitation efforts, as well as daily, cyclical, and seasonal maintenance, would be undertaken in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (1995). Stabilization, preservation, and rehabilitation would have no adverse effect on historic buildings, structures, or cultural landscapes.

Construction under alternative A would have no impact on cultural landscapes and historic structures, because new structures are not proposed in identified cultural landscapes.

The monument would continue to develop baseline inventories for historic buildings, structures, and cultural landscapes. The completion of these baseline inventories would directly benefit the public by providing new information to supplement the interpretive program at Pinnacles National Monument, resulting in long-term, beneficial impacts on historic buildings, structures and cultural landscapes.

Monument managers would continue to follow the general guidance and stabilization measures provided in the 2008 Ben Bacon Ranch Historic District Cultural Landscape Inventory and the 2002 Pinnacles East Entrance District Cultural Landscape Inventory. Prescribed burns and other treatment would continue to be used to restore the historic landscape and control the spread of invasive species. These actions would result in long-term beneficial impacts.

Construction of the remote South Wilderness Trail connection would have no effect because it would not change the general use and distribution patterns of the High Peaks trail system.

CULTURAL LANDSCAPES AND HISTORIC STRUCTURES – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

As in alternative A, beneficial impacts would occur from the continued adherence to standards and the guidance contained in previous inventories. The addition of cultural resource staff and the establishment of a cultural resource program would result in an increase in advocacy for the monument's cultural resources. The new positions would greatly increase the monument's capacity to document, assess, monitor, and treat cultural landscapes and historic structures.

A new trail in the Ben Bacon Ranch Historic District would have a negligible to minor impact with no adverse effect on the historic setting, feeling, and design of the historic district, because its location and design would be compatible with the character of the historic bottomlands road system.

Removal of incompatible waysides, bulletin boards, and signs on trails and near wilderness could have beneficial impacts on the Pinnacles East Entrance Historic District, including the High Peaks Trail System. Signs dating from the historic period, however, would not be removed, avoiding an adverse effect on the integrity of the historic districts.

The removal of noncontributing and incompatible structures would have a beneficial impact on the cultural landscapes of the monument. In particular, the removal of the cluster of incompatible noncontributing structures north of the Bacon House could benefit the Ben Bacon Ranch Historic District. Similarly, removal of such structures in the Chalone Creek area would benefit the East Entrance Historic District.

Relocation of the entrance station would have a minor impact because it would be located in view of and adjacent to the historic district. The visitor center and its associated parking area would also be in the same vicinity but would have a negligible impact, since it would replace the existing visitor center in its current location, away from and out of view from the historic district. Both of these actions would result in a determination of no adverse effect under Section 106. If the reconfiguration of the campground, or location of the visitor center or picnic area, increases visitation in the historic district, there could be additional negligible to minor impacts on the integrity of the historic district from facilities that detract from the historic period. This would also result in a determination of no adverse effect under Section 106.

Removal of the Chaparral parking area would have a beneficial impact on the historic setting and feeling associated with the High Peaks Trail System by improving its viewshed.

Removal of the remote North Chalone Peak Fire Lookout, a structure eligible for listing on the National Register of Historic Places (NRHP), would have a major adverse impact. A consensus determination of eligibility found the fire lookout eligible for listing on the NRHP under Criterion A for its association with the history of fire protection, and Criterion C as the oldest surviving example of the California Department of Forestry's revised 809R design. The State Historic Preservation Officer concurred with the eligibility determination in 1993. Therefore, removal would result in an adverse effect under Section 106 (requiring development of a MOA with the SHPO and Advisory Council on Historic Preservation). When removal, as a preliminary alternative, was presented to the public, the concept did not generate controversy. Removal and restoration could provide beneficial impacts to surrounding resources, including designated wilderness. The lookout is located within the High Peaks Trail System, part of the East Entrance Historic District, but does not contribute to the significance of that district. In discussions with the SHPO, it was determined that the significance of the lookout could be interpreted on-site after it was removed. Given these factors, removal of the lookout is not likely to constitute a significant impact under the National Environmental Policy Act.

The preparation of a Determination of Eligibility for the Bear Valley School House, and its stabilization, would have a beneficial impact on this historic structure (with no adverse effect under Section 106).

CULTURAL LANDSCAPES AND HISTORIC STRUCTURES – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

The introduction of horseback riding to the Ben Bacon Ranch Historic District has the potential to negatively affect monument resources through the introduction of invasive plant species. These species could alter the historic setting and diminish the integrity of this cultural landscape, as well as other areas. These impacts, however, would be avoided by a requirement that horseback riding not detract from resource or social values, including cultural landscapes. Similarly, the addition of equestrian facilities could potentially have an adverse effect on the integrity of the historic district, but would be integrated into the historic spatial organization and design character of the agricultural historic district to ensure only minor impacts with no adverse effect under Section 106.

As in alternative B, a new trail in the Ben Bacon Ranch Historic District would have a negligible impact with no adverse effect on the historic setting, feeling, and design of the historic district.

If vault toilets are provided to support backcountry camping, they could have a minor adverse impact on the rustic character the Pinnacles East Entrance Historic District cultural landscape if they are visible from the High Peaks Trail System and would result in a determination of no adverse effect.

As in alternative B, the removal of noncontributing and incompatible structures could have a beneficial impact on monument cultural landscapes. The removal of the cluster of incompatible noncontributing features to the north of the Bacon House could benefit the Ben Bacon Ranch Historic District. Similarly, removal of such features at the Bacon Ranch and Chalone Creek areas could benefit the East Entrance Historic District.

If the replacement of the East Pinnacles visitor center is located within sight of the Bacon Homestead, it could have a minor adverse impact on the historic district. Similarly, construction of the entrance station could have a minor adverse impact as identified in alternative B. If the reconfiguration of the campground, or location of the visitor center or picnic area, increases visitation in the historic district, there could be additional minor impacts on the integrity of the historic district. These impacts, however, would be designed to allow for a determination of no adverse effect under Section 106.

As in alternative B, removal of the Chaparral parking area would have a beneficial impact on the historic setting and feeling associated with the High Peaks Trail System. Instead of removal, adaptive reuse of the North Chalone Peak fire lookout under this alternative would help to preserve this historic structure and result in a determination of no adverse effect under Section 106.

The addition of cultural resource staff and the establishment of a cultural resource program, as in alternative B, would have beneficial impacts on the monument's cultural resources by increasing the monument's ability to advocate for and manage them.

As in alternative B, preparing a Determination of Eligibility for the Bear Valley School House would have beneficial effects.

CULTURAL LANDSCAPES AND HISTORIC STRUCTURES – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

The actions proposed by alternative D would have the same impacts as those described under alternative C, with the exception of effects associated with equestrian use and facilities. Also, removal of the North Chalone Peak fire lookout would have impacts similar to those described under alternative B.

CULTURAL LANDSCAPES AND HISTORIC STRUCTURES – CUMULATIVE IMPACTS

Cumulatively, natural processes, such as fire, as well as past development in the monument have resulted in the disturbance and loss of cultural resources, which have had a minor to moderate, cumulative adverse impact on the integrity of the cultural landscapes. Decades of neglect in the Ben Bacon Ranch Historic District, along with the addition of many noncontributing structures and features in the Pinnacles East Entrance Historic District, have also added to this adverse impact. The integrity of both districts,

Pinnacles Ranch Dedication. NPS photo.

however, remains sufficiently intact to convey their historic importance.

In addition, deferred maintenance and wear and tear associated with visitor access and administrative use has adversely impacted some structures. Some structures that would be considered historic today were moved, removed or modified in the past and have lost their integrity under National Register standards.

The monument has expanded several times to include resources related to cultural landscapes, with the intent of protecting and interpreting those landscapes. Management activities, including restoration efforts, continue to consider the culturally important character-defining patterns and features of cultural landscapes, resulting in cumulative beneficial impacts.

Overall, the cumulative impacts on cultural landscapes and historic structures would be long-term, minor to moderate, and adverse in all alternatives.

CULTURAL LANDSCAPES AND HISTORIC STRUCTURES – CONCLUSION

Under alternative A, the monument's ability to identify, inventory, conduct research and document cultural resource significance would continue to be limited by staffing constraints. These constraints would have long-term, negligible to minor adverse impacts (but no adverse effect) on historic buildings, structures, and cultural landscapes.

Implementation of alternatives B and D would result in a determination of "no adverse effect" to historic buildings, structures, and cultural landscapes, with the exception of the North Chalone Peak fire lookout. Removal of the fire lookout would result in a major adverse effect under NEPA and the NHPA.

Implementation of alternative C would result in a determination of "no adverse effect" to historic buildings, structures, and cultural landscapes. Each alternative contains potential minor, adverse, long-term impacts mostly due to new development in the vicinity of the campground and Ben Bacon Ranch Historic District.

The monument would continue to preserve and maintain its historic structures and cultural landscapes. Most actions would follow the *Secretary of the Interior's Standards for the Treatment of Archeology and Historic Preservation*, and the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. With the exception of the North Chalone Peak fire lookout removal in alternative B and possibly also in alternative D, there would be no adverse effects to historic structures or cultural landscapes.

Photos (top to bottom): 1. Amah Mutsun Tribal Band honors former Pinnacles National Monument Superintendant, Eric Brunnemann, for exemplary service and partnership with the AMTB. He is presented with a special gift. 2. West side event. 3. Footprints Day - celebrating people on the landscape of past and present. NPS photos.

Values, Traditions, and Practices of Traditionally Associated Peoples (also known as Ethnographic Resources)

As defined in NPS Management Policies 2006, these resources and values (referred to as ethnographic resources) are objects and places, including sites, structures, landscapes, and natural resources, with traditional cultural meaning and value to associated peoples. Research and consultation with associated people identifies and explains the places and things they find culturally meaningful. Ethnographic resources eligible for the National Register of Historic Places are called traditional cultural properties. Traditionally associated peoples are social/cultural entities such as tribes, communities, and kinship units, as well as park neighbors, traditional residents, and former residents who remain attached to a park area despite having relocated, are "traditionally associated" with a particular park when (1) the entity regards park resources as essential to its development and continued identity as a culturally distinct people; (2) the association has endured for at least two generations (40 years); and (3) the association began prior to establishment of the park. The intensity thresholds for impacts on these resources are described below:

Negligible: Impacts would be barely perceptible and would neither alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the affiliated group's body of practices and beliefs.

Minor: Impacts would be slight but noticeable but would neither appreciably alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the affiliated group's body of practices and beliefs.

Moderate: Impacts would be apparent and would alter resource conditions. Something would interfere with traditional access, site preservation, or the relationship between the resource and the affiliated group's practices and beliefs, even though the group's practices and beliefs would continue.

Major: Impacts would alter resource conditions. Something would block or greatly affect traditional access, site preservation, or the relationship between the resource and the affiliated group's body of practices and beliefs, to the extent that the continuation of a group's practices and/or beliefs would be jeopardized.

*Beneficial impact*s would allow access to and/or accommodate a group's traditional practices or beliefs.

VALUES, TRADITIONS, AND PRACTICES OF TRADITIONALLY ASSOCIATED PEOPLES – IMPACTS FROM ALTERNATIVE A (NO ACTION)

The monument currently lacks cultural resource program staff. The continuing lack of resource management staff would have a long-term moderate adverse impact on the monument's cultural resources. Without this staff and program, the monument would continue to be hampered in its ability to carry out analysis of projects that might negatively impact the values, traditions, and practices of traditionally associated peoples. The monument's ability to cultivate relationships with the living descendants of past residents of the region would also remain limited, thereby risking the loss of knowledge of their oral and practiced traditions. Because many of these important but intangible resources are unlikely to continue beyond the current generation, their loss could impoverish the cultural heritage of the entire region.

Continuation of the current level of cultural resource education and interpretation would also lead to minor adverse impacts. The education and interpretation of traditions associated with surviving physical resources represent an important means of preservation. Indirect benefits include the interest stimulated by knowledge of these resources and values, which may result in cultivation of stewardship commitments among visitors.

Increasing the involvement of traditionally associated peoples in research and protection of cultural resources would continue to result in long-term beneficial impacts. Such involvement would help to identify and preserve important values, traditions, and practices of traditionally associated peoples across all historic periods. The active involvement of descendents of all these traditionally associated groups would contribute positively toward the stewardship of their legacies within the monument and associated region.

VALUES, TRADITIONS, AND PRACTICES OF TRADITIONALLY ASSOCIATED PEOPLES – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

The addition of a full-time cultural resource specialist (program manager) position would assist in the process of building and managing a viable cultural resources program. On-site, rather than regional office, staffing would facilitate prioritization of work and result in greater efficiencies and savings. Resources would benefit directly from the ability of local staff to provide closer, more frequent attention, and form a stronger feeling of stewardship which results from an on-site presence.

The cultural resource program would ensure better curation of oral histories that identify the values, traditions, and practices of associated peoples. In addition, the program would provide the monument with the capacity to research and document important resources associated with the living survivors of people who once inhabited the region. On-site capacity would allow the monument to establish and maintain personal relationships with these descendants and to cultivate their active stewardship of the monument's resources on an ongoing basis.

One interpreter would be added to the west side staffing and would focus on providing visitors with information regarding the significance and vulnerability of cultural resources, resulting in beneficial impacts.

VALUES, TRADITIONS, AND PRACTICES OF TRADITIONALLY ASSOCIATED PEOPLES – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

Alternative C would produce the same beneficial impacts as alternative B, due to the establishment of a new cultural resources program.

Alternative C would also broaden interpretive efforts to include connection of the monument's cultural resources to the broader history of the region and the interrelationship between natural and cultural resources. This would have an overall beneficial impact on preservation of cultural resources through increased visitor and staff awareness.

VALUES, TRADITIONS, AND PRACTICES OF TRADITIONALLY ASSOCIATED PEOPLES – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

As with alternative C, the establishment of a cultural resources program and increased interpretive efforts would improve the ability of the monument to build knowledge, awareness, and effective decision making about cultural resources. Staffing this program would allow the monument to better protect, document, and develop knowledge of the monument's intangible cultural resources.

VALUES, TRADITIONS, AND PRACTICES OF TRADITIONALLY ASSOCIATED PEOPLES – CUMULATIVE IMPACTS

Adverse cumulative impacts have primarily resulted from past development and the continuing regional loss of elders with knowledge of traditions, practices, and beliefs.

Native American resources are associated with the plants, wildlife, and landscape features which remain important to the descendants of these peoples (e.g. California condor, deer grass and white root sedge). These resources have been affected by past development in the region. For example, conversion of ethnobotanically important oak savanna and native grassland to agricultural or pastoral development in bottomland areas like Bear Valley and the change in large-scale vegetation patterns resulting from modification of fire regimes associated with Native burning practices have resulted in modification of these landscapes features and plant communities. The most important of these changes occurred a long time ago, but the potential for further change, or intensification of change, still exists. For example, remnant oak savanna and grassland throughout the region may still be converted to vineyards and other agricultural uses.

Some beneficial impacts continue to be realized through efforts by the NPS to collect oral histories, provide access, and preserve ethnobotanical resources.

VALUES, TRADITIONS, AND PRACTICES OF TRADITIONALLY ASSOCIATED PEOPLES – CONCLUSION

Under alternative A, progress would continue to be made in documenting sites, values, practices, and resources important to traditionally associated peoples, but this effort would rely on specific project funding. Alternative A would do little to alleviate the ongoing moderate cumulative adverse impact due to the existing staffing deficiencies.

Establishment and staffing of a cultural resource program under alternatives B, C, and D would improve the protection, study, and knowledge of intangible cultural resources in the monument. No adverse impacts or effects have been identified for actions proposed in these action alternatives.

Museum Collections

Museum collections (prehistoric and historic objects, artifacts, works of art, archival documents, and natural history specimens) are generally ineligible for listing in the national register, and are not subject to Section 106 of the National Historic Preservation Act. The intensity of impacts on museum collections is defined as follows:

Negligible: Impacts would be at the lowest levels of detection; barely measurable with no perceptible consequences, either adverse or beneficial, to museum collections.

Minor: Impacts would affect the integrity of few items in the museum collection but would not degrade the usefulness of the collection for future research and interpretation.

Moderate: Impacts would affect the integrity of many items in the museum collection and diminish the usefulness of the collection for future research and interpretation.

Major: Impacts would affect the integrity of most items in the museum collection and destroy the usefulness of the collection for future research and interpretation.

Beneficial impacts would stabilize, improve, or secure the current condition of the collection or its constituent components to minimize degradation.

MUSEUM COLLECTIONS – IMPACTS FROM ALTERNATIVE A (NO ACTION)

Under this alternative, the monument's existing museum management program would continue to improve the quality of documentation of collections for use by park staff and the public. Under an agreement, management of collections is overseen by a Curator of Record, currently from Rosie the Riveter WWII Home Front National Historic Park, providing some benefit to the understaffed monument.

The current museum collection facility would continue to be monitored and maintained to provide for the preservation and protection of the collections, but would remain vulnerable to fire and inadequate security. If museum collections continue to be housed at the monument, some minor adverse impacts would result from environmental controls that do not meet current NPS standards for museum collections. The monument's ability to focus efforts toward current expectations for documentation, exhibit design, and use for interpretation is limited by both the level of staffing and the available expertise in the monument, having an overall minor adverse impact on museum collections. It is likely, however, that a change in the location and management of collections, due to the development of a shared facility outside of the monument, would occur and would avoid these adverse impacts.

In all alternatives, the monument would keep reference collections (herbarium specimens, artifacts needed for interpretation and display, and other items needed on a periodic basis for park operations) in adequate museum storage facilities and would continue to manage, maintain and process museum collections.

MUSEUM COLLECTIONS – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

Impacts would be the same as alternative A, with regard to storage and preservation if these remain the same, or would improve if another better facility were used

The establishment of a cultural resource program would provide on-site staffing and expertise and allow the monument to maintain and make available to the public some collections on-site. This would improve the ability of the monument to meet the museum management program's objectives and would provide a beneficial effect on museum collections and management.

As in alternative A, it is likely that museum collections would be moved to a shared facility outside the monument.

MUSEUM COLLECTIONS – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

Impacts would be the same as in alternative B, with one possible exception. The replacement East Pinnacles visitor center would be larger and may provide additional space to house collections at the monument, a beneficial impact.

MUSEUM COLLECTIONS – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

Impacts would be the same as in alternative C.

MUSEUM COLLECTIONS – CUMULATIVE IMPACTS

A shared national park museum collection facility, to be located in an existing structure at Rosie the Riveter World War II Home Front National Historical Park, is in the planning stages. The monument is likely to benefit from this development, which would provide professional staff, appropriate storage, and increased physical access to the collections. It is reasonably foreseeable that the monument would house the majority of its collections at this facility, providing a long-term beneficial effect to museum collection storage and management.

MUSEUM COLLECTIONS – CONCLUSION

If museum collections continue to be housed at the monument, some minor adverse impacts could continue to occur from environmental controls that do not meet current NPS standards for museum collections.

In alternatives B-D, the monument's ability to focus efforts toward current expectations for documentation, exhibit design, and use for interpretation would benefit by having cultural resources staff on-site to manage the program. Because it does not provide a cultural resources program, minor, long-term, adverse impacts would continue under Alternative A.

Monument Operations

Monument operations refers to the current management structure of the park to provide policy direction for the protection, public use, and appreciation of the monument, and the ability of the current staff to adequately protect and preserve vital resources and provide for an effective visitor experience. The discussion of impacts on management, operations, and staffing focuses on the type of management structure, the amount of staff available to ensure public safety, and the ability of the staff to protect and preserve resources given current funding and staffing levels. Staff knowledgeable about the management of the monument was consulted to evaluate the impacts of implementing each alternative.

The thresholds of change for the intensity of an impact are defined as follows:

Negligible: The effect would be at or below the lower levels of detection, and would not have an appreciable effect on park management and operations.

Minor: The effects would be detectable, but would be of a magnitude that would not have an appreciable adverse effect on park management and operations.

Moderate: The effects would be readily apparent and would result in substantial adverse change in park management and operations in a manner noticeable to staff and the public.

Major: The effects would be readily apparent and would result in substantial adverse change in park management and operations in a manner noticeable to staff and the public, and would be markedly different from existing operation.

Bear Gulch Nature Center. NPS photo.

OPERATIONS – IMPACTS FROM ALTERNATIVE A (NO ACTION)

Under all alternatives, the majority of administrative offices would remain in the monument. Under alternative A, administrative positions would remain in Bear Gulch. Cooperative efforts with partners and universities would continue on an as-needed basis as staffing and funding allows. The current organizational structure, with limited staffing and operations, is generally centralized and would continue to function with some deficiencies. Although some staff would be added on the west side over time, staffing levels throughout the monument would continue to be inadequate to meet public demands for increased interpretation and education as well as meeting the resource management needs of the monument.

The East Pinnacles visitor center would remain unchanged. The current visitor center is small and shared with the campground's general store. The lack of separation from the campground store and the lack of sufficient space to accommodate groups, install interpretive displays, or provide adequate working space for staff would continue to adversely affect monument operations. In addition, the building itself, inherited from a private campground operation, is in poor condition and lacks energy efficiency. The building has a deteriorating foundation and does not provide water or restrooms to visitors, or office space for staff. The maintenance and expense involved with the upkeep of a substandard building that provides marginal operational benefits is a moderate adverse effect on overall operations.

The fact that the monument has two sides, not joined by a common road, poses operational challenges. Monument operations would continue to be based out of the east side. This physical separation of the east and west sides results in inefficiencies for management, including staff and equipment mobilization and travel. Overall, the actions proposed in alternative A would not alleviate the long-term, minor to moderate, adverse impacts on monument operations.

OPERATIONS – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

Alternative B seeks to limit the monument's development footprint, but does provide for a small replacement visitor center on the east side. This facility would replace a building that is difficult and expensive to heat, cool, and maintain. This building would benefit operations by providing facilities that can more appropriately accommodate small groups and orient visitors and by reducing operational costs. Short-term, moderate, adverse impacts associated with construction and demolition include the need to provide visitor

information and services in a temporary location, which can be achieved by using the Bear Gulch Nature Center and the entrance station.

Alternative B provides for a higher level of staffing for increased restoration efforts, a new cultural resources program, new interpretive and educational programming, and additional maintenance needs. New office space would not be provided in alternative B. When the new staff proposed in this alternative is added to monument operations, already limited office space would be further cramped, resulting in minor to moderate adverse impacts.

Removal of the Moses Spring and Chaparral parking lots would slightly reduce the amount of road infrastructure to be maintained. Removal of the North Chalone Peak fire lookout would require relocation of the radio repeater, a minor adverse impact, although it would also reduce maintenance needs associated with the fire lookout.

Removal of waysides, unnecessary structures and other facilities from the monument, as proposed in alternative B, would result in fewer maintenance needs, allowing staff to focus their efforts on a more consolidated visitor services area, increasing efficiency. Removal of non-contributing buildings in Bear Gulch, however, would also adversely affect operations by reducing the amount of available office space. With the addition of staff proposed in alternative B, this would create a minor adverse impact.

OPERATIONS – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

A new larger visitor center on the east side would both add maintenance costs and benefit operations by providing facilities that can more appropriately accommodate groups and house interpretive services. The new visitor center could serve as a base of operations for interpretive staff, reducing the amount of back and forth travel currently needed between this key visitor services area and the Bear Gulch administrative offices.

Alternative C provides for a higher level of staffing for a variety of needs including a new cultural resources program, new interpretive and educational programming, and additional maintenance needs. New maintenance needs would include the equestrian facilities, backcountry campsites, the Bacon House, day use facilities at the Bear Valley Schoolhouse, and a walk-in campground on the west side. This alternative would add trail workers, custodial staff, and law enforcement rangers. These staff additions would reduce the adverse impacts of the above new development, resulting in minor to moderate adverse effects on park operations. New office space would be provided at the Bacon House and, possibly, Condor Gulch, a beneficial long-term impact.

Equestrian use would result in minor adverse impacts on operations, requiring an additional level of trail maintenance, facility upkeep, and administrative tasks (i.e. permit administration, enforcement, etc.).

West side and backcountry camping would require additional staff to patrol, monitor, and manage use. This alternative provides the necessary staffing, resulting in negligible effects.

Removal of the Chaparral parking lot would slightly reduce the amount of road infrastructure to be maintained., a beneficial effect.

Overall, the actions proposed under alternative C would have a long-term beneficial impact on monument operations, primarily by increasing and relocating staff.

OPERATIONS – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

Impacts would be similar to alternative C except for four major differences. First, the replacement east side visitor center would be slightly smaller, which would provide less space for staff needs. Second, equestrian uses would not be permitted and thus would not require administration. Third, the Condor Gulch buildings would continue to be used for storage or administrative needs. Finally, alternative D also calls for sharing some staff hours off-site at regional information centers. This could benefit operations by slightly reducing office needs in the monument.

OPERATIONS – CUMULATIVE IMPACTS

Past and ongoing projects, including road and facility maintenance and repairs, have had long-term, moderate, beneficial effects on monument operations by maintaining the inventory of monument structures. Aging facilities and utilities would continue to be replaced or modified as needed when funds are available.

Inadequate staffing and funding at Pinnacles have resulted in a maintenance backlog which is often readily apparent to the public, a moderate, long-term, cumulative effect on monument operations and infrastructure.

Eventually, more sustainable and efficient facilities and utility systems would replace existing, less sustainable systems, resulting in cumulative beneficial effects over the long-term.

OPERATIONS – CONCLUSION

Alternative A would result in little immediate change to monument infrastructure or operations and would continue current levels of funding and staffing. Alternative A would not adequately address long-term, moderate, cumulative, adverse impacts on monument operations due to past deficiencies. Ongoing maintenance and replacement of existing facilities would result in some beneficial impacts over time.

Alternative B would result in few changes to operational infrastructure, but would increase staffing, resulting in long-term beneficial impacts on functional capacity, but minor to moderate adverse effects due to insufficient office capacity. Ongoing maintenance and replacement of existing facilities would result in cumulative beneficial impacts over time.

Under alternatives C and D, minor to moderate adverse operational impacts would occur from facility and utilities needs at the Bacon House and Bear Valley Schoolhouse, as well as the costs and maintenance associated with new facilities. Both alternatives would also have long-term beneficial impacts on monument operations, primarily by increasing and relocating staff, providing office space, and redesigning the visitor entry experience on the east side.

Socioeconomics

Reducing or increasing visitor services and amenities affects the annual number of visitors, indirectly impacting visitor spending in local and regional economies. Increased spending on projects to implement GMP actions and develop amenities could directly benefit local or regional businesses. Employment opportunities, flowing from short-term construction projects and long-term staffing, benefit local communities. Outdoor recreation opportunities, natural and cultural preservation, interpretation, education, community outreach, and stewardship opportunities all contribute to the region's quality of life. Also, monument actions can affect the level of service and opportunities available to people of diverse socioeconomic populations and backgrounds.

Socioeconomic impacts were determined based on professional expertise and judgment. This analysis relies on qualitative analysis of the impacts of each alternative, as actual visitor numbers are not estimated, spending values are for comparison only, and influence area data was mainly available at the broad county and regional district levels.

Beneficial impacts result in generally recognized improvements to established social and economic environment. Adverse impacts are those effects that are generally recognized to diminish the established social and economic environment.

The thresholds of change for the intensity of an impact are defined as follows:

Negligible: No effects occur or the effects on socioeconomic conditions are below or at the level of detection.

Minor: The effects on socioeconomic conditions are small but detectable, and only affect a small number of businesses and/or a small portion of the population. The impact is slight and not detectable outside the affected area.

Moderate: The effects on socioeconomic conditions are readily apparent. Any effects result in changes to socioeconomic conditions on a local scale (e.g. a gateway community) within the affected area.

Major: The effects on socioeconomic conditions are readily apparent. Measurable changes in social or economic conditions at the county or regional level occur. The impact is severely adverse or exceptionally beneficial within the affected area.

SOCIOECONOMICS – IMPACTS FROM ALTERNATIVE A (NO ACTION)

Under alternative A, current visitor service levels and amenities would continue. No new major changes would be made that would affect the current local or regional economic impacts of the monument.

Visitation would continue to increase incrementally with visitation spiking seasonally from March to early June, and on weekends. Monument visitation would continue to have a beneficial impact on the local economy. For example, the monument brought $2.6 million in non-local travel spending (NPS, 2008), compared to a total of $77 million in travel-related revenue in San Benito County and almost $2 billion in Monterey County (Runyon, 2007).

Limited education programs would continue as funding allows, but the monument would be unable to fill all requests for outreach and education programs. Existing educational programs would continue to have a beneficial effect on the local quality of life and economy.

The current level of NPS employment would be maintained, continuing to have a small beneficial effect on the local economy. Additional staffing needs have already been identified and requested. If these positions are added in the future, total spending on staff would increase by $830,000.

Facilities to support extended family and group uses are few and accessible opportunities are minimal. These factors constitute minor adverse impacts on the capacity of the monument to respond to expected demographic shifts toward ethnically diverse and aging populations.

SOCIOECONOMICS – IMPACTS FROM ALTERNATIVE B (EMPHASIZE BACKCOUNTRY EXPERIENCES)

Alternative B includes some additional outreach in nearby communities, but this outreach would be focused on teaching wilderness values and opportunities. This level of outreach, with a very narrow focus, could result in small beneficial quality of life effects. The adverse impacts of minimal facilities to support extended family and group use would be the same as described under alternative A.

A replacement visitor center and new day use area would be built on the east side. New opportunities for improved interpretation, education, and recreation could result in a slight increase in visitation and a beneficial impact to the local economy.

The total one-time costs of construction and other projects would be $26.6 million, more than twice the one-time capital costs of alternative A. The monument would create new employment positions, adding $1.1 million to the annual operating budget for staffing. This additional spending would result in beneficial impacts on the local economy.

Balconies Cave at twilight. Photo by Paul G. Johnson.

SOCIOECONOMICS – IMPACTS FROM ALTERNATIVE C (EXPAND VISITOR EXPERIENCES)

Under alternative C, more of the monument is zoned semi-primitive to allow higher use levels. Also, new activities like horseback riding and backcountry camping would be introduced. By zoning much of the monument as semi-primitive to accommodate new activities and by adding new user groups, visitation may increase over alternatives A and B, resulting in beneficial impacts on the local economy.

Additional full-time staff positions under this alternative are required for increased research and restoration efforts, new interpretive and educational programming, and additional maintenance needs. This increase in staff would also have a beneficial effect on the local economy.

A replacement visitor center and day use area would be built on the east side. New opportunities for improved interpretation, education, and recreation could result in a slight increase in visitation and a beneficial impact to the local economy. Most opportunities for large groups would be created through larger facilities and zoning more of the monument for group use.

The total one-time costs of construction and other projects would be $36.3 million, $9.7 million more than alternative B. The monument would also create new employment positions, adding $250,000 more than alternative B to the annual operating budget for staffing. This additional spending would result in beneficial impacts on the locaSlil economy.

A small walk-in campground would be built on the west side. The campground may increase visitation slightly and would create more opportunities for previously underrepresented communities on the west side, resulting in long-term beneficial effects.

The monument would emphasize serving multiple audiences through a wide variety of media and programming, including interactive displays, more waysides on trails, additional interpretive materials, and more opportunities for visitor involvement in science and stewardship projects. New opportunities for improved interpretation, education, and recreation could result in a slight increase in visitation and a beneficial impact to the local economy and underrepresented communities.

SOCIOECONOMICS – IMPACTS FROM ALTERNATIVE D (LINK PEOPLE AND RESOURCES: PREFERRED ALTERNATIVE)

Impacts under alternative D would be very similar to those of alternative C. Spending on additional staffing would be approximately the same as alternative C, while spending on construction and other projects would be $4 million less.

SOCIOECONOMICS – CUMULATIVE IMPACTS

Past and ongoing monument management has had a beneficial effect on the region's economy, especially through tourism. The monument provides a national park experience that draws visitors from the San Francisco Bay area and beyond, including international visitors.

The creation of a San Benito Country Parks and Recreation Commission and the subsequent planning effort (San Benito County Parks and Recreation Master Plan) could eventually tie Pinnacles recreational resources to other county resources in a comprehensive network of recreational opportunities. A comprehensive network of trails and recreational opportunities connecting an improved monument trail system to other regional recreation resources could increase the quality of life for local residents, having a substantial beneficial long-term effect.

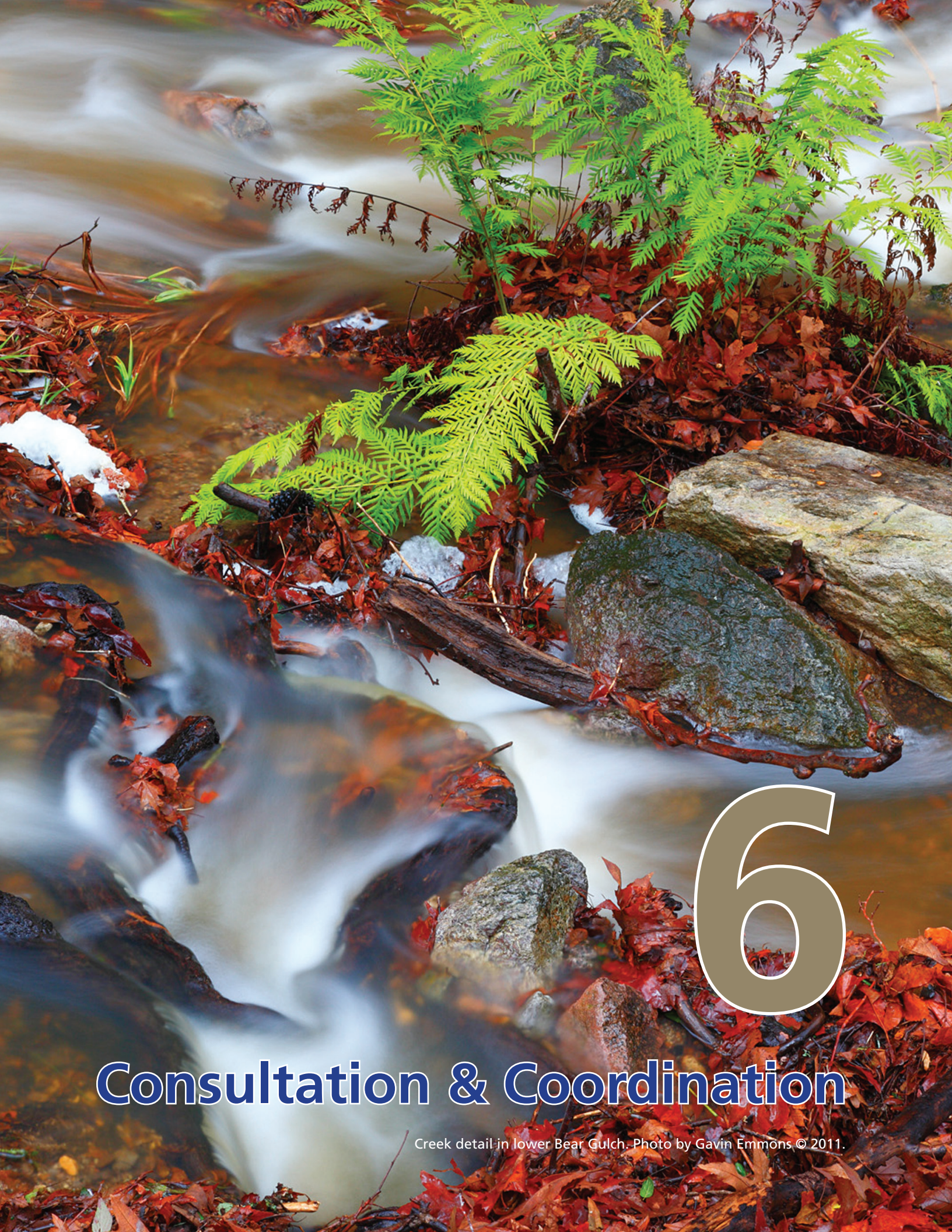
SOCIOECONOMICS – CONCLUSION

Alternatives A and B would have long-term, negligible to minor adverse impacts on the local and regional socioeconomic landscape, due to a lack of facilities or activities for older or ethnically diverse visitors. If the monument does not implement changes in facilities and services in anticipation of these expected demographic shifts, it would increasingly become a less desirable destination for a greater proportion of possible visitors. Both alternatives have continuing beneficial impacts due to construction and employment-related spending.

Alternatives C and D would have long-term beneficial impacts on the local and regional socioeconomic landscape, primarily because they provide new opportunities for previously underrepresented groups and accommodates increased visitation.

Increased visitation due to an improved visitor center, additional recreational opportunities, and additional camping, under alternatives C and D, could benefit the local economy.

Interpretive and educational program improvements would have beneficial effects in alternatives B, C, and D.



6

Consultation & Coordination

Creek detail in lower Bear Gulch. Photo by Gavin Emmons © 2011.

Chapter 6: Consultation and Coordination

Public involvement and consultation efforts were ongoing throughout the process of preparing the General Management Plan/Environmental Assessment. Public involvement methods included conducting public meetings and workshops, holding stakeholder meetings, distributing newsletters, posting planning information on appropriate websites, published Federal Register notices, and sending press releases. Public involvement is a necessary and important part of the planning process that provides valuable information. Consultation and coordination among the agencies and the public were vitally important throughout the planning process. The public had three formal avenues for participation in the development of the plan: the ability to participate in public meetings, provide comments on information in newsletters, and review and comment on the draft plan. Public comments were welcomed at any time throughout the planning process.

Public Scoping

Initial GMP Launch. The Pinnacles National Monument GMP planning team initially launched the GMP planning process in 1998 and completed public scoping. During the development of preliminary alternatives, the planning team decided to postpone the planning process until acquisition of the Pinnacles Ranch property, which would expand opportunities associated with the GMP.

GMP Reinitiation. The GMP process was reinitiated in the summer 2004 and following the acquisition of the Pinnacles Ranch property in March 2006, the team conducted additional preliminary scoping that summer. A postcard was distributed to visitors to provide information about the GMP process and to seek comments.

Scoping Newsletter (#1). In February 2007, the planning team produced and mailed newsletters in English and Spanish to about 400 organizations and individuals on the park mailing list and distributed 1,500 additional copies to visitors at the monument, neighbors in local communities, and attendees at public meetings. The purpose of the newsletter was to announce the start of the planning process; inform the public on how they could participate; and to ask for thoughts, ideas, and concerns about the monument's purpose and significance statements and what issues should be addressed in the GMP. The newsletter also contained information on the date, time and location of public scoping meetings. May 31, 2007 was established as the close of the public comment period. Comments were also accepted after this date. Information about comments received during scoping is below.

Websites. The newsletter was published and made available for comment on the National Park Service's Planning, Environment and Public Comment (PEPC) website and the monument's main website. Additional updates on the GMP were provided on the websites. An email list was also developed and maintained so that the public could receive updated information through email.

Announcements and Notices. Press releases announcing the GMP planning process were also distributed to local newspapers. Several newspapers carried feature stories on the need for a new GMP at Pinnacles National Monument and announced the upcoming public meetings. On April 6, 2007, a notice of intent to prepare a general management plan and environmental impact statement was published in the Federal Register. During the analysis of environmental impacts, it was determined that an environmental assessment would be prepared rather than an environmental impact statement.

Public Meetings. In March 2007, the planning team held four public scoping meetings in the surrounding region. The meetings included a presentation on the GMP process and draft park purpose and park significance statements. Displays and stations were set up to provide attendees opportunities to have one-on-one conversations with members of the planning team. After the presentation, group discussions were held about park planning issues and planning team members recorded comments on flipcharts. The public meeting locations, dates, and number of attendees included the following:

Soledad, March 7, 2007, attended by 15 members of the public

Hollister, March 19, 2007, attended by 11 members of the public

Paicines, March 20, 2007, attended by 7 members of the public

Santa Clara, March 24, 2007, attended by 3 members of the public

Stakeholder Meetings. In addition to public meetings, the monument staff and the planning team conducted presentations, meetings and conversations with local organizations, agencies, and tribes. Organizations and agencies included the Amah Mutsun Tribal Band, King City Rotary, San Juan Bautista Rotary, California Department of Fish and

Game Advisory Commission, and the Salinas Rotary. In addition, park staff attended the Salinas Valley Fair and provided planning information.

Scoping Comments Received. During the scoping period, Pinnacles received 110 written comment letters. Most of the comments were submitted using the comment form included in the newsletter which was also distributed at the park visitor center, public and stakeholder meetings, and posted on PEPC. The newsletter comment forms, previous comments summary from the 1998 scoping period, comments from a postcard produced in the summer of 2006, public meeting flipchart comments, e-mail comments, letters, and internal staff comments all were entered directly into the PEPC site. Most comments received were from individuals and organizations in California. Native American tribes, agencies, and organizations submitting comments included: Access Fund, Amah Mutsun Tribal Band, California Indian Wuksachi tribe, Californians for Western Wilderness, California Wilderness Coalition, California Wilderness Legacy Project, Friends of Pinnacles (various members), Girlventures, and Inn at the Pinnacles. The comments were considered and incorporated into the issues for the plan and were summarized in the second newsletter.

Results of Scoping Newsletter (#2). The NPS distributed a second newsletter in February 2008, describing issues identified during public scoping. The public comment summary reflects the wide range and diversity of comments received. Issues that received the greatest number of comments included: ideas about visitor education programs and interpretation opportunities; rock climbing management approaches; support for protection of cultural and natural resources; preservation of wilderness-related values; support for outreach to communities, tribes, landowners, and schools; and ideas for visitor services and transportation, particularly on the west side and on the newly acquired Pinnacles Ranch. In addition, some comments provided specific ideas for preserving what's important and providing better visitor services and programs. Some of the more detailed ideas could either be implemented by the park at any time or could be used to develop future plans (such as a trails plan) that will implement the GMP.

Preliminary Alternatives / Management Concepts

Preliminary Alternatives Newsletter (#3). The Pinnacles National Monument GMP planning team developed preliminary alternatives for the GMP in Winter/Spring 2007-2008. In August 2008, the GMP team released a third newsletter with preliminary management concepts for public review. Approximately 500 newsletters were mailed to organizations and individuals on the park mailing list. In addition, nearly 1,000 newsletters were distributed at the park visitor center, to local communities and businesses, and at public and stakeholder meetings.

The purpose of the newsletter was to provide opportunities for the public and stakeholders to comment on the preliminary alternatives to identify preferred concepts and management actions and ideas for improving the preliminary alternatives. Preliminary alternatives presented to the public included:

Continuation of Current Management
Research and Learning
Backcountry Experience
Expanded Visitor Experience

Public meeting in Paicines, California. NPS photos.

A comment form was included in the newsletter so that members of the public could provide feedback to the planning team. Comments on the preliminary management concepts were received through February 28, 2008. Press releases asking for public comments on the preliminary management concepts were distributed to local newspapers (*Hollister Free Lance, South County Newspapers, San Jose Mercury News, and San Francisco Chronicle*).

The newsletter was also published and made available for comment on the PEPC website. A link to the newsletter was provided on the monument's website as well as an email message that was sent to the GMP email list. Press releases asking for public comments on the preliminary management concepts were distributed to local newspapers. Comments on the preliminary management concepts were received through October 31, 2008. The newsletter also contained information on the public open house meetings.

Public Meetings. Three open house meetings were held in the local communities in late August 2008. The open house format was chosen to allow the public to provide comments and ideas on the preliminary alternatives presented in this newsletter and to have one-on-one discussions with planning team members. Instead of providing a formal presentation, four stations were set up around the meeting room for each alternative. Each station was staffed by a planning team member who presented a summary of the alternative and wrote down comments on flip charts. Open house meeting locations and number of attendees included:

Paicines, August 25, attended by 3 members of the public

Hollister, August 26, attended by 10 members of the public

Soledad, August 27, attended by 11 members of the public

Staff and Stakeholder Meetings. Throughout the comment period presentations, meetings and conversations with local organizations, agencies and tribes were conducted by the Superintendent, other park staff, and members of the planning team. Organizations and agencies included the San Benito County Board of Supervisors, Monterey County Board of Supervisors, Pinnacles Partnership, Amah Mutsun Tribal Band (at West Side Community event), and regional Rotary groups.

Comments Received. The planning team received a total of 56 written or electronic (email / PEPC) comments. Five transcripts of comments made at open house meetings, staff meetings, and stakeholder meetings are also included in the analysis.

Agencies and organizations that submitted comments through stakeholder meetings or individual letters include: Access Fund, Amah Mutsun Tribal Band, California Wilderness Coalition, Californians for Western Wilderness, and San Benito County Board of Supervisors. Comments were also submitted by members of the California Native Plant Society, Sierra Club (various members), and Pinnacles Partnership (various members).

Comments on the preliminary alternatives included both preferences for the management concepts and preferences for the desired conditions associated with each of the alternatives. Most commenters expressed a preference for an alternative or a mix of particular alternatives. Most commenters did not identify Continuation of Current Management as a desired or acceptable alternative; instead they suggested adding elements from the other alternatives. Five commenters identified the Research and Learning alternative as their preferred alternative, and another fifteen commenters preferred a combination that included elements of the Research and Learning alternative. Some of the

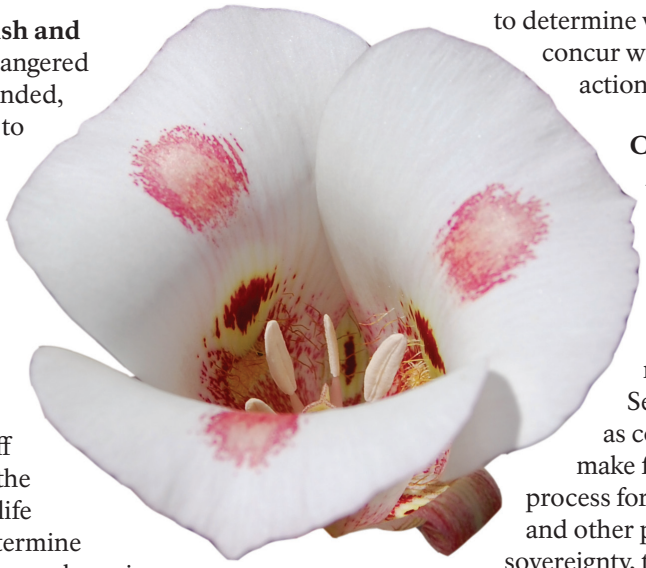
Public meetings in Soledad and Hollister, California. NPS photos.

commenters were concerned that the Backcountry Experience alternative would limit use or access, while others felt that the Expanded Visitor Experience alternative provided too many opportunities for overdevelopment. Twelve commenters identified the Backcountry Experience alternative as their preferred alternative, and an additional twelve commenters chose the Backcountry Experience alternative in combination with other alternatives, primarily the Research and Learning alternative. Five commenters identified the Expanded Visitor Experience alternative as their preferred alternative, while another nine chose to combine that alternative with other alternatives (primarily Research and Learning). In summary, many commenters generally liked the educational opportunities and recreational access provided by the Research and Learning alternative, tempered by a concern for preservation of the wilderness values and experiences expressed in Backcountry Experiences. Those who liked the Backcountry Experiences and the Expanded Visitor Experience alternatives were less likely to mix and match with other alternatives, while many proponents of the Research and Learning alternative saw it as a compromise between the Backcountry Experiences and the Expanded Visitor Experience alternatives. As a result, the original alternatives were modified to incorporate some new ideas and a new hybrid alternative was developed (as explained in the introduction to this EA).

Consultation with Other Agencies, Officials, and Organizations (To Date)

SECTION 7 CONSULTATION

Consultation with U.S. Fish and Wildlife Service. The Endangered Species Act of 1963, as amended, authorizes federal agencies to enter into early consultation with the U.S. Fish and Wildlife Service (USFWS) to ensure that any federal action would not jeopardize the existence of any listed species or destroy or adversely modify its habitat. During the preparation of this plan, NPS staff initiated consultation with the Ventura U.S. Fish and Wildlife Office in March 2008 to determine what threatened and endangered species in San Benito and Monterey counties should be considered during preparation of the EA. During the public review period for this EA, additional consultation with the USFWS will occur to affirm concurrence with the determinations of effect on listed or proposed species.



SECTION 106 CONSULTATION

Federal agencies that have direct or indirect jurisdiction over historic properties are required by Section 106 of the National Historic Preservation Act (NHPA), as amended (16 USC 270, et seq.), to take into account the effect of their undertakings on properties either listed in or eligible for listing in the National Register of Historic Places.

Consultation with the California State Historic Preservation Office. Under the terms of stipulation VI.E of the 1995 programmatic agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers, the National Park Service, "…in consultation with the SHPO [state historic preservation office], will make a determination about which undertakings are programmatic exclusions under IV.A and B, and for all other undertakings, whether there is sufficient information about resources and potential effects on those resources to seek review and comment under 36 CFR 800.4-6 during the plan review process."

To meet the requirements of the Advisory Council on Historic Preservation implementing Section 106, the National Park Service sent a letter to the California State Historic Preservation Officer in March 2008 inviting the office to participate in the planning process. During the public review period for this EA, the NPS would continue to confer with the SHPO to determine whether the SHPO would concur with effects of the proposed actions.

Consultation with Native American Tribes. The National Park Service recognizes that indigenous peoples may have traditional and contemporary interests and ongoing rights in lands now under National Park Service management, as well as concerns and contributions to make for the future via the scoping process for general management plans and other projects. Related to tribal sovereignty, the need for government-to-government Native American consultations stems from the historic power of Congress to make treaties with American Indian tribes as sovereign

nations. Consultations with American Indians and other Native Americans, such as Alaska Natives and Native Hawaiians, are required by various federal laws, executive orders, regulations, and policies. For example, such consultations are needed to comply with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended. Implementing regulations of the Council on Environmental Quality (CEQ) for the National Environmental Policy Act of 1969), as amended (NEPA), also call for Native American consultations.

During the public scoping period Pinnacles National Monument staff invited several Native American groups to meet to discuss the general management planning process underway and any concerns they might have about protecting, preserving, and managing Pinnacles National Monument's resources. The planning team met with the Amah Mutsun Tribal Band, a state recognized tribe, several times throughout the planning process to receive input on issues and ideas that should be considered in the general management plan.

Future Compliance Requirements

The NPS will conduct additional site-specific environmental analysis as individual projects or actions included in the preferred alternative are proposed for implementation. Some of the specific future compliance requirements of the preferred alternative are described in the *Alternatives* and *Environmental Consequences* chapters. Included are the NPS determinations of how those individual requirements relate to the National Environmental Policy Act (NEPA), the Endangered Species Act (Section 7 requirements), and the 2006 programmatic agreement in relation to cultural resources (Section 106 National Historic Preservation Act requirements).

Photos (clockwise from top left): 1. Andean Condor release ceremony at Parque Nacional Quebrada del Condorito, Pinnacles sister park in Argentina. NPS photo by Denise Louie. 2. September 2011 Condor Release witnessed by Amah Mutsun and Christensen Fund representatives, and Karen Beppler-Dorn, Pinnacles NM Superintendant. Photo by Chuck Striplen. 3. West Side public meeting. NPS photo. 4. West Side cultural event. NPS photo.

Public Officials, Agencies, and Organizations Receiving This Plan

Federal Agencies

Bureau of Land Management, Hollister Field Office
Bureau of Reclamation
Environmental Protection Agency, Region 9 and Federal Activities Office
National Oceanic and Atmospheric Administration / National Weather Service
National Park Service
- Denver Service Center
- Golden Gate National Recreation Area
- Eugene O'Neill National Historic Site
- John Muir National Historic Site
- Juan Bautista De Anza National Historic Trail
- Natural Resource Program Center
- Pacific West Region
- Park Planning and Special Studies Division
- Point Reyes National Seashore
- Port Chicago Naval Magazine National Memorial
- Rosie the Riveter/World War II Home Front National Historical Park
- San Francisco Maritime National Historical Park
- Santa Monica Mountains National Recreation Area
- Sequoia and Kings Canyon National Parks
- Water Resources Division
- Yosemite National Park

National Science Foundation, Earthscope
U.S. Army Garrison Fort Hunter Liggett
U.S. Fish and Wildlife Service, Ventura Office and Hopper Mountain National Wildlife Refuge
U.S. Forest Service, Los Padres National Forest
U.S. Geological Survey, Western Ecological Research Center

U.S. Senators and Representatives

Honorable Barbara Boxer, U.S. Senator, California
Honorable Dianne Feinstein, U.S. Senator, California
Honorable Sam Farr, U.S. Representative, 17th District, California

State Elected Officials and Agencies

California State Senators and Assembly Members
California Departmemt of Fish and Game
California Departmemt of Transportation, District 5
California State Parks, Monterey and Southern Service Center
California Division of Forestry (Bear Valley Fire Station)
CAL Fire
Fremont Peak State Park
Henry W. Coe State Park
SHPO, Office of Historic Preservation
Point Lobos State Reserve

Local Officials and Agencies

Association of Monterey Bay Area Goverments (AMBAG)
City of Coalinga
City of Gonzales
City of Gilroy
City of Greenfield
City of Hollister
City of King City
City of Los Banos
City of Marina
City of Monterey
City of Salinas
City of San Juan Bautista
City of Soledad
Coyote Hills Regional Park, Native American Programs
East Bay Regional Parks
Monterey County Board of Supervisors
Monterey County Convention
Monterey County Farm Bureau
Monterey County Parks
Monterey County Planning Department
Monterey Penninsula Regional Parks District
San Benito County Agricultural Commisioner
San Benito County Farm Bureau
San Benito County
San Benito County Office of Education
San Benito County Planning Department
San Benito County Resource Conservation District
San Benito County Weed Management Area
Santa Cruz County Parks
Transportation Agency for Monterey County

Organizations and Institutions

Access Fund
Amah Mutsun Tribal Band
American Conservation Experience
Bat Conservation International
Bay Nature
Big Sur Historical Society
Big Sur Land Trust
Bitterwater-Tully Union School District
California Academy of Science
California Dressage Society
California Indian Basketweavers Association
California Invasive Plant Council
California Native Plant Society, Monterey Chapter and Sacramento Office
California Oak Foundation
California Preservation Foundation
California Polytechnic State University, SLO
California Rangeland Trust
California Rangeland Conservation Coalition
California State Horseman's Association
California State University, Monterey
California Sate University, San Diego
California State University, San Jose
The California Wilderness Coalition
Cal-BLMX Inc.
Californians for Western Wilderness
Cattlemen's Association, San Benito and Monterey Counties, Sacramento Office
Cave Research Foundation
Central Coast Peruvian Horse Club
Chalon Nation
Civilian Conservation Corp Legacy
Costanoan Indian Research, Inc.
Costanoan Ohlone Esselen Nation
Desert Research Institute, Reno and Las Vegas
FAA San Jose FSDO
Fresno Audubon Society
Friends of Pinnacles National Monument
Gavilan College, Gilroy and Hollister
Gilroy Visitors Bureau
Girlventures
Golden Gate Audubon Society
Gonzales Chamber of Commerce
Hartnell College
Hastings Reserve
Hispanic Chamber of Commerce
Hollister Hills State Vehicular Rec. Area
Hollister Rotary
Institute for Wildlife Studies
Jefferson School
King City Rotary
King City School District
MOCO Fairgrounds
Monterey Bay Aquarium
Monterey County Historical Adv. Commission
Monterey County Historical Society
Monterey Fire Safe Council
Monterey Peninsula Audubon Society
Morro Coast Audubon Society
Mountain Tools
National Park Foundation
National Parks Conservation Association
National Speleological Society
National Trust/Historic Preservation
The Nature Conservancy
Pacific Grove Museum of Natural History
Pacific Studios
Pinnacles Partnership
Point Reyes Bird Observatory
Prunedale Cattle Company
Public Library of King City
Public Library of Salinas
Public Library of San Benito County
Public Library of San Juan Bautista
Public Library of Soledad
Rock Springs Ranch
Royal Elk Park Management
Rural Pig Management, Inc.
Sacramento City College
Salinan Nation Cultural Association
Salinan Tribe SLO and MOCO
Salinas Valley Fair Grounds
San Benancio 4-H
San Benito County Fairgrounds
San Benito County Historical Society
San Diego Zoo
San Juan Bautista State Historical Park
San Juan Bautista Rotary
Santa Barbara Botanical Gardens
Santa Barbara Museum of Natural History
Santa Barbara Audubon Society
Santa Clara University
Santa Cruz Predatory Bird Research Group
Sierra Club Loma Prieta Chapter
Sierra Club Santa Lucia Chapter
Soledad High School
Student Conservation Association
Sustainable Monterey County
UC Berkeley
UC Cooperative Extension, Hollister
UC Davis
UC Davis Hydrology and Cooperative Extension Programs
UC Santa Cruz
Ventana Wilderness Society
Waksachi Indian Tribe
Western National Parks Association
Wild Land Trust
Wilderness Society, California/Nevada Region
Wilderness Watch
The Wildlife Society
Xolon Salinan Tribe

In addition, copies of the GMP were sent to various newspapers and other local media and news organizations.

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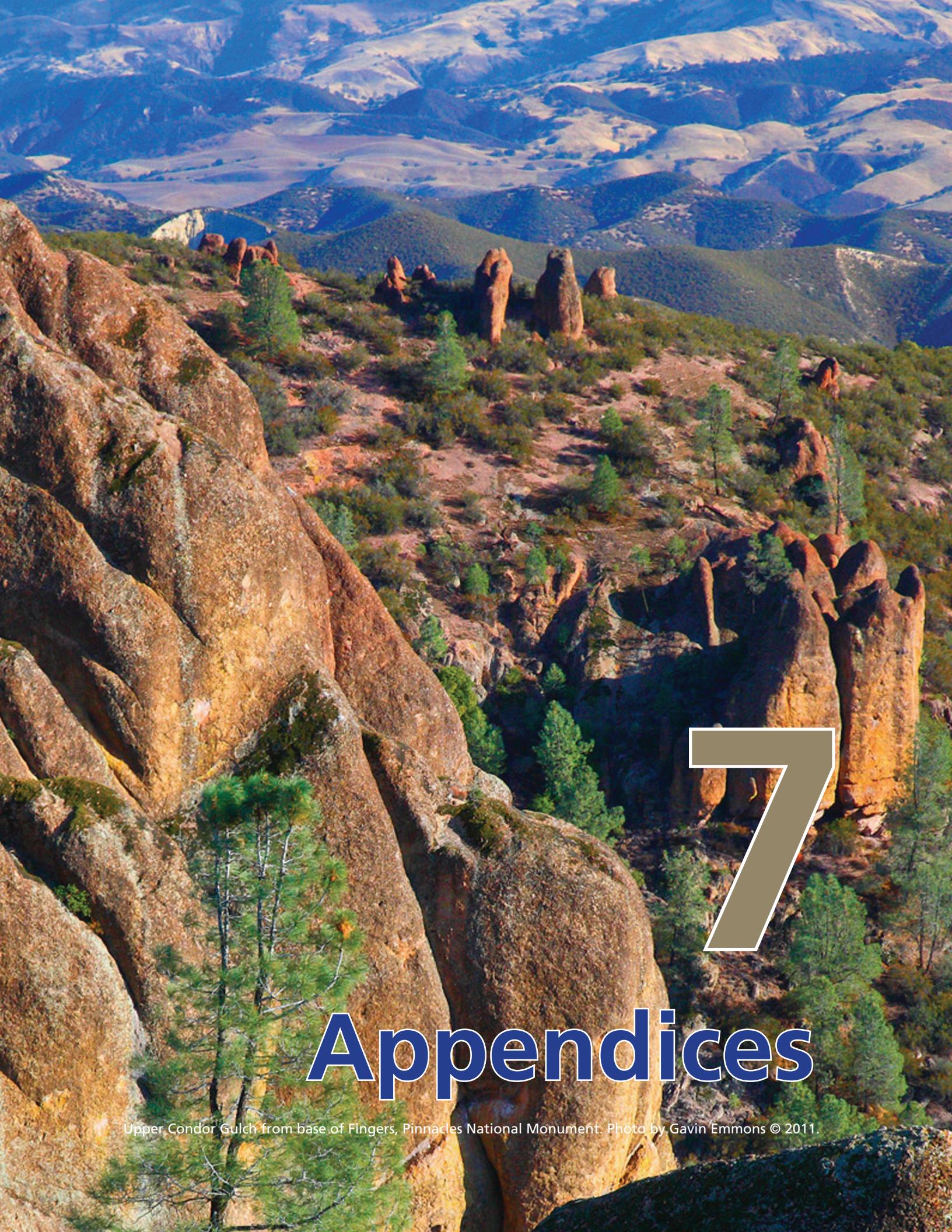
Amah Mutsun Tribal Chair Valentin Lopez (left) and Ernie Salas of the Gabrieleño Band of Mission Indians share stories of condors and discuss the Mutsun/Gabrieleño link through the history of their ancestor, Toypurina – who is buried in the Mission San Juan Bautista. Photo by Chuck Striplen.

Team meetings and workshops. NPS photos.



7 Appendices

Upper Condor Gulch from base of Fingers, Pinnacles National Monument. Photo by Gavin Emmons © 2011.

Appendices

A. LEGISLATION

B. CONSULTATION LETTERS

C. PRELIMINARY REPORT ON THE POTENTIAL FOR INCLUDING ROCK SPRINGS RANCH (RS-BAR) WITHIN PINNACLES NATIONAL MONUMENT

Appendix A. Legislative History

Proclamation of July 18, 1906

Established Pinnacles Forest Reserve, comprising 14,080 acres. The reserve was managed by the U.S. Forest Service.

A PROCLAMATION

WHEREAS, it is provided by section twenty-four of the Act of Congress, approved March third, eighteen hundred and ninety-one, entitled, "An act to repeal timber-culture laws, and for other purposes", "That the President of the United States may, from time to time, set apart and reserve, in any State or Territory having public land bearing forests, in any part of the public lands wholly or in part covered with timber or undergrowth, whether of commercial value or not, as public reservations, and the President shall, by public proclamation, declare the establishment of such reservations and the limits thereof";

And whereas, the public lands, in the State of California, which are hereinafter indicated, are in part covered with timber and undergrowth, and it appears that the public good would be promoted by setting apart said lands as a public reservation;

Now, therefore, I, THEODORE ROOSEVELT, President of the United States of America, by virtue of the power in me vested by section twenty-four of the aforesaid Act of Congress, do proclaim that there are hereby reserved from entry or settlement and set apart as a Public Reservation, for the use and benefit of the people, all the tracts of land, in the State of California, shown as the Pinnacles Forest Reserve on the diagram forming a part hereof;

Excepting from the force and effect of this proclamation all lands which may have been, prior to the date hereof, embraced in any legal entry or covered by any lawful filing duly of record in the proper United States Land Office, or upon which any valid settlement has been made pursuant to law, and the statutory period within which to make entry or filing of record has not expired: Provided, that this exception shall not continue to apply to any particular tract of land unless the entryman, settler, or claimant continues to comply with the law under which the entry, filing, or settlement was made.

Warning is hereby expressly given to all persons not to make settlement upon the lands reserved by this proclamation.

In Witness Whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 18th day of July, in the year of our Lord one thousand nine hundred and six, and of the Independence of the United States the one hundred and thirty first.

THEODORE ROOSEVELT

By the President:
ROBERT BACON,
Acting Secretary of State

Proclamation No. 796, January 16, 1908 (35 Stat. 2177)

Established Pinnacles National Monument, comprising approximately 2,080 acres within existing Pinnacles Forest Reserve.

A PROCLAMATION

WHEREAS, the natural formations, known as the Pinnacles Rocks, with a series of caves underlying them, which are situated upon public lands, within the Pinnacles National Forest, in the State of California, are of scientific interest, and it appears that the public interests would be promoted by reserving these formations and caves as a National Monument, with as much land as may be necessary for the proper protection thereof;

Now, THEREFORE, I, Theodore Roosevelt, President of the United States of America, by virtue of the power in me vested by section two of the Act of Congress, approved June eighth, nineteen hundred and six entitled, "AN ACT For the preservation of American antiquities," do proclaim that there are hereby reserved from appropriation use of all kinds under all of the public land laws, subject to all prior valid adverse claims, and set apart as National Monument, all the tracts of land, in the State of California, shown as the Pinnacles National Monument on the diagram forming a part hereof.

The reservation made by this proclamation is not intended to prevent the use of the lands for forest purposes under the proclamation establishing the Pinnacles National Forest, but the two reservations shall both be effective on the land withdrawn but the National Monument hereby established shall be the dominant reservation.

Warning is hereby given to all unauthorized persons not to appropriate, injure or destroy any feature of this National Monument or to locate or settle upon any of the lands reserved by this proclamation.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 16th day of January, in the year of our Lord one thousand nine hundred and eight, and of the Independence of the United States the one hundred and thirty- second.

THEODORE ROOSEVELT.

By the President:
ELIHU ROOT,
Secretary of State.

Organic Act of August 25, 1916 (39 Stat. 535) to establish the National Park Service

Congress assigned to this new agency the administration of all the national parks and most of the national monuments already established. The administration of Pinnacles National Monument was among these monuments transferred to the National Park Service.

Proclamation No. 1660, May 7, 1923 (43 Stat. 1911)

Added approximately 562 acres to Pinnacles National Monument. The monument now totaled approximately 2,642 acres.

A PROCLAMATION

WHEREAS, it appears that the public good will be promoted by adding to the Pinnacles National Monument certain lands in the State of California, containing natural formations, known as Pinnacle Rocks, with a series of caves underlying them;

Now, THEREFORE, I, Warren G. Harding, President of the United States of America, by virtue of the power in me vested by section two of the act of Congress entitled, "An Act for the Preservation of American Antiquities," approved June 8, 1906 (34 Stat., 225) do proclaim that said lands, to-wit, the tracts described as lot 4, SW ¼ NW ¼ and SW ¼ Sec. 2, and W ½ Sec. 11, in T. 17 S., R. 7 E., Mount Diablo Base and Meridian, are hereby reserved from appropriation and use of all kinds under the public land laws, subject to all prior valid claims, and set apart as an addition to the Pinnacles National Monument, and that the boundaries of the said National Monument are now as shown on the diagram hereto annexed and forming it part hereof.

Warning is hereby given to all unauthorized persons not to appropriate or injure any natural feature of this Monument or to occupy, exploit, settle, or locate upon any of the lands reserved by this proclamation.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management, and control of this Monument, as provided in the act of Congress entitled, "An Act to establish a National Park Service, and for other purposes," approved August 25, 1916 (39 Stat., 535) as amended June 2,1920 (41 Stat., 732).

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this seventh day of May, in the year of our Lord one thousand nine hundred and twenty-three, and of the Independence of the United States of America the one hundred and forty-seventh.

WARREN G. HARDING.

By the President:
CHARLES E. HUGHES,
Secretary of State.

Proclamation No. 1704, July 1924 (43 Stat. 1961)

Added approximately 326 acres to Pinnacles National Monument. The monument now totaled approximately 2,968 acres.

A PROCLAMATION

WHEREAS, it appears that the public interest would be promoted by adding to the Pinnacles National Monument in the State of California, certain adjoining lands on which are located a spring of water and valuable camping sites.

Now, THEREFORE, I, Calvin Coolidge, President of the United States of America, by authority of the power in me vested by section two of the act of Congress entitled, "An Act for the Preservation of American antiquities", approved June eighth, nineteen hundred and six (34 Stat., 225) do proclaim that the E 1/2 of Section 4, in T. 17 S., R. 7 E., Mount Diablo Meridian, is hereby reserved from all forms of appropriation under the public land laws, subject to all valid existing claims, and set apart as an addition to the Pinnacles National Monument and that the boundaries of the said National Monument are now as shown on the diagram hereto annexed and made a part hereof.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy or remove any feature of this Monument and not to locate or settle upon any of the lands thereof.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management, and control of this Monument as provided in the Act of Congress entitled, "An act to establish a National Park Service and for other purposes," approved August twenty-fifth, nineteen hundred and sixteen (39 Stat., 535) and Acts additional thereto or amendatory thereof.

IN WITNESS WHEREOF. I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE in the city of Washington this 2nd day of July in the year of our Lord one thousand nine hundred and twenty-four and of the year of the Independence of the United States of America the one hundred and forty-eighth.

CALVIN COOLIDGE

By the President:
CHARLES E. HUGHES,
Secretary of State

Proclamation No. 1948, April 13, 1931 (47 Stat. 2451)

Added approximately 1,926 acres to Pinnacles National Monument. The monument now totaled approximately 4,894 acres.

A PROCLAMATION

Whereas the county of San Benito, in the State of California, did on the 10th day of March, 1931, pursuant to the act of Congress entitled "An act for the preservation of American antiquities," approved June 8, 1906 (34 Stat., 225), by warranty deed of relinquishment and conveyance, properly executed in writing and acknowledged, relinquish, remise, and convey to the United States of America, for addition to the Pinnacles National Monument, Calif., all its right, title, and interest in the following described land:

MOUNT DIABLO MERIDIAN

T. 16 S., R. 7 E., SE.¼, S.½ SW. ¼ sec. 26, S.½ S. ½ sec. 27, SE. ¼ sec. 28, W. ½ E. ½, SE. ¼ NW. ¼, E. ½ SW. ¼, SW. ¼ SW. ¼ sec. 33, and sec. 35;

T. 17 S., R. 7 E., lot 4, S. ½ NW. ¼, NE. ¼ SW. ¼ sec. 1, lots 1, 2, and 3, and S. ½ NE¼, SE. ¼ NW. ½ sec. 2, containing 1,926.35 acres; and

WHEREAS said relinquishment and conveyance has been accepted by the Secretary of the Interior in the manner and for the purposes described in said act of Congress; and

WHEREAS it appears that the public interest would be promoted by adding to the Pinnacles National Monument, in the State of California, all the lands hereinabove described for the purpose of including within said monument certain additional features of scientific and educational interest and for administrative purposes;

Now, THEREFORE, I, Herbert Hoover, President of the United States of America, by virtue of the power vested In me by section 2 of the said act of Congress, do proclaim that said lands hereinabove described are hereby added to and made a part of the Pinnacles National Monument.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management, and control of this monument as provided in the act of Congress entitled «An act to establish a National Park Service, and for other purposes,» approved August 25, 1916 (39 Stat. 535), and acts additional thereto or amendatory thereof.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 13th day of April, in the year of our Lord nineteen hundred and thirty-one, and of the Independence of the United States of America the one hundred and fifty-fifth.

HERBERT HOOVER.

By the President:
HENRY L. STIMSON,
Secretary of State.

Proclamation No. 2050, July 11, 1933 (48 Stat. 1701)

Added approximately 5,322 acres to Pinnacles National Monument. The monument now totaled approximately 10,216 acres.

A PROCLAMATION

WHEREAS it appears that the public interest would be promoted by adding to the Pinnacles National Monument, California, certain adjoining land for the purpose of including within said monument additional lands on which there are located features of scientific interest and for administration purposes,

Now, THEREFORE, I, Franklin D. Roosevelt, President of the United States of America, by virtue of the power in me vested by section 2 of the act of Congress entitled "AN ACT For the preservation of American antiquities, approved June 8, 1906 (34 Stat. 225), do proclaim that, subject to all valid existing rights, the following-described lands in California be, and the same are hereby, added to and made a part of the Pinnacles National Monument:

MOUNT DIABLO MERIDIAN

T. 16 S., R. 7 E., sec. 25, W. ½;
sec. 26 NE. ¼;
sec 32, N. ½ NW. ¼, SW. ¼ NW. ¼, and NW. ¼SW. ¼;
sec. 36, W. ½

T.17 S., R. 7 E., sec. 1, lots 2, 3, NW. ¼ SW. ¼ and S.½SW.¼;
sec. 2, SE. ½;
sec. 11, E. ½ ;
sec. 12, W. ½;
sec. 13, W. ½;
sec. 14, all;
sec. 15, NE. ¼, E.½ NW. ¼, E. ½ SW. ¼, and SE. ¼;
sec. 22, all;
sec. 23, all;
sec. 24, W.½.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management, and control of this monument, as provided in the act of Congress entitled «AN ACT To establish a National Park Service, and for other purposes», approved August 25, 1916 (39 Stat. 535-536), and acts additional thereto or amendatory thereof.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 11 day of July, in the year of our Lord nineteen hundred and thirty-three, and of the Independence of the United States of America the one hundred and fifty-eighth.

FRANKLIN D. ROOSEVELT.

By the President:
WILLIAM PHILLIPS,
Acting Secretary of State.

Proclamation No. 2528, December 5, 1941 (55 Stat. 1709)

Added approximately 4,300 acres to Pinnacles National Monument. The monument now totaled approximately 14,516 acres.

A PROCLAMATION

WHEREAS it appears that certain lands adjoining the Pinnacles National Monument in California are required for the proper care, management and protection of the objects of scientific interest situated on lands within the said monument; and

WHEREAS it appears that it would be in the public interest to reserve such lands as an addition to said monument:

Now, THEREFORE, I, Franklin D. Roosevelt, President of the United States of America, under and by virtue of the authority vested in me by the act of June 8, 1906 (ch. 3060, 34 Stat. 225; U. S. C., title 16, sec. 431), do proclaim that, subject to all valid existing rights, the following-described lands in California are hereby added to and made a part of the Pinnacles National Monument:

MOUNT DIARLO MERIDIAN

T.16 S., R.7 E.,	sec.20, E. ½;
	secs. 21 to 23, inclusive;
	see. 24, W.½;
	sec. 26, NW. ¼; N. ½ SW. ¼;
	see. 27, N. ½, N.½ S.½;
	sec. 28, N. ½, SW. ¼;
	sec. 29 ½,
T.17 S., R.7 E.,	sec. 1 SW. ¼ SE.¼;
	sec. 12. W. ½ E. ½, SE.¼ SE.¼;
	sec. 13, W. ½ E. ½, SE.¼ SE.¼;
T.17 S., R. 8 E.,	sec. 7. Lot 13;
	see. 18, Lot 1;

containing 4,589.26 acres.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

The reservation made by this proclamation supersedes as to any of the above-described lands affected thereby the temporary withdrawals made by Executive Orders No. 5038 of February 2, 1929 and No. 6910 of November 26, 1934, as amended.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision,, management, and control of this monument as provided in the act of Congress entitled «An Act

To establish a National Park Service, and for other purposes,» approved August 25, 1916 (ch. 408, 39 Stat. 535; U.S. C,, title 16, sees. 1 and 2), and acts supplementary thereto or amendatory thereof.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 5th day of December, in the year of our Lord nineteen hundred and forty-one and of the Independence of the United States of America the one hundred and sixty-sixth.

FRANKILIN D. ROOSEVELT.

By the President:
CORDELL HULL,
Secretary of State.

Public Law 94-567, October 20, 1976 (90 Stat. 2692)

Designated 12,952 acres of land within Pinnacles National Monument as wilderness and 990 acres as potential wilderness. Also added approximately 1,717.9 acres to the monument, and declared that the monument's total area shall not exceed 16,500 acres. The monument now totals approximately 16,234 acres.

To designate certain lands within units of the National Park Service as wilderness; to revise the boundaries of certain of those units; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in accordance with section 8(c) of the Wilderness Act (78 Stat 890; 16 U.S.C.

1132 (c)), the following lands are hereby designated as wilderness, and shall be administered by the Secretary of the Interior in accordance with the applicable provisions of the Wilderness Act:

. . .(i) Pinnacles National Monument, California, wilderness comprising twelve thousand nine hundred and fifty-two acres, and potential National wilderness additions comprising nine hundred and ninety acres, depicted on a map entitled Wilderness Plan, Pinnacles National Monument, California", numbered 114-20,010-D) and dated September 1975, to be known as the Pinnacles Wilderness. . .

SEC. 2. A map and description of the boundaries of the areas designated in this Act shall be on file and available for public inspection in the office of the Director of the National Park Service, Department of the Interior, and in the office of the Superintendent of each area designated in the Act. As soon as practicable after this Act takes effect, maps of the wilderness areas and descriptions of their boundaries shall be filed with the Interior and Insular Affairs Committees of the United States Senate and House of Representatives, and such maps and descriptions shall have the same force and effect as if included in this Act: Provided, That correction of clerical and typographical errors in such maps and descriptions may be made.

SEC. 3. All lands which represent potential wilderness additions, upon publication in the Federal Register of a notice by the Secretary of the Interior that all uses thereon prohibited by the Wilderness Act have ceased, shall thereby be designated wilderness.

SEC. 4. The boundaries of the following areas are hereby revised, and those lands depicted on the respective maps as wilderness or as potential wilderness addition are hereby so designated at such time and in such manner as provided for by this Act:

Sec. 5. (a) The Secretary of Agriculture shall, within two years after the date of enactment of this Act, review, as to its suitability or nonsuitability for preservation as wilderness, the area comprising approximately sixty-two thousand nine hundred and thirty acres located in the Coronado National Forest adjacent to Saguaro National Monument, Arizona, and identified on the map referred to in section

1(j) of this Act as the "Rincon Wilderness Study Area," and shall report his findings to the President. The Secretary of Agriculture shall conduct his review in accordance with the provisions of subsections 3(b) and 3(d) of the Wilderness Act, except that any reference in such subsections to areas in the national forests classified as "primitive" on the effective date of that Act shall be deemed to be a reference to the wilderness study area designated by this Act and except that the President shall advise the Congress of his recommendations with respect to this area within two years after the date of enactment of this Act.

(b) The Secretary of Agriculture shall give at least sixty days' advance public notice of any hearing or other public meeting relating to the review provided for by this section.

SEC. 6. The areas designated by this Act as wilderness shall be administered by the Secretary of the Interior in accordance with the applicable provisions of the Wilderness Act governing areas designated by that Act as wilderness areas, except that any reference in such provisions to the effective date of the Wildernesss Act shall be deemed to be a reference to the effective date of this Act, and, where appropriate, any reference to the Secretary of Agriculture shall be deemed to be a reference to the Secretary of the Interior.

SEC. 7. (a) Section 6(a) of the Act of September 13, 1962 (76 Stat. 538), as amended (16 UISIC. 459c-6a) is amended by inserting "without impairment of its natural values, in a manner which provides for such recreational, educational, historic preservation interpretation, and scientific research opportunities as are consistent with, based upon, and supportive of the maximum protection, restoration and preservation of the natural environment with the area" immediately after "shall be administered by the Secretary."…

…SEC. 8. The boundaries of the Isle Royale National Park are hereby extended to include any submerged lands within the territorial jurisdiction of the United States within four and one-half miles of the shoreline of Isle Royale and the surrounding islands, including Passage Island and the Gull Islands, and the Secretary of the Interior is hereby authorized, in his discretion, to acquire title by donation to any such lands not now owned by the United States, the title to be satisfactory to him,

(b) Pinnacles National Monument, California:

(1) The boundary is hereby revised by adding the following described lands, totaling approximately one thousand seven hundred and seventeen and nine-tenths acres:

(a) Mount Diablo meridian, township 16 south, range 7 cast: Section 1, east half east half, southwest quarter northeast quarter, and northwest quarter southeast quarter; section 12, east half northeast quarter, and northeast quarter southeast quarter; section 13, east half northeast quarter and northeast quarter southeast quarter.

(b) Township 16 south, range 7 east: Section 82, east half.

(c) Township 17 south, range 7 east: Section 4, west half; section 5, east half.

(d) Township 17 south, range 7 east: Section 6, southwest quarter southwest quarter; section 7, northwest quarter north half southwest quarter.

(2) The Secretary of the Interior may make minor revisions in the monument boundary from time to time "by publication in the Federal Register of a map or other boundary description, but the total area within the monument may not exceed sixteen thousand five hundred acres: Provided, however; That lands designated as wilderness pursuant to this Act may not be excluded from the monument. The monument shall hereafter be administered in accordance with the Act of August 25, 1916 (39 Stat 535; 16 U.S.C. I et. seq.), as amended and supplemented.

(3) In order to effectuate the purposes of this subsection, the Secretary of the Interior is authorized to acquire by donation, purchase, transfer from any other Federal agency or exchange, lands and interests therein within the area hereafter encompassed by the monument boundary except that property owned by the State of California or any political subdivision thereof may be acquired only by donation.

(4) There are authorized to be appropriated, in addition to such sums as may heretofore have been appropriated, not to exceed $955,000 for the acquisition of lands or interests in lands authorized by this subjection. No funds authorized to be appropriated pursuant to this Act shall be available prior to October 1, 1977.

Public Law 96-344, September 8, 1980 (94 Stat. 1133)

Authorized minor boundary change along southeast edge of monument to adjust fence line on Chalone Creek. Approximately 3.35 acres were removed from the monument, while approximately 44.02 acres were added. The monument now totaled approximately 16,275 acres.

An Act
To improve the administration of the Historic Sites, Buildings and Antiquities Act of 1935 (49 Stat. 666).
Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SEC. 6. Subsection 4(b) of the Act entitled "An Act to designate certain lands within units of the National Park System as wilderness; to revise the boundaries of certain of those units; and for other purposes", approved October 20, 1976 (90 Stat. 2692, 2694), is amended by revising the proviso to the first sentence in paragraph

(2) to read as follows: "*Provided*, *however*, That, except for not more than approximately three and thirty-five one-hundredths acres designated herein as wilderness and approximately eleven and thirteen one-hundredths acres designated herein as potential wilderness additions, which may be excluded pursuant to an exchange consummated in accordance with paragraph (3) of this subsection, lands designated as wilderness pursuant to this Act may not be excluded from the monument.".

Proclamation No. 7266, January 11, 2000 (65 F.R. 2831-32)

Authorized expansion of monument to include approximately 10,939 additional acres (thereby rendering moot the acreage limitation established by P.L. 94-567 in 1976). Approximately 8,008 acres were federal lands transferred from the Bureau of Land Management, while the remaining 2,931 acres were privately owned. As of 2011, Pinnacles National Monument totals approximately 26,534 acres with legislative boundaries comprising a total area of approximately 27,214 acres.

A Proclamation

Pinnacles National Monument was established on January 16, 1908, for the purpose of protecting its natural rock formations, known as Pinnacles Rocks, and the series of talus caves underlying them. The monument sits within one of the most complex and fascinating geologic terrains in North America, an area where rock masses have been sliced apart, transported for up to hundreds of miles, and then reassembled into a fantastic geologic mixture. The Monument holds only half of an ancient volcano; the other half is found 195 miles to the southeast in northern Los Angeles County. The volcano was split apart and transported north by an early strand of the San Andreas Fault, known as the Chalone Creek Fault, which lies within the monument. The pinnacles inside the monument are composed mainly of volcanic breccia, a mixture of angular blocks of volcanic lava, pumice, and ash. The occurrence of the pinnacles within the monument is unusual, as some of these volcanic rocks also contain marine fossils.

Since 1908, the boundaries of the monument have been enlarged on five occasions by presidential proclamations issued pursuant to the Antiquities Act (34 Stat. 225, 16 U.S.C. 431). Proclamation 1660 of May 7, 1923, added 562 acres to include additional natural formations with a series of caves underlying them. Proclamation 1704 of July 2, 1924, added adjoining lands that included a spring of water and valuable camping sites. Proclamation 1948 of April 13, 1931, added 1,926 acres that held additional features of scientific and educational interest and for administrative purposes. For these same purposes, the boundary was later expanded on July 11, 1933 (Proclamation 2050). Proclamation 2528 of December 5, 1941, added additional lands adjoining Pinnacles National Monument in order to protect more objects of scientific interest in the monument area. The boundary of the monument was further expanded by statute on October 20, 1976 (Public Law 94-567, 90 Stat., 2693).

The boundary enlargement affected by this proclamation is central to the continued preservation of the Pinnacles National Monument's unique resources. In addition to containing pieces of the same faults that created the tremendous geological formations throughout the monument, the expansion lands hold part of the headwaters that drain into the basin of the monument. Over millions of years, flash floods and stream currents have helped to sculpt the land's natural features. Additionally, these lands contain a biological system that must be protected if the wild character and ecosystem of the monument are to be preserved. The geologic formations provide a stellar habitat for important and sometimes fragile biological resources. For example, raptor populations, including prairie falcons, golden eagles, red-shouldered hawks, Cooper's hawks, harriers, white-tailed kites, long-eared owls, and red-tailed hawks, nest on the rocky formations and forage in the broad watershed. The lands within the expansion area contain steep, rugged slopes surrounding small canyons. Shallow rocky soils, gravel creek beds, and steeply rising topography combine to create a dynamic flood environment. The lands preserve a complex association of plant communities characteristic of the chaparral. Along the watercourses, live-oaks, buckeyes, and sycamore grow. Blue oak woodlands and grasslands occur on the deepest soils. Creeks that flow in and out of the existing monument and the expansion lands provide highly valuable riparian habitat for wildlife. The western pond turtle, two-striped garter snake, silvery legless lizard, threatened California red-legged frog, and California horned lizard inhabit these lands. By expanding the monument, these unique biological resources can be afforded more complete protection to maintain and enhance the ecosystems of the monument.

Section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431) authorizes the President, in his discretion/ to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and to reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected.

WHEREAS it appears that it would be in the public interest to reserve such lands as an addition to the Pinnacles National Monument;

NOW, THEREFORE, I, WILLIAM J. CLINTON, President of the United States of America, by the authority vested in me by section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), do proclaim that there are hereby set apart and reserved as an addition to the Pinnacles National Monument, for the purpose of care, management, and protection of the objects of scientific interest situated on lands within the said monument, all lands and interests in lands owned or controlled by the United States within the boundaries of the area described on the map entitled "Pinnacles National Monument Boundary Enlargement ' attached to and forming a part of this proclamation. The Federal land and interests inland reserved consist of approximately 7,900 acres, which is the smallest area compatible with the proper care and management of the objects to be protected.

The enlargement of this monument is subject to valid existing rights.

All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, leasing, or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing/ other than by exchange that furthers the protective purposes of the monument. Lands and interests in lands not owned by the United States shall be reserved as a part of the monument upon acquisition of title thereto by the United States.

There is hereby reserved, as of the date of this proclamation and subject to valid existing rights, a quantity of water sufficient to fulfill the purposes for which the monument is established. Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation.

The Secretary of the Interior shall manage the area being added to the monument through the National Park Service, under the same laws and regulations that apply to the rest of the monument, except that livestock grazing may be permitted in the area added by this proclamation.

Wilderness Study Areas included in the monument will continue to be managed under section 403 (c) of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.).

Nothing in this proclamation shall be deemed to revoke any existing withdrawal, reservation, or appropriation; however, the national monument shall be the dominant reservation.

Warning is hereby given to all unauthorized persons not to appropriate, injure, destroy, or remove, any feature of this monument and not to locate or settle upon any of the lands thereof.

IN WITNESS WHEREOF, I have hereunto set my hand this eleventh day of January, in the year of our Lord two thousand, and of the Independence of the United States of America the two hundred and twentieth.

WILLIAM J. CLINTON

Big Sur Wilderness and Conservation Act of 2002 Public Law 107-370,107th Congress

Designated approximately 2,715 acres of land within Pinnacles National Monument as wilderness.

An Act

To designate certain lands in the State of California as components of the National Wilderness Preservation System, and for other purposes.
H.R. 4750

SECTION 1. SHORT TITLE AND DEFINITIONS.

(a) Short Title.--This Act may be cited as the "Big Sur Wilderness and Conservation Act of 2002".

(b) Definitions.--As used in this Act, the term "Secretary" means the Secretary of the Interior or the Secretary of Agriculture, as appropriate.

SEC. 2. ADDITIONS TO THE WILDERNESS PRESERVATION SYSTEM.

(c) Additions to Pinnacles Wilderness.--

<<NOTE: 16 USC 1132 note.>>

(1) In general.--The areas described in paragraph (2)--

A. are hereby designated as wilderness and, therefore, as components of the National Wilderness Preservation System; and

B. are hereby incorporated in and shall be deemed to be a part of the Pinnacles Wilderness designated by Public Law 94-567.

(2) Areas described.--The areas referred to in paragraph (1) are the lands in the State of California administered by the National Park Service which comprise approximately 2,715 acres, as generally depicted on a map entitled "Pinnacles Proposed Wilderness Additions" and dated October 30, 2001.

(d) Maps and Descriptions.--

(1) Filing.--As soon as practicable after the date of enactment of this Act, the appropriate Secretary shall file a map and a boundary description of each area designated as wilderness by this Act with the Committee on Resources of the House of Representatives and the Committee on Energy and Natural Resources of the Senate.

(2) Effect.--Each map and description shall have the same force and effect as if included in this Act, except that the appropriate Secretary is authorized to correct clerical and typographical errors in such boundary descriptions and maps.

(3) Availability.--Such maps and boundary descriptions shall be on file and available for public inspection in the Office of the Director of the Bureau of Land Management and in the Office of the Chief of the Forest Service, as appropriate.

(e) State and Private Lands.--Lands within the exterior boundaries of any area added to a wilderness area under this section that are owned by the State or by a private entity shall be included within such wilderness area if such lands are acquired by the United States. Such lands may be acquired by the United States only as provided in the Wilderness Act (16 U.S.C. 1131 and following).

SEC. 3. ADMINISTRATIVE PROVISIONS.

(a) In General.--Subject to valid existing rights, lands designated as wilderness by this Act shall be managed by the Secretary of Agriculture or the Secretary of the Interior, as appropriate, in accordance with the Wilderness Act (16 U.S.C. 1131 et seq.) and this Act, except that, with respect to any wilderness areas designated by this Act, any reference in the Wilderness Act to the effective date of the Wilderness Act shall be deemed to be a reference to the date of enactment of this Act.

(b) Grazing.--Grazing of livestock in wilderness areas designated by this Act shall be administered in accordance with the provisions of section 4(d)(4) of the Wilderness Act (16 U.S.C. 1133(d)(4)), as further interpreted by section 108 of Public Law 96-560, and, the guidelines set forth in Appendix A of House Report 101-405 of the 101st Congress.

(c) State Jurisdiction.--As provided in section 4(d)(7) of the Wilderness Act (16 U.S.C. 1133(d)(7)), nothing in this Act shall be construed as affecting the jurisdiction or responsibilities of the State of California with respect to wildlife and fish in California.

(d) Water.--

(1) Reservation of water.--With respect to each wilderness area designated by this Act, Congress hereby reserves a quantity of water sufficient to fulfill the purposes of this Act. The priority date of such reserved rights shall be the date of enactment of this Act.

(2) Requirement to protect rights.--The appropriate Secretary and all other officers of the United States shall take steps necessary to protect the rights reserved by paragraph (1), including the filing by the Secretary of a claim for the quantification of such rights in any present or future appropriate stream adjudication in the courts of the State of California in which the United States is or may be joined and which is conducted in accordance with the McCarran Amendment (43 U.S.C. 666).

(3) No reduction or relinquishment.--Nothing in this Act shall be construed as a relinquishment or reduction of any water rights reserved or appropriated by the United States in the State of California on or before the date of enactment of this Act.

(4) Limitation on effect.--The Federal water rights reserved by this Act are specific to the wilderness areas located in the State of California designated by this Act. Nothing in this Act related to reserved Federal water rights shall be construed as establishing a precedent with regard to any future designations, nor shall it constitute an interpretation of any other Act or any designation made pursuant thereto.

SEC. 4. WILDERNESS FIRE MANAGEMENT.

(a) <<NOTE: Deadline.>> Revision of Management Plans.--The Secretary of Agriculture shall, by not later than 1 year after the date of the enactment of this Act, amend the management plans that apply to each of the Ventana Wilderness and the Silver Peak Wilderness, respectively, to authorize the Forest Supervisor of the Los Padres National Forest to take whatever appropriate actions in such wilderness areas are necessary for fire prevention and watershed protection consistent with wilderness values, including best management practices for fire presuppression and fire suppression measures and techniques.

(b) Incorporation Into Forest Planning.--Any special provisions contained in the management plan for the Ventana Wilderness and Silver Peak Wilderness pursuant to subsection (a) shall be incorporated into the management plan for the Los Padres National Forest.

Approved December 19, 2002.

Appendix B. Consultation Letters

United States Department of the Interior

NATIONAL PARK SERVICE
Pinnacles National Monument
5000 Highway 146
Paicines, California 95043-9770

IN REPLY REFER TO:

March 25, 2008

Milford Wayne Donaldson
State Historic Preservation Officer
1416 9th Street, Room 1442-7
Sacramento, CA 95814
P.O. Box 942896
Sacramento, CA 94296-0001

Dear Mr. Donaldson,

In accordance with our responsibilities under the National Historic Preservation Act of 1966 and the amended Programmatic Agreement between the National Park Service, the National Conference of State Historic Preservation Offices, and the Advisory Council on Historic Preservation, this letter is to inform you of the National Park Service's intent to prepare a General Management Plan (GMP) and Environmental Impact Statement (EIS) for Pinnacles National Monument.

The GMP will set forth the basic management philosophy for the park and will provide strategies for addressing issues relevant to natural and cultural resources management, visitor use, and interpretation of those resources. We invite your office to attend meetings of the planning team preparing the GMP.

The NPS held public scoping meetings in communities near the monument during March 2007. The public scoping comment period came to a close on May 31, 2007. Our team will be developing management alternatives through much of 2008. Current information relevant to the GMP is available on the National Park Service Planning, Environment and Public Comment (PEPC) website located at http://parkplanning.nps.gov/pinn.

We encourage your involvement in this important planning process. If you have any questions please do not hesitate to contact Denise Louie, our Chief of Research and Resource Management 831-389-4486 x222 or Martha Crusius, GMP Project Manager, at 510-817-1447. We look forward to working with you and your staff on this endeavor.

Sincerely,

Eric Brunnemann, Superintendent
Pinnacles National Monument

United States Department of the Interior

NATIONAL PARK SERVICE
Pinnacles National Monument
5000 Highway 146
Paicines, California 95043-9770

IN REPLY REFER TO:
March 25, 2008

Jacob Martin
U.S. Fish & Wildlife Service
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 930030

Dear Mr. Martin:

In accordance with our responsibilities under Section 7 of the Endangered Species Act, this letter is to inform you of the National Park Service's intent to prepare a General Management Plan (GMP) and Environmental Impact Statement (EIS) for Pinnacles National Monument.

A new GMP is scheduled to be completed in 2009 and will set forth the basic management philosophy for the park and will provide strategies for addressing issues relevant to natural and cultural resources management, visitor use, and interpretation of those resources. The Monument is located in San Benito and Monterey Counties in California, and we are interested in obtaining a list of U.S. Fish and Wildlife Service (USFWS) listed, proposed, and candidate species that may occur in this area. Pinnacles National Monument held public scoping meetings for the GMP in surrounding communities in March 2007. The public scoping comment period came to a close on May 31, 2007. Our team will be developing management alternatives through much of 2008. Current information relevant to the GMP is available on the National Park Service Planning, Environment and Public Comment (PEPC) website located at http://parkplanning.nps.gov/pinn.

If you have any questions please do not hesitate to contact Denise Louie (Chief of Research and Resource Management) at 831-389-4486 x 222 or Martha Crusius, GMP Project Manager, at 510-817-1447. We look forward to working with you and your staff on this endeavor.

Sincerely,

Eric Brunnemann, Superintendent
Pinnacles National Monument

Appendix C. Preliminary Report on the Potential for Including Rock Springs Ranch Within Pinnacles National Monument

Introduction

On June 18, 2010, Congressman Sam Farr of California (D-17th) requested that the National Park Service (NPS) conduct a reconnaissance survey of the Rock Springs Ranch property (RS-Bar), California, to evaluate the unique geological, historical, archeological, and natural resources for potential addition to Pinnacles National Monument.

Pinnacles National Monument is in the process of developing a new general management plan (GMP) to guide the future of the national monument. One of the legislative requirements of a GMP is to identify potential modifications to the external boundaries of the park and the reason for any proposed changes. NPS therefore agreed to analyze Rock Springs Ranch as a potential addition to the park boundary in the context of the park's GMP. This preliminary report summarizes that analysis and the information that will be included in the draft GMP.

The NPS has established criteria by which to evaluate potential additions to existing park boundaries, and different criteria by which to evaluate areas proposed as potential new national park units. This analysis of Rock Springs Ranch fits neither set of criteria perfectly, as the resources and opportunities at Rock Springs Ranch extend beyond the existing purpose of Pinnacles National Monument, and Congressman Farr's request did not suggest that Rock Springs Ranch be designated as a separate park unit. These criteria, however, enable us to respond to Congressman Farr's request to evaluate the potential for the large and noncontiguous Rock Springs Ranch property to be added to Pinnacles National Monument.

Serpentine barrens. NPS photo.

A team of NPS staff from the Pacific West Region, Pinnacles National Monument, and Point Reyes National Seashore, and other scientists and resource experts from the Bureau of Land Management, U.S. Geological Survey, San Benito County Agricultural Commission, and the San Francisco Estuary Institute conducted a field visit to Rock Springs Ranch on September 27-28. The field visit was led by the ranch site manager. This report provides preliminary findings based on the field visit and limited documentation of resources at Rock Springs Ranch.

CRITERIA FOR INCLUSION IN THE NATIONAL PARK SYSTEM

Criteria articulated in NPS Management Policies are used to evaluate whether an area should be added to the National Park System. To be eligible for favorable consideration as a new, stand-alone unit of the National Park System, an area must:

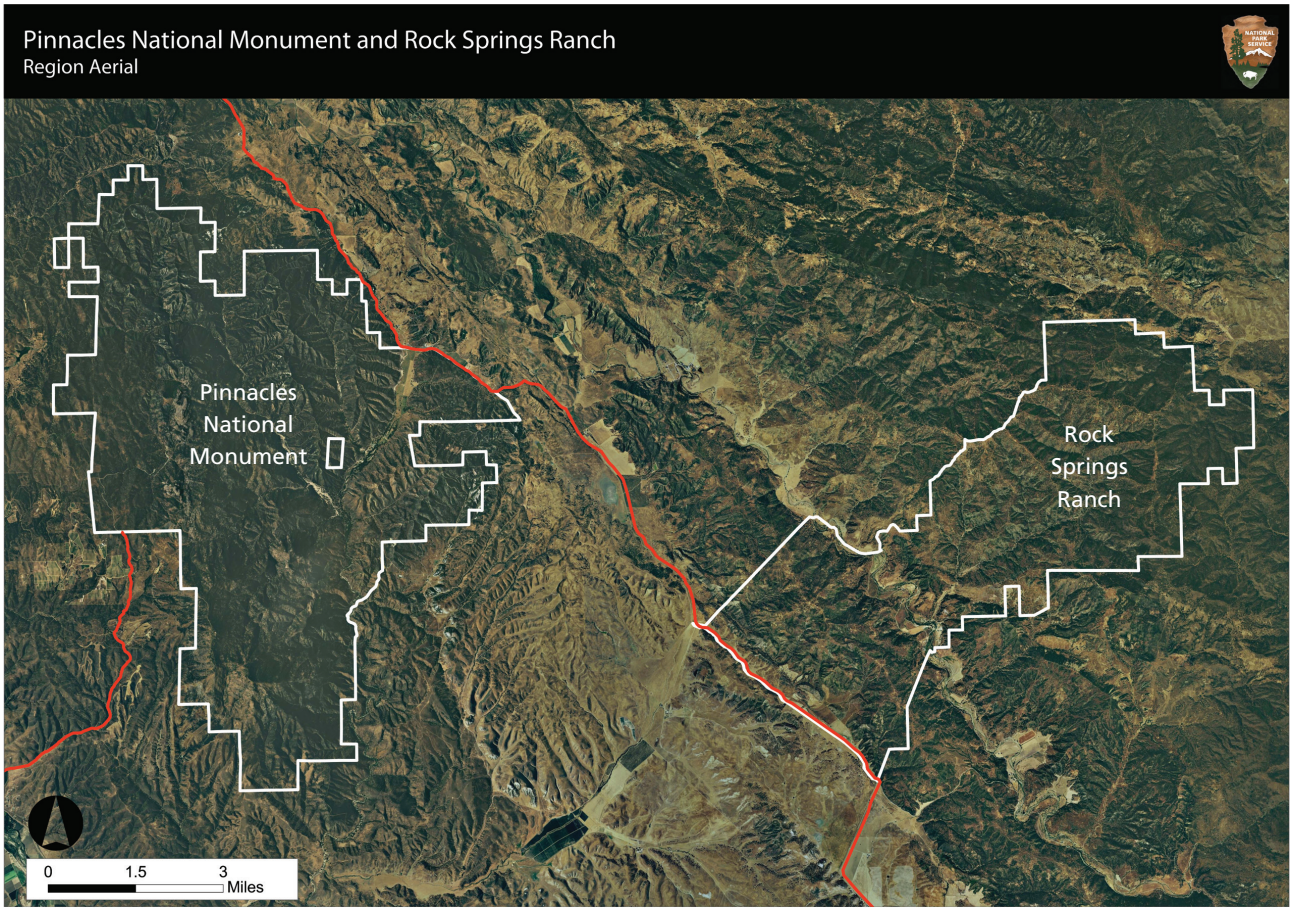
- possess nationally significant natural or cultural resources
- be a suitable addition to the system
- be a feasible addition to the system; and
- require direct NPS management instead of protection by some other governmental agency or the private sector.

Complete studies of potential new units must be authorized by Congress and signed into public law by the President. Therefore, only preliminary evaluation and findings are possible at this time.

The National Park Service has broad authority to study potential adjustments to the boundaries of existing parks, however, and does not need specific authority from Congress to evaluate boundary adjustments. Boundary adjustments may be recommended to:

- protect significant resources and values, or to enhance opportunities for public enjoyment related to park purposes;
- address operational and management issues, such as the need for access or the need for boundaries to correspond to logical boundary delineations such as topographic or other natural features or roads; orotherwise protect park resources that are critical to fulfilling park purposes.

All recommendations for boundary changes must also meet the following two criteria:



- The added lands will be feasible to administer considering their size, configuration, and ownership; costs; the views of and impacts on local communities and surrounding jurisdictions; and other factors such as the presence of hazardous substances or exotic species.
- Other alternatives for management and resource protection are not adequate.

Boundary adjustments are typically included in park management plans. Among the four requirements listed by Congress in the National Park and Recreation Act of 1978 for the preparation of a General Management Plans for park units is for the National Park Service to examine what modifications of external boundaries might be necessary to carry out park purposes. Public review of the draft General Management Plan for Pinnacles National Monument will provide an opportunity to obtain feedback on boundary issues and to finalize the NPS recommendation for Rock Springs Ranch. Any substantial boundary change that may be recommended in a National Park Service planning document must be either specifically authorized by Congress or designated as a National Monument through a Proclamation by the President of the United States under the authority of the 1906 Antiquities Act before an area can be added to a park.

LOCATION AND CURRENT USES AT ROCK SPRINGS RANCH

Rock Springs Ranch (RS-Bar) consists of approximately 18,200 acres. The ranch is about 4 miles east of Pinnacles National Monument. Both Rock Springs Ranch and Pinnacles National Monument are located in San Benito County while a small portion of the west side of Pinnacles is located in Monterey County. Access to Rock Springs Ranch is along its western border from State Highway 25 and to its ranch headquarters from Old Hernandez Road. Elevations range from 1,535 feet along the San Benito River to 4,033 feet at Rock Springs Peak. Approximately 4 miles of the San Benito River runs through the property generally parallel with the Old Hernandez Road.

Rock Springs Ranch is a privately-owned hunting club, providing guided hunts for its members. The ranch also has a pasture agreement with a tenant to graze cattle on 14,000-15,000 acres. The property is not available for general public use, except that facilities can be rented for special events including corporate events, family reunions, weddings and training seminars.

The property is zoned AR, or Agricultural Rangeland. The property is also subject to the provisions of and is in compliance with the state's Land Conservation

Agreement with the county through the Williamson Act. The Williamson Act provides property tax benefits to landowners who contract with the county to keep parcels in agricultural or related open space uses. A hunting preserve is a permitted use and is within the conditions of both the county zoning restrictions and the contract. The contract ordinarily runs with the land, but can be terminated when the land is acquired by a public agency.

Preliminary Evaluation of Resource Significance

INTRODUCTION

The National Park Service has adopted four criteria to evaluate the national significance of proposed areas. These criteria, listed in the NPS Management Policies, 2006, state that a resource is nationally significant if it meets all of the following conditions:

- It is an outstanding example of a particular type of resource.
- It possesses exceptional value or quality in illustrating or interpreting the natural or cultural themes of our nation's heritage.
- It offers superlative opportunities for public enjoyment or for scientific study.
- It retains a high degree of integrity as a true, accurate, and relatively unspoiled example of a resource.

National significance for cultural resources will be evaluated by applying the National Historic Landmarks (NHL) criteria contained in 36 CFR Part 65 (Code of Federal Regulations) (see Appendix B). Before resources can be designated as NHLs, they must be evaluated by the NPS's National Historic Landmark Survey, reviewed by the NPS Advisory Board, and recommended to the Secretary of the Interior.

Blue oak woodlands. NPS photo.

This preliminary resource assessment of Rock Springs Ranch is based on existing documentation, the study team site visit in September 2010, and discussions with local resource experts.

POTENTIALLY NATIONALLY SIGNIFICANT NATURAL AND CULTURAL RESOURCES

The study team identified the following resources as potentially nationally significant:

VEGETATION

Rock Springs Ranch includes excellent examples of intact native Central California vegetation, including extensive stands of blue oak woodland and savanna and other unique vegetation. The ranch has four uncommon vegetation types: extensive blue oak (*Quercus douglasii*) woodland at all seral stages, relatively intact native perennial grasslands (*Nassella cernua* or *N. lepida*), serpentine chaparral (leather oak, *Quercus durata*), and serpentine barrens/outcrop.

The quality and quantity of blue oak woodland and associated native perennial grasslands is exceptional for the region. All ages of blue oak are represented on the ranch, indicating that the species is regenerating and retains a high degree of integrity.

Some areas of serpentine soil on the ranch are judged to be high quality habitat for federally-listed Threatened San Benito evening primrose (*Camissonia benitensis*). A survey for this and other species during the growing season could be beneficial.

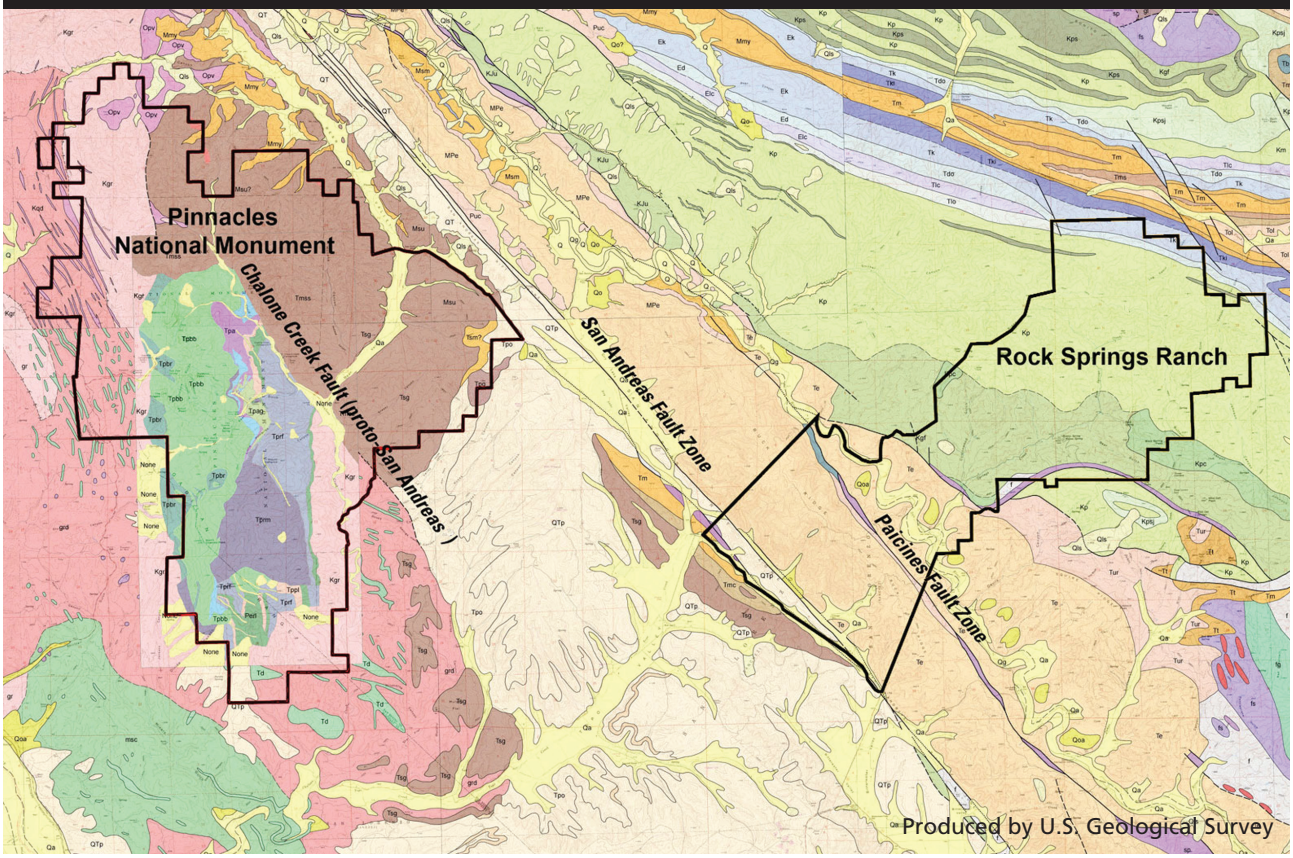
The conservation of the extensive stands of blue oak woodland, along with other chaparral and grassland communities, at Rock Springs Ranch would greatly expand protection of these plant communities, preserve their value in illustrating natural history themes related to forest, chaparral, and grassland ecosystems, and may provide superlative opportunities for public enjoyment and scientific study.

GEOLOGY

The geologic resources at Rock Springs, located on the other side of the San Andreas Fault, are different from the resources at Pinnacles National Monument. The Rock Springs Ranch geologic resources complement the Pinnacles National Monument geology story because they help to tell the story of plate tectonics. The eastern boundary of Pinnacles National Monument and the western boundary of Rock Springs Ranch include San Andreas Fault System resources.

The Rock Springs Ranch property includes "prime examples" of several geologic resources: the San Andreas Fault Zone in Little Rabbit Valley includes

Pinnacles National Monument and Rock Springs Ranch
Geologic Map



excellent geomorphic expression of multiple active strands as well as well-exposed abandoned strands, illustrating the changing and complex nature of a major seismogenic fault; large landslides in the Devils Canyon area have classic geomorphic expression of rapid gravity driven mass-wasting and illustrate the dynamic processes associated with rapid uplift and consequent rapid erosion of the mountainous terrain east of the San Andreas Fault; and large (hill-sized) blocks in mélange entrained in the unnamed fault east of San Benito River illustrate the immense tectonic forces associated with subduction accretion and continent growth along the western margin of North America. These resources and others offer opportunities to illustrate compelling geologic stories of plate tectonics in general, and as they relate to the Pinnacle Rock formations at Pinnacles NM. While the Rock Springs Ranch property is not unique in containing the elements of those geologic stories, the importance of the property is based on its spatial density of different geologic elements (different rock types and geologic structures, different geologic ages), its proximity to Pinnacles NM, and its status as a large single property that includes that wide suite of geologic elements. The additional elements contribute to interpretation of the geologic resources, but do not themselves appear to constitute outstanding examples of these resources. On the whole, the geologic resources would be a valuable addition to the existing Pinnacles NM because of the contrasting/complementing geology and the presence of several "prime examples."

ARCHEOLOGY

Rock Springs Ranch lies within the ancestral homeland of at least one band of the Ohlone people (the Chapana, whose descendents would be associated with the Amah Mutsun Tribal Band). Although there are few obvious visible indications of this rich past (at least to the non-specialist), much could still be recovered and learned about pre-contact Ohlonean life and culture through ethnographic research and archeological investigations. Of at least equal importance is the potential for historic archeology and historical research to reveal evidence of post-Mission period resettlement of the region by Native Californians returning to their ancestral homelands after ca1834. Future research could provide significant information pertaining to the survival and ongoing cultural adaptation of Native peoples up to the present day. The Rock Springs Ranch property represents an important opportunity in both these respects and would provide an excellent place in

which to preserve and share this cultural legacy with living Ohlone descendents and the general public.

The potential for the discovery of archeological resources associated with the Ohlonean culture is very high at Rock Springs Ranch. Much of the landscape would have been attractive to Native American use and occupation during the pre-contact period, especially around areas like Rock Springs itself, where many valuable resources—water, acorns and seeds, and game animals, for example—were concentrated. Because of the relative absence of potentially destructive activities during the historic period, these resources likely retain a high level of integrity. Supporting these assumptions, the team found two milling sites during its reconnaissance, even though it was not systematically looking for this sort of resource. One site, located on Rock Springs Creek, seems to indicate extensive use of the area and that the property as a whole was likely used by the Chapana.

Anecdotal accounts from the early 1950s also describe an Indian burial along the banks of Rock Springs Creek. These observations imply a high potential for more discoveries if a systematic approach is taken. The possibility that significant knowledge about pre-contact Ohlonean society could be obtained from this landscape is substantial. Such knowledge and resources could provide value in illustrating cultural themes related to people and places, as well as opportunities for public enjoyment and scientific study.

OTHER IMPORTANT NATURAL AND CULTURAL RESOURCES

WILDLIFE

Rock Springs Ranch contains a rich diversity of relatively intact wildlife habitat that supports Threatened, Endangered, and other sensitive wildlife species. The ranch provides excellent habitat for the federally Endangered California condor through a combination of seclusion, topography, and food sources. Other sensitive species include Cooper's hawk (*Accipiter cooperii*, California Species of Special Concern), prairie falcon (*Falco mexicanus*, California Species of Special Concern) and several sensitive bat species. Aquatic habitat supports populations of the federally Threatened California tiger salamander (*Ambystoma californiense*), Western spadefoot toad (*Spea hammondii*, California Species of Special Concern), and potential habitat for California red-legged frog (*Rana draytonii*). The habitats found at Rock Springs Ranch are found throughout the region and do not themselves appear to constitute outstanding examples of these resources.

Bedrock mortar site. Photo by Chuck Striplen.

EURO-AMERICAN HISTORIC RESOURCES

The principal historic value of the land is associated with early agricultural and pastoral activities, which were characteristic of the entire region. Because little development has occurred on Rock Springs Ranch subsequent to this early period, the landscape and some of the original built features retain the ability to convey the stories of their historic period. Although individual surviving features may not, in themselves, appear impressive, as a whole these features convey the meaning of an entire landscape and period of time, expressed in its cultural traditions and practices and its material productions.

The isolation of this region has allowed Rock Springs Ranch to survive with surprisingly little change to its principal landscape characteristics, although buildings and structures associated with the historic ranch core have been replaced by modern additions associated with the present hunting operation. This represents a substantial loss from a cultural resource perspective and precludes National Register status (except possibly for a few isolated structures). However, Rock Springs Ranch still provides an opportunity to preserve and interpret the history and ethnographic traditions associated with early California settlement and rural life.

CONCLUSION

The chaparral communities of Rock Springs Ranch, including blue oak woodland, the geologic resources, including the San Andreas Fault landforms, and the archeological sites associated with the Ohlonean culture are potentially nationally significant. Further research, particularly a systematic survey of the area for sites associated with the Ohlonean culture, is needed to confirm this finding. The site's wildlife habitat and Euro-American cultural resources are all important resources, but do not appear to constitute outstanding examples of these types of resources. A comprehensive survey of regional resources would provide a context for evaluating these resources in a more thorough and definitive fashion.

Based on this preliminary analysis, Rock Springs Ranch appears to include nationally significant resources worthy of inclusion in a national park unit. The resources at Rock Springs Ranch complement and expand the suite of resources at Pinnacles National Monument that would enhance opportunities for public enjoyment and scientific study related to the purpose of Pinnacles National Monument.

Preliminary Evaluation of Suitability

An area is considered a suitable addition to the national park system as a stand-alone unit if it represents a natural or cultural resource type that is not already adequately represented in the national park system, or is not comparably represented and protected for public enjoyment. Adequacy of representation is determined on a case-by-case basis by comparing the proposed area to other national park system areas.

Based on this preliminary analysis, Rock Springs Ranch is potentially suitable for addition to the national park system under the following themes and topics:

NATURAL HISTORY THEME: LAND ECOSYSTEMS

TOPICS: DRY CONIFEROUS FOREST AND DRY WOODLAND, GRASSLAND, AND CHAPARRAL

Rock Springs Ranch includes excellent examples of vegetation communities, including blue oak woodland and savanna and other unique vegetation types such as native perennial grasslands and serpentine chaparral. In California, blue oak woodland occurs on approximately 10,000 square miles of land. There are several areas in the South Coast Ranges of the South Pacific Border Region that contain blue oak woodland and savanna. While there are few stands of blue oaks at the eastern boundary of Pinnacles National Monument, there is little evidence of regeneration.

Fort Hunter Liggett, an active military installation in Monterey County, contains over 45,000 acres of blue oak woodland. Throughout California, however, blue oak woodland and savanna is threatened by the absence of regeneration and increasing development in habitat areas. At Rock Springs Ranch, blue oak woodlands appear to be regenerating and retain a high degree of integrity. Because blue oak woodlands and other Mediterranean chaparral vegetation are threatened elsewhere and integrity of these resources is high on this property, the inclusion of Rock Springs Ranch within Pinnacles National Monument could enhance and expand protection of these potentially significant resources.

NATURAL HISTORY THEME: LANDFORMS OF THE PRESENT

TOPICS: SCULPTURE OF THE LAND

NATURAL HISTORY THEME: GEOLOGIC HISTORY

TOPICS: TRIASSIC – CRETACEOUS PERIODS, PALEOCENE – EOCENE EPOCHS, AND OLIGOCENE – RECENT EPOCHS

The Rock Springs Ranch property includes San Andreas Fault landforms and associated rocks in and around Little Rabbit Valley, as well as a diversity of geologic elements (different rock types and geologic structures, different geologic ages), including elements of Coast Range geologic units.

The expression of the San Andreas Fault at Rock Springs Ranch is superior to that at Point Reyes.

The geologic resources on the west side of the San Andreas Fault (and at Rock Springs Ranch in general) are not found at Pinnacles NM. Several of the resource type at Rock Springs Ranch (Franciscan rocks, serpentinite, San Andreas Fault Zone) are also present in Golden Gate NRA and Point Reyes NS. Other resource types (Great Valley Sequence and overlying Paleogene rocks, Coast Range Fault, Paicines Fault) are not present in any NPS unit.

Inclusion of these resources in Pinnacles National Monument would enhance opportunities to study and interpret the San Andreas Fault and plate tectonics.

CULTURAL RESOURCES THEME: PEOPLING PLACES

TOPICS: ETHNIC HOMELANDS AND ENCOUNTERS, CONFLICTS, AND COLONIZATION

Rock Springs Ranch represents a portion of the ancestral homeland of at least one band of the Ohlone people – the Chapana. Although no extensive surveys of the property have been completed for archeological resources, the potential for discovery of Native American archeological resources appears to be high because of the limited historic-period development at Rock Springs Ranch. The Chapana occupied the upper San Benito River watershed for at least 4000 years before the Spanish arrived in the late 1700s. Pinnacles National Monument also includes important cultural resources that represent closely-related Ohlonean peoples. The inclusion of Rock Springs Ranch within Pinnacles National Monument could enhance and expand protection of these potentially significant resources.

CONCLUSION

Based on this preliminary suitability analysis, Rock Springs Ranch appears to be a suitable addition to the national park system. Rock Springs Ranch would expand and enhance protection of blue oak woodland and other uncommon vegetation types, some of which are not represented at Pinnacles. The geologic resources at Rock Springs Ranch include types that are not found at Pinnacles, and addition of these resources would enhance opportunities to study and interpret the San Andreas Fault and plate tectonics. There is also the potential to protect and increase knowledge of cultural resources related to Native peoples from pre-contact times up through the historic period. Further study of other lands in the vicinity of Pinnacles and Rock Springs Ranch would be beneficial to determine the extent and quality of other resources of this type in the area.

Preliminary Evaluation of Feasibility

This section provides a preliminary evaluation of the feasibility of adding the Rock Springs Ranch property to the National Park System. This analysis incorporates the two sets of feasibility criteria for inclusion of new areas in the National Park System and for boundary adjustments. In evaluating feasibility, the NPS considers a range of factors, including size and boundary configurations; landownership patterns; local planning and zoning; current and potential uses of the study area and surrounding lands; access and public enjoyment potential; current and potential threats to the resources; existing degradation of resources; the level of local and general public support (including landowners); costs associated with acquisition, development, restoration, and operation; staffing requirements; and, the economic/socioeconomic impacts of designation as a unit of the national park system.

Access and Facilities. The Rock Springs Ranch property is not contiguous with Pinnacles National Monument. It is located approximately 4 miles from Pinnacles' eastern entrance at Highway 25. There is an extensive network of ranch roads within the property (40+ miles), but most of the roads are unpaved and would need work to address accessibility and safety issues as well as resource impacts. The initial costs associated with maintaining, improving, decommissioning roads, and converting some roads to trails would be high. There are relatively new facilities on the property (lodge and guest rooms, residences, barns, shops, corrals, storage buildings) that are well constructed and could be appropriate for administrative use or visitor services. Overall, the facilities at Rock Springs Ranch appear to be in fair to good condition. The water infrastructure (wells, pumps, tanks, pipes) is aging and may need to be replaced. Initial costs of addressing deficiencies of facilities and replacing infrastructure would be high.

Resource Threats. Overall, the quality and condition of the natural resources appear to be good; however, the ranch has infestations of yellow starthistle (Centaurea solstitialis) and/or tocalote (Centaurea melitensis) on a portion of the property. Infestation of yellow starthistle is typical in the region. On the western portion of the ranch land, heavy infestations occur on nearly all grassland areas between Old Hernandez Road and Hwy 25, on the floodplains adjacent to San Benito River, and for approximately 2 miles east of the river. The eastern portion of the ranch land at higher elevations has only sparse or no yellow starthistle or tocalote. Some sparse stands of tamarisk (Tamarix sp.) occur on the banks of the San Benito River. Management of these invasive plant species would require prioritization of treatment areas with substantial time and resource investment. There is also evidence of exotic wild pig damage to resources, in particular the springs and watercourses. Wild pigs would need to be removed and pig fencing should be installed similar to that at Pinnacles NM. The costs of controlling the invasive species on the property would be very high, and would continue for many years.

Many historic structures and related features remaining on the property have either been altered or replaced by modern additions. There may be a few historic resources that could be restored or rehabilitated. The costs associated with restoration and rehabilitation would be high.

Land Use and Surrounding Landownership. The property is owned by one landowner. Overall the current management of the property is generally compatible with resource protection goals. Current uses of the property include grazing and (private) hunting, and there is local public support for the continuation of these uses. Under NPS ownership, continued grazing may be used to help manage for healthy grasslands and reduce invasive plant infestations. If cattle grazing were to continue, additional funding would be needed to manage the grazing program. Surrounding properties are privately owned. Increased public access to Rock Springs Ranch may be a concern for surrounding property owners. Old Hernandez Road crosses through several ranches. Future planning for entrance roads and public use opportunities would need to take this concern into consideration.

Public Enjoyment Potential. The potential for public enjoyment at Rock Springs Ranch is high. Public use opportunities could include hiking, biking, horseback riding, camping, picnicking, education, natural and

cultural resource appreciation, and experiencing wilderness character (solitude, dark skies, natural quiet, etc). Some of these potential uses would require improved access and facilities to meet operational and visitor needs. Costs could be moderate to high depending on the levels of visitor use and opportunities provided.

Local Support. The current landowner supports NPS acquisition of the property and addition to Pinnacles National Monument. The owner formally notified Senators Feinstein and Boxer, Congressional Representative Farr, California Governor Schwarzenegger, and NPS Director Jon Jarvis of his support for HB 3444 to designate Pinnacles National Monument as a national park. Aside from the support of the local tribal group (Amah Mutsun Tribal Band), the level of support in the surrounding community is unknown. The NPS did not seek public input during the course of this preliminary assessment of Rock Springs Ranch. The NPS will seek public input regarding inclusion of the property within the park boundary as part of public review of the draft General Management Plan for Pinnacles National Monument.

Costs. Costs to acquire and manage Rock Springs Ranch would be very high, including costs for land acquisition, resource protection, and staffing and visitor services for this large property that is geographically separated from Pinnacles. Acquisition of the property would be a substantial purchase for the National Park Service. The landowner's current asking price for the ranch is approximately $24,000,000. Land acquisition by the National Park Service is not necessary for inclusion within a national park boundary. The land could be acquired by another entity with NPS as a ready collaborator.

Because Rock Springs Ranch is a large property that is not contiguous with Pinnacles National Monument, there would be substantial staffing needs to operate Rock Springs Ranch as an addition to Pinnacles NM. Pinnacles cannot manage this property without a considerable increase in funding, or a substantial negative impact on existing park resources and services. The costs for operation of some portion of the ranch as a unit of the national park system would depend on the nature of the park unit and the type of role for the National Park Service.

CONCLUSION

Based on available information and the current management capacities at Pinnacles National Monument and the NPS as a whole, adding Rock Springs Ranch to Pinnacles National Monument, from a feasibility standpoint, would be a difficult endeavor. Because of the size of the property and the separation from the current Pinnacles National Monument lands, acquisition, management and operation would be challenging and costly despite the significant resources.

- The costs of acquiring the property could be very high, limiting the potential for NPS acquisitions at this and other parks for many years.
- Considerable funding would be needed to bring the facilities, particularly the extensive network of ranch roads and potential trails, to the standards required for general public recreational use. Funds used for this purpose would likely diminish the funds available for similar projects at Pinnacles NM.
- Similarly, the costs of providing adequate staffing for public use, addressing resource impacts such as invasive species, and achieving protection goals would be considerable, and would require a substantial increase in the park's base budget as well as funding for individual projects.

Several other factors that would affect feasibility require further analysis, including evaluation of safety issues, historic preservation costs, and the level of public support.

Based on this preliminary analysis, the NPS finds that management of Rock Springs Ranch as either an addition to Pinnacles National Monument or as a stand-alone unit of the national park system is not likely to be feasible in the near future despite the significant resources evident at the site, and that other options for the protection of this important property should be pursued. Partnerships between the NPS and a conservation-oriented landowner and/or other public agencies may be feasible and could be explored.

Need for National Park Service Management

If an area is found to be nationally significant, suitable and feasible for NPS management, the NPS will still recommend management by an organization other than the NPS unless NPS management is found to be necessary or superior to alternate management strategies.

As described earlier, the NPS concludes from this preliminary analysis of Rock Springs Ranch that NPS management is not likely to be feasible, and other management options should be pursued.

Given the significance of the natural and cultural resources at Rock Springs Ranch, its complementary relationship to resources, stories, and values at Pinnacles NM, the value of preserving open space around the monument, and its potential for enhancing public enjoyment of Pinnacles NM and the region,

the NPS values Rock Springs Ranch as a neighbor and partner. It is suggested that protection of resources and enhancement of public enjoyment opportunities should be considered through these, or other, alternative means:

NPS Partnership/Collaboration – Pinnacles National Monument could partner with the land manager under any of the options below. The NPS could provide limited staffing for resource protection, and interpretation and education programs through existing grants and technical assistance programs. Pinnacles NM would need additional staff and funding depending on the nature of the partnership and level of collaboration.

BLM Management – If determined appropriate, the Bureau of Land Management (BLM) could acquire and manage the property. The BLM already manages thousands of acres in the county with hunting, grazing and recreational uses. The BLM is an appropriate agency with professional staffing to manage continued hunting and grazing uses, as well as public recreation.

Conservation Easements – Federal agencies positioned in the county such as the U.S. Fish and Wildlife Service, Natural Resources Conservation Service, BLM and NPS could work with groups such as the California Rangeland Conservation Coalition, the California Rangeland Trust and interested landowners to facilitate conservation of priority habitats in the region. Easements for the conservation of agricultural lands between and surrounding Pinnacles and Rock Springs Ranch could help keep development in abeyance, and provide for a sizable conservation area while continuing traditional ranch uses and private ownership in the area. Protection of condor habitat could include maintenance of a grazing program on the land and a designated recreational hunting zone (already requiring use of non-lead ammunition by law) that could serve as a food resource generator for scavenging condors, as well as population sink for wild pigs.

Other Partners – Other key partners that could potentially provide assistance include: US Fish and Wildlife Service, US Department of Agriculture, and US Geological Survey. Other potential partners could include The Nature Conservancy, National Parks Conservation Assistance Program, the Pinnacles Partnership (the non-profit "friends group" associated with Pinnacles National Monument), and the Amah Mutsun Tribal Band (AMTB). The AMTB has expressed strong interest in partnering with NPS to develop programs to restore, enhance, preserve, and interpret physical and biological resources with cultural significance.

Development and analysis of these options or any others is beyond the scope of this report. The Pinnacles National Monument General Management Plan will address options for collaboration.

Conclusion

The NPS evaluated the potential for addition of RSR to Pinnacles National Monument according to the criteria for new park units as well as under the criteria for boundary adjustments. Those criteria include evaluating the significance of the area's resources, the suitability of the area to be added to the national park system, the feasibility of managing the added lands, and the need for NPS management.

The preliminary findings are the following:

- Significance: The chaparral communities of Rock Springs Ranch, including blue oak woodland, geological resources, and the archeological sites associated with the Ohlonean culture, are potentially nationally significant. Further research, particularly a systematic survey of the area for sites associated with the Ohlonean culture, is needed to confirm this finding. The site's wildlife habitat and Euro-American cultural resources are all important resources, but do not appear to constitute outstanding examples of these types of resources. *Based on this preliminary analysis, Rock Springs Ranch appears to include nationally significant resources worthy of inclusion in a national park unit. The resources at Rock Springs Ranch complement and expand the suite of resources at Pinnacles National Monument and would enhance opportunities for public enjoyment and scientific study related to the purpose of Pinnacles National Monument*.

- Suitability: At Rock Springs Ranch, the chaparral communities, geological resources, and archeological sites associated with Ohlonean culture appear to represent themes that are not well represented in the national park system, although more research is needed to determine the overall extent of these types of resources. *Based on this preliminary analysis, Rock Springs Ranch appears to include resources suitable for inclusion in a national park unit, although further research is recommended*.

- Feasibility: The costs to acquire and manage Rock Springs Ranch would be very high, including costs for land acquisition, resource protection and management of invasive species, and staffing and visitor services for this large property that is geographically separated from Pinnacles National Monument. *Based on this preliminary analysis, the addition of Rock Springs Ranch to Pinnacles National Monument is not likely to be feasible in the near future, and other options for the protection of this important property should be pursued. Partnerships between the NPS and a conservation-oriented landowner and/or other public agencies may be feasible and could be explored.*

- Need for NPS management: Rock Springs Ranch, its significant resources, and its public enjoyment potential, appear to be appropriate for management by another public agency such as the Bureau of Land Management, or through conservation easement or partnership arrangements.

The addition of Rock Springs Ranch to the national park system as an addition to Pinnacles National Monument does not appear to be feasible at this time, and management by another entity may be more appropriate. The NPS does not anticipate including this area as a boundary expansion recommendation in the draft General Management Plan for Pinnacles National Monument. However, the NPS recognizes the importance of the significant resources at Rock Springs Ranch, the area's complementary relationship to resources, stories and values at Pinnacles NM, the value of preserving open space and habitat around the monument, and the ranch's potential for enhancing public enjoyment of Pinnacles and the region. The NPS will therefore recommend in the draft GMP that Pinnacles NM find common purposes in collaborating with current and future ranch owners and managers to achieve resource protection, visitor education and interpretation (if appropriate), and other conservation goals in congruence with existing uses such as ranching and hunting.

View of Pinnacles National Monument from Rock Springs Ranch. NPS photo.

Glossary

Accessibility: Occurs when individuals with disabilities are able to reach, use, understand, or appreciate NPS programs, facilities, and services, or to enjoy the same benefits that are available to persons without disabilities. See also, "universal design."

Acoustic ecology: The study of sound in the relationships between organisms and their environment.

Adaptive management: A system of management practices based on clearly identified outcomes, monitoring to determine if management actions are meeting outcomes, and, if not, facilitating management changes that will best ensure that outcomes are met or to re-evaluate the outcomes. Adaptive management recognizes that knowledge about natural resource systems is sometimes uncertain and is the preferred method of management in these cases.

Archeology: The scientific study, interpretation, and reconstruction of past human cultures from an anthropological perspective based on the investigation of the surviving physical evidence of human activity and the reconstruction of related past environments. Historic archeology uses historic documents as additional sources of information.

Archeological resource: Any material remains or physical evidence of past human life or activities which are of archeological interest, including the record of the effects of human activities on the environment. They are capable of revealing scientific or humanistic information through archeological research.

Area-specific desired condition (also called area-specific action): Based on management zones, area-specific guidance about the desired resource conditions, visitor experience opportunities, and appropriate kinds and levels of management, development, and access (modes of transportation) for particular areas of the monument; also the kinds of changes needed to move from the existing to the desired conditions.

Asset: A physical structure or grouping of structures, land features, or other tangible property which has a specific service or function.

Asset management: A systematic process of maintaining, upgrading, and operating assets cost-effectively by combining engineering principles with sound business practices and economic theory.

Backcountry: Primitive, undeveloped portions of park units, some of which may be managed as "wilderness."

Best management practices (BMPs): Practices that apply the most current means and technologies available to not only comply with mandatory environmental regulations, but also maintain a superior level of environmental performance. See also, "sustainable practices/principles."

Carbon Footprint: A measure of the amount of carbon dioxide produced by a person, organization or state in a given time.

Climate Change: refers to any distinct change in measures of climate lasting for a long period of time. In other words, "climate change" means major changes in temperature, rainfall, snow, or wind patterns lasting for decades or longer. Climate change may result from:

- natural factors, such as changes in the Sun's energy or slow changes in the Earth's orbit around the Sun;
- natural processes within the climate system (e.g., changes in ocean circulation);
- human activities that change the atmosphere's make-up (e.g, burning fossil fuels) and the land surface (e.g., cutting down forests, planting trees, building developments in cities and suburbs, etc.).

CLIP Tool: Software developed jointly by the Environmental Protection Agency and the NPS, was used to calculate the park's greenhouse gas emissions.

Conserve: To protect from loss or harm; preserve. Historically, the terms conserve, protect, and preserve have come collectively to embody the fundamental purpose of the NPS—preserving, protecting and conserving the national park system.

Consultation (cultural resources): A discussion, conference, or forum in which advice or information is sought or given, or information or ideas are exchanged. Consultation generally takes place on an informal basis; formal consultation requirements for compliance with section 106 of the NHPA are published in 36 CFR Part 800. Consultation with recognized tribes is done on a government-to-government basis.

Cultural Landscape: A geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or esthetic values. There are four non-mutually-exclusive types of cultural landscapes: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes.

Cultural Resource: An aspect of a cultural system that is valued by or significantly representative of a culture or that contains significant information about a culture. A cultural resource may be a tangible entity or a cultural practice. Tangible cultural resources are categorized as districts, sites, buildings, structures, and objects for the National Register of Historic Places; and as archeological resources, cultural landscapes, structures, museum objects, and ethnographic resources for NPS management purposes.

Cumulative actions: Actions that, when viewed with other actions in the past, the present, or the reasonably foreseeable future regardless of who has undertaken or will undertake them, have an additive impact on the resource the proposal would affect.

Desired condition (also called management direction and management actions): A park's natural and cultural resource conditions that the National Park Service aspires to achieve and maintain over time, and the conditions necessary for visitors to understand, enjoy, and appreciate those resources.

Developed area: An area managed to provide and maintain facilities (e.g., roads, campgrounds, housing) serving visitors and park management functions. Includes areas where park development or intensive use may have substantially altered the natural environment or the setting for culturally significant resources.

Ecosystem: A system formed by the interaction of a community of organisms with their physical and biological environment, considered as a unit.

Ecosystem management: A collaborative approach to natural and cultural resource management that integrates scientific knowledge of ecological relationships with resource stewardship practices for the goal of sustainable ecological, cultural, and socioeconomic systems.

Enabling legislation: The law(s) that establish a park as a unit within the national park system.

Environmental assessment (EA): A brief NEPA document that is prepared, with public involvement, (a) to help determine whether the impact of a proposed action or its alternatives could be significant; (b) to aid the NPS in compliance with NEPA by evaluating a proposal that will have no significant impacts, but may have measurable adverse impacts; or (c) as an evaluation of a proposal that is either not described on the list of categorically excluded actions, or is on the list, but exceptional circumstances apply.

Environmentally preferred alternative (or environmentally preferable alternative): Of the action alternatives analyzed, the one that would best promote the policies in NEPA section 101. This is usually selected by the planning team members. CEQ encourages agencies to identify an environmentally preferable alternative in the draft EIS or EA.

Ethnographic resource: A site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it.

Existing infrastructure: The systems, services, and facilities currently in a park unit, including buildings, roads, trails, power equipment, water supply, etc.

Finding of No Significant Impact (FONSI): A determination based on an EA and other factors in the public planning record for a proposal that, if implemented, would have no significant impact on the human environment.

Foundation document: A statement that begins a park unit's planning process and sets the stage for all future planning and decision-making by identifying the park's mission, purpose, significance, special mandates and the broad, park-wide mission goals. Incorporated into a park unit's GMP, but may also be produced as a stand-alone document for a park unit.

Fundamental resources and values: Those features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning and management because they are critical to achieving the park unit's purpose and maintaining its significance. A fundamental value, unlike a tangible resource, refers to a process, force, story or experience, such as such as an island experience, the ancestral homeland, wilderness values, or oral histories.

Fossil: Any evidence of past life found in a geological context.

Fossiliferous: Containing fossils.

Gateway community: A community that exists in close proximity to a unit of the national park system whose residents and elected officials are often affected by the decisions made in the course of managing the park unit, and whose decisions may affect the resources of the park. Because of this, there are shared interests and concerns regarding decisions. Gateway communities usually offer food, lodging, and other services to park visitors. They also provide opportunities for employee housing, and a convenient location to purchase goods and services essential to park administration.

General management plan (GMP): A plan which clearly defines direction for resource preservation and visitor use in a park, and serves as the basic foundation for decision making. GMPs are developed with broad public involvement.

Geologic period: The period is a basic unit of geological time. Two or more periods comprise a geological era. Most periods are divided into smaller units called epochs.

Geologic resources: Features produced from the physical history of the earth, or processes such as exfoliation, erosion and sedimentation, glaciation, karst or shoreline processes, seismic, and volcanic activities.

Historic district: A geographically definable area, urban or rural, possessing a significant concentration, linkage, or continuity of sites, landscapes, structures, or objects, united by past events or aesthetically by plan or physical developments.

Human environment: Defined by CEQ as the natural and physical environment, and the relationship of people with that environment. Although the socioeconomic environment receives less emphasis than the physical or natural environment in the CEQ regulations, NPS considers it to be an integral part of the human environment.

Impact: The likely effect of an action or proposed action upon specific natural, cultural or socioeconomic resources. Impacts may be direct, indirect, individual, cumulative, beneficial, or adverse. (Also see Unacceptable impacts.)

Impact topics: Specific natural, cultural, or socioeconomic resources that would be affected by the proposed action or alternatives (including no action). The magnitude, duration, and timing of the effect to each of these resources is evaluated in the impact section of an EA or an EIS.

Impairment: An impact that, in the professional judgment of a responsible NPS manager, would harm the integrity of park resources or values and violate the 1916 NPS Organic Act's mandate that park resources and values remain unimpaired.

Implementation plan: A plan that focuses on how to implement an activity or project needed to achieve a long-term goal. An implementation plan may direct a specific project or an ongoing activity.

Indicators of user capacity: Specific, measurable physical, ecological, or social variables that can be measured to track changes in conditions caused by public use, so that progress toward attaining the desired conditions can be assessed

Issue: Some point of debate that needs to be decided.

Life cycle costing (analysis): An accounting method that analyzes the total costs of a product or service, including construction, maintenance, manufacturing, marketing, distribution, useful life, salvage, and disposal.

Light Pollution: The illumination of the night sky caused by artificial light sources, decreasing the visibility of stars, and other natural sky phenomena. Also includes other incidental or obtrusive aspects of outdoor lighting such as glare, trespass into areas not needing lighting, alternation of nighttime landscape, and negative impact to ecosystems.

Lithology: The study of rocks; the character of a rock formation.

Management concept: A brief, statement of the kind of place the park should be (a "vision" statement)

Management zone: A geographical area for which management directions have been developed to determine what can and cannot occur in terms of resource management, visitor use, access, facilities or development, and park operations. Each zone has a unique combination of resource and social conditions and a consistent management direction. Different actions are taken by the NPS in different zones.

Management zoning: The application of management zones to a park unit. The application of different type of zones and/or size of zones will likely vary in different alternatives.

Management direction (also called desired condition and management prescription): A planning term referring to statements about desired resource conditions and visitor experiences, along with appropriate kinds and levels of management, use, and development for each park area.

Manager: The managerial-level employee who has authority to make decisions or to otherwise take an action that would affect park resources or values. Most often it refers to the park superintendent or regional director, but may at times include, for example, a resource manager, facility manager, or chief ranger to whom authority has been re-delegated.

Mitigation: A modification of a proposal to lessen the intensity of its impact on a particular resource. Actions can be taken to avoid, reduce, or compensate for the effects of environmental damage.

Museum Collection: Assemblage of objects, works of art, historic documents, or natural history specimens collected according to a rational scheme and maintained so they can be preserved, studied, and interpreted for public benefit. Museum collections normally are kept in park museums, although they may also be maintained in archeological and historic preservation centers (NPS DO-28).

Museum object: A material thing possessing functional, aesthetic, cultural, symbolic, and/or scientific value, usually movable by nature or design. Museum objects include prehistoric and historic objects, artifacts, works of art, archival material, and natural history specimens that are part of a museum collection. Structural components may be designated museum objects when removed from their associated structures.

National Park Service Organic Act: The 1916 law (and subsequent amendments) that created the National Park Service and assigned it responsibility to manage the national parks.

National park system: The sum total of the land and water now or hereafter administered by the Secretary of the Interior through the National Park Service for park, monument, historic, parkway, recreational or other purposes.

National Register of Historic Places: The comprehensive federal listing of nationally, regionally, or locally significant districts, sites, buildings, structures, and objects of national, regional, state, and local significance in American history, architecture, archeology, engineering, and culture kept by the National Park Service in authority of the National Historic Preservation Act of 1966.

Native American: Pertaining to American Indian tribes or groups, Eskimos and Aleuts, and Native Hawaiians, Samoans, Chamorros, and Carolinians of the Pacific Islands. Groups recognized by the federal and state governments and named groups with long-term social and political identities who are defined by themselves and others as Indian are included.

NEPA process: The objective analysis of a proposed action to determine the degree of its impact on the natural, physical, and human environment; alternatives and mitigation that reduce that impact; and the full and candid presentation of the analysis to, and involvement of, the interested and affected public –as required of federal agencies by the National Environmental Policy Act of 1969.

Other important resources and values: Those attributes that are determined to be particularly important to park management and planning, although they are not related to the park's purpose and significance

Paleontological / paleoecological resources: Resources such as fossilized plants, animals, or their traces, including both organic and mineralized remains in body or trace form. Paleontological resources are studied and managed in their paleoecological context (that is, the geologic data associated with the fossil that provides information about the ancient environment).

Pastoralism refers to the economy of raising livestock (as opposed to agriculture or agrarianism, which refer to raising plants, as in farming.)

Planning, Environment, and Public Comment (PEPC) System: An online database designed to facilitate the project management process in conservation planning and environmental impact analysis. It assists NPS employees in making informed decisions with regard to a number of compliance issues throughout the planning, design, and construction process.

Potential boundary modifications: The description of areas or resources that meet criteria for boundary adjustments, along with the rationale for an adjustment,

Potential management zone: General guidance about an integrated set of resource conditions and associated visitor experiences that could be applied to various locations throughout a park,

Preferred alternative: The alternative an NPS decision-maker has identified as preferred at the draft EIS stage. It is identified to show the public which alternative is likely to be selected to help focus its comments.

Preserve: To protect from loss or harm; conserve. Historically, the terms preserve, protect and conserve have come collectively to embody the fundamental purpose of the NPS—preserving, protecting and conserving the national park system.

Preservation (cultural resources): The act or process of applying measures to sustain the existing form, integrity, and material of a historic structure, landscape or object. Work may include preliminary measures to protect and stabilize the property, but generally focuses upon the ongoing preservation maintenance and repair of historic materials and features rather than extensive replacement and new work.

Primary interpretive themes: The most important ideas or concepts to be communicated to the public about a park

Professional judgment: A decision or opinion that is shaped by study and analysis and full consideration of all the relevant facts, and that takes into account

- the decision-maker's education, training, and experience
- advice or insights offered by subject matter experts and others who have relevant knowledge and experience
- good science and scholarship; and, whenever appropriate,
- the results of civic engagement and public involvement activities relating to the decision.

Public involvement (also called public participation): The active involvement of the public in NPS planning and decision-making processes. Public involvement occurs on a continuum that ranges from providing information and building awareness, to partnering in decision making.

Projected implementation costs: A projection of the probable range of recurring annual costs, initial one-time costs, and life-cycle costs of plan implementation.

Purpose: The specific reason(s) for establishing a particular park unit.

Reduction is from the Spanish reduccion, which was the technical term describing how the Indians were gathered from multiple locations and forced to live in a single community within or around a mission. It is essentially synonymous with "missionize", though it does not carry the additional meanings of conversion and acculturation, which were also part of the mission project.

Rehabilitation: In reference to cultural resources, the act or process of making possible an efficient compatible use for a historic structure or landscape through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, and architectural values (NPS DO-28).

Research Natural Area (RNA): Research Natural Areas are part of a national network of sites administratively designed to facilitate research and preserve natural features. RNAs are usually established in a typical example of an ecological community type, preferably one having been little disturbed in the past and where natural processes are not unduly impeded. The tract is set aside permanently and is managed exclusively for approved non-manipulative research; i.e., research that measures but does not alter existing conditions. Activities in RNAs are restricted to non-manipulative research, education, and other activities that will not detract from an area's research values. An RNA in a park is designated by the National Park Service.

Restoration: From a cultural resource perspective, (1) The act or process of accurately depicting the form, features, and character of a historic structure, landscape, or object as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period; (2) The resulting structure, landscape, or object.

From a natural resource perspective, restoration refers to the reestablishment/recovery of biological community structure, natural functions and processes in landscapes that have been disturbed or altered by people — actions taken to return disturbed areas to the natural conditions and processes characteristic of the ecological zone in which the damaged resources are situated.

Landscapes that have been disturbed by natural phenomena, such as floods and hurricanes, generally are allowed to recover naturally in parks unless manipulation is necessary to protect other park resources, developments, or employee and public safety.

Sacred Sites: Certain natural and cultural resources treated by American Indian tribes and Alaska Natives, and Native Hawaiians as sacred places having established religious meaning, and as locales of private ceremonial activities.

Scoping: Includes internal NPS decision-making on issues, alternatives, mitigation measures, the analysis boundary, appropriate level of documentation, lead and cooperating agency roles, available references and guidance, defining purpose and need, and so forth; and external scoping, the early involvement of the interested and affected public.

Section 106: Refers to Section 106 of the National Historic Preservation Act of 1966, which requires federal agencies to take into account the effects of their proposed undertakings on properties included or eligible for inclusion in the National Register of Historic Places and give the Advisory Council on Historic Preservation a reasonable opportunity to comment on the proposed undertakings.

Significance: Statements of why, within a national, regional, and systemwide context, the park's resources and values are important enough to warrant national park designation.

Social Trail: A trail that is created by humans and is not part of the monument's official designated trail system; also called unofficial and visitor-created trails.

Soil Association: A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Soil Map Units: A unit of description used in soil surveys. It is a locality of soil containing specific characteristics. Soil associations can contain many different soil map units.

Soundscape (natural): The aggregate of all the natural, nonhuman-caused sounds that occur in parks, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive, and can be transmitted through air, water, or solid materials.

State Historic Preservation Officer (SHPO): An official in each state appointed by the governor to administer the state historic preservation program and carry out certain responsibilities relating to federal undertakings in the state (NPS DO-28).

Structure: Structures are constructed works, usually immovable by nature or design, consciously created to serve some human activity. Examples are buildings of various kinds, monuments, dams, roads, railroad tracks, canals, millraces, bridges, tunnels, locomotives, nautical vessels, stockades, forts and associated earthworks, Indian mounds, ruins, fences, and outdoor sculpture. In the national register program "structure" is limited to functional constructions other than buildings (NPS DO-28).

Special mandates: Legal mandates specific to a park unit that expand upon or contradict a park unit's legislated purpose.

Stakeholders: Individuals and organizations that are actively involved in the project, or whose interests may be positively or negatively affected as a result of the project execution /completion. They may also exert influence over the project and its results. For GMP planning purposes, the term stakeholder includes NPS offices/staff as well as public and private sector partners and the public, which may have varying levels of involvement.

Standards: The minimum acceptable condition for an indicator of a desired condition

Stewardship: The cultural and natural resource protection ethic of employing the most effective concepts, techniques, equipment, and technology to prevent, avoid, or mitigate unacceptable impacts.

Strategic plan: A Service-wide, 5-year plan required by GPRA (5 USC 306) in which the NPS states (1) how it plans to accomplish its mission during that time, and (2) the value it expects to produce for the tax dollars expended. Strategic plans serve as "performance agreements" with the American people.

Superintendent: The senior onsite NPS official in a park.

Sustainable design: Design that applies the principles of ecology, economics, and ethics to the business of creating necessary and appropriate places for people to visit, live in, and work. Development that has a sustainable design sits lightly upon the land, demonstrates resource efficiency, and promotes ecological restoration and integrity, thus improving the environment, the economy, and society.

Sustainable practices/principles: Those choices, decisions, actions and ethics that will best achieve ecological/ biological integrity; protect qualities and functions of air, water, soil, and other aspects of the natural environment; and preserve human cultures. Sustainable practices allow for use and enjoyment by the current generation, while ensuring that future generations will have the same opportunities.

Traditionally associated peoples: Social cultural entities such as tribes, communities, and kinship units exhibiting a continued identity and associated with a specific park unit, area, or resource.

User Capacity: The type and level of use that can be accommodated while sustaining the quality of park resources and visitor opportunities consistent with the purposes of the park unit. It is not necessarily a set of numbers or limits, but rather a process involving establishing desired conditions, monitoring, evaluation, and actions (managing visitor use) to ensure values are protected.

Unacceptable impacts: Impacts that, individually or cumulatively, would

- be inconsistent with a park's purposes or values, or
- impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process, or
- create an unsafe or unhealthful environment for visitors or employees, or
- diminish opportunities for current or future generations to enjoy, learn about, or be inspired by park resources or values, or
- unreasonably interfere with park programs or activities, or an appropriate use, or
    - the atmosphere of peace and tranquility, or the natural soundscape maintained in wilderness and natural, historic, or commemorative locations within the park, or
    - NPS concessioner or contractor operations or services.

Universal design: The design of products and environments to be usable by all people to the greatest extent possible, without the need for adaptation or specialized design.

Value analysis/value engineering: An organized, multi-disciplined team effort that analyzes the functions of facilities, processes, systems, equipment, services, and supplies for the purpose of achieving essential functions at the lowest lifecycle cost consistent with required performance, reliability, quality, and safety.

Visitor: Anyone who physically visits a park for recreational, educational or scientific purposes, or who otherwise uses a park's interpretive and educational services, regardless of where such use occurs (e.g., via Internet access, library, etc.).

Visitor experience: The perceptions, feelings, and reactions a person has while visiting a park. Examples of visitor experiences include: a sense of being immersed in a natural landscape; a feeling of being crowded; a feeling of being in an area where the sights and sounds of people and vehicles are predominant; having a sense of challenge and adventure; or a perception of solitude and privacy.

Wilderness (designated): Federal land that has been designated by Congress as a component of the national wilderness preservation system.

Zone: See "management zone."

Acronyms and Abbreviations

ABP	Asset Business Plan
ABA	Architectural Barriers Act of 1968
ADA	Americans with Disabilities Act of 1970
APCD	Air Pollution Control District
API	Asset Priority Index
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
CBA	Choosing By Advantages
CCC	Civilian Conservation Corps
CEQ	Council on Environmental Quality
CLI	Cultural Landscape Inventory
CLIP	Climate Leadership in Parks
CFR	Code of Federal Regulations
C02	Carbon Dioxide
CRV	Current Replacement Value
DO	Director's Order
EA	Environmental Assessment
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FCI	Facility Condition Index
FCRPA	Federal Cave Resources Protection Act of 1988
FMH	Fire Effects Handbook
FMSS	Facility Management Software System
FTE	Full time equivalent
FY	Fiscal Year
GIS	Geographic Information Systems
GMP	General Management Plan
I&M	Inventory and Monitoring
IMPROVE	Interagency Monitoring of Protected Visual Environments
LCS	List of Classified Structures
MMP	Museum Management Plan
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NOx	nitrogen oxide and nitrogen dioxide
NPS	National Park Service (also Park Service)
NRHP	National Register of Historic Places
PAMP	Park Asset Management Plan
PEPC	Planning, Environment, and Public Comment
PL	Public Law
PM	particulate matter
PWA	Public Works Administration
RMCO-NRDC	Rocky Mountain Climate Organization and the Natural Resources Defense Council
ROG	reactive organic gases
RV	Recreational Vehicle
SO_2	Sulfur dioxide
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

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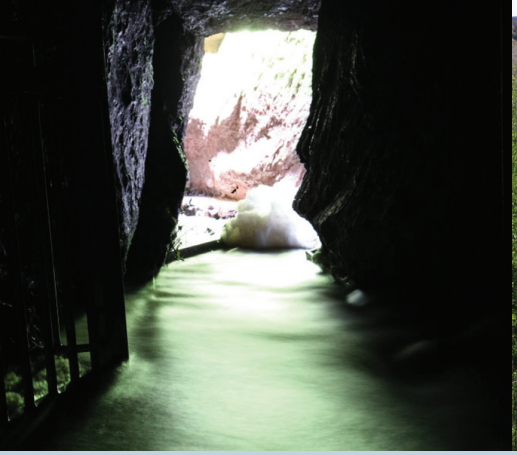

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