

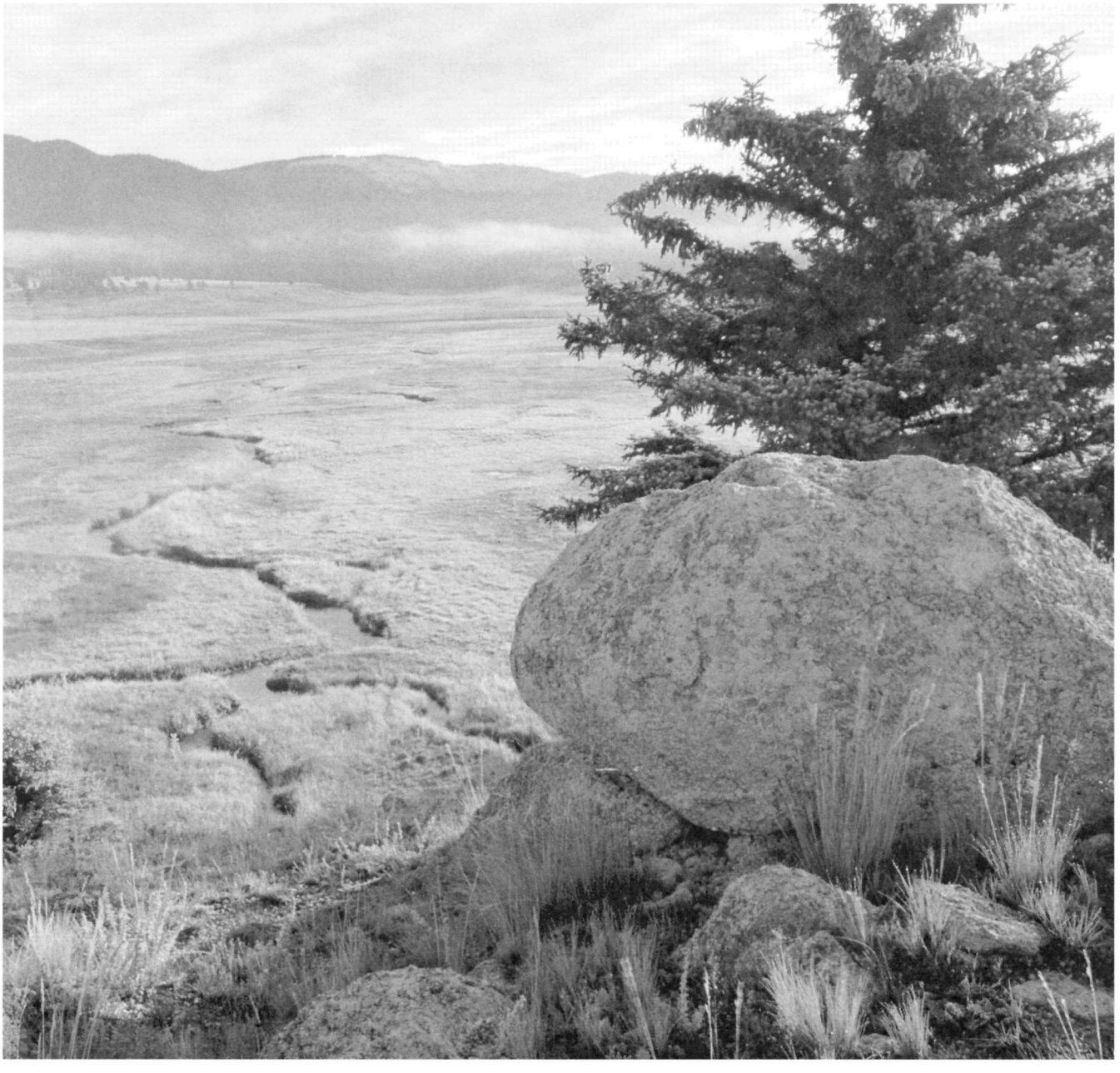
VALLES CALDERA
NATIONAL PRESERVE

Framework and Strategic Guidance for Comprehensive Management



VALLES CALDERA NATIONAL PRESERVE

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for Comprehensive Management



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Executive Summary

The Valles Caldera National Preserve is an 89,000-acre federal property in northern New Mexico, which was established in 2000 and assigned to be administered by the Valles Caldera Trust under a new and experimental management regime set forth in the Valles Caldera Preservation Act of 2000 (Public Law 106-248).

This document presents the framework for decision making that the Valles Caldera Trust proposes to use as it develops programs and policies for the management and use of the preserve.

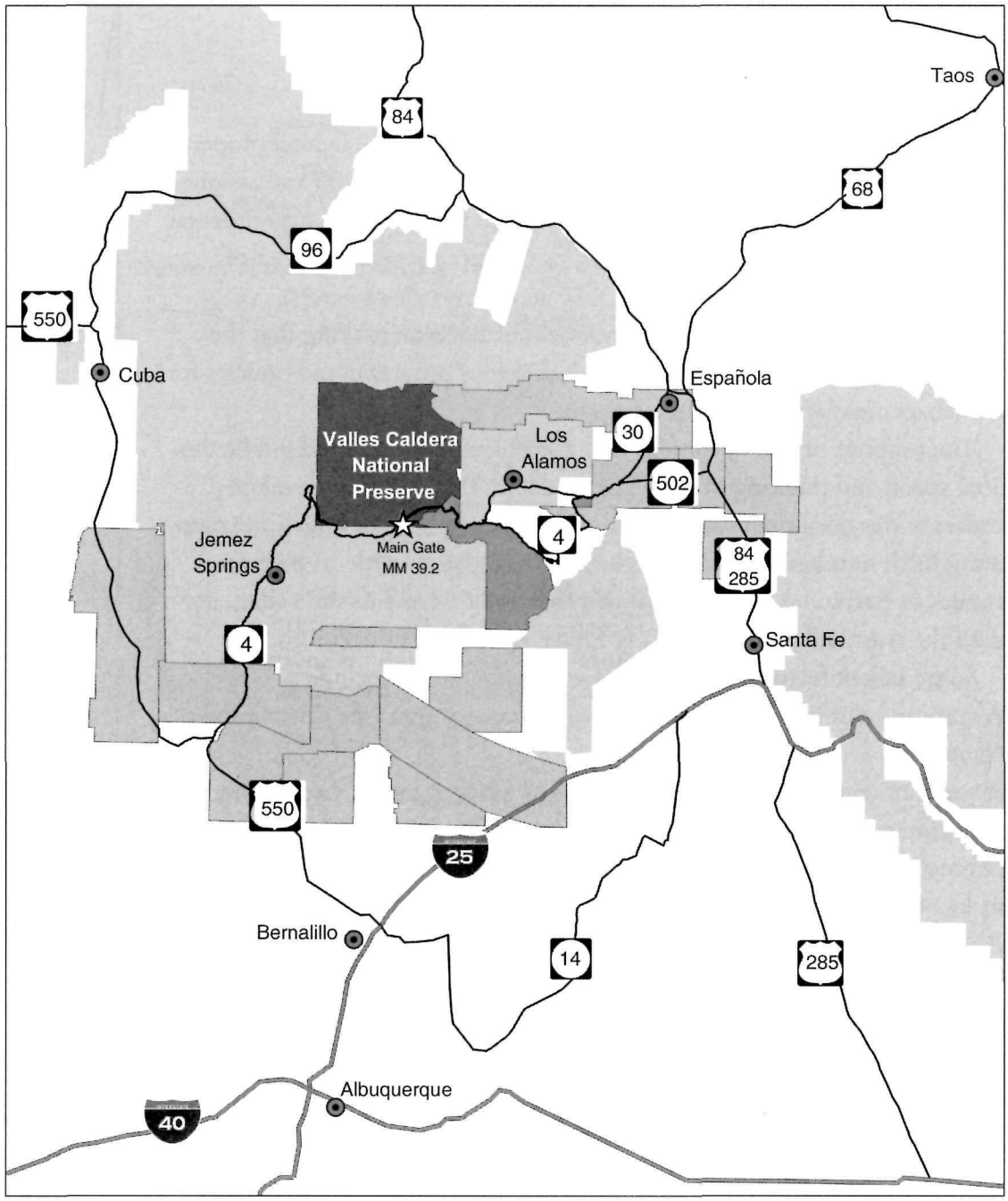
The purpose of this document is to present to the interested public the initial vision and thinking of the Valles Caldera Trust as it has developed. Readers of this document will not find precise descriptions of future programs setting forth numbers of visitors to be accommodated, cattle to be grazed, or miles of trail to be built. Instead this framework presents the values and vision the trust will apply in making future management decisions.

Some salient features of the trust's values and vision include

- A commitment to science-based adaptive management (see discussion in chapter 5);
- A commitment to operate the preserve as a "working ranch" (see chapter 5);
- A commitment to consider financial impacts and realities in the development of programs and to pursue financial self-sufficiency while also striving to make programs accessible to visitors from all economic levels (see chapter 5);
- An expectation that most visitor infrastructure, including a visitor center, will be situated on the periphery of the preserve, not in its core;
- A commitment to initiate programs at relatively small scale and to develop them incrementally until a carrying capacity or a desired balance with other programs is reached; and
- A commitment to protect and preserve the exceptional qualities of the preserve.

The trust invites readers of this framework to give special attention to chapter 9, in which the range of potential preserve programs is reviewed, and to forward to the trust their suggestions concerning the issues that should be analyzed and addressed as individual programs are developed. The trust will also especially welcome comments concerning the appropriateness of the range of programs it has identified.

A final postscript describes the trust's continuing planning and development efforts for the preserve.



Location Map

0 20 Miles

- Valles Caldera National Preserve
- Bandelier National Monument
- Indian Pueblos
- Santa Fe National Forest

Mileage to the Preserve Main Gate
from Albuquerque: 75 miles
from Santa Fe: 53 miles
from Los Alamos: 18 miles
from Jemez Springs: 20 miles

1

INTRODUCTION

How should this document be used?

This document, which for ease of reference we will call the framework, has four purposes. It

- Sets forth the long-term goals that the Valles Caldera Trust (VCT) has adopted for its stewardship of the Valles Caldera National Preserve (VCNP);
- Sketches the range of possible programs the trust will consider implementing in pursuit of those goals;
- Provides strategic guidance and sets priorities for the design, development, and implementation of the trust's programs; and
- Shares with the interested public key information about the preserve and the trust in order to contribute to constructive and open dialogue about the preserve and its management.

The framework is intended to describe issues and options central to the evolving management of the preserve. It is not intended to treat those matters in detail, let alone resolve them—those are tasks that will require thorough, project-by-project analysis. The trust will perform this analysis in accordance with the internal planning procedures it has adopted, which are discussed in chapter 5. These procedures will in turn guide the trust's fulfillment of its obligations under the National Environmental Policy Act (NEPA) and other laws. Because it sets forth the core values and goals that the trust's programs must honor, this framework should be considered the starting point for those analyses. Although the framework constitutes only a first step in the development of detailed programs, the ecological and cultural significance of the VCNP and the uniqueness of the VCT as a model for public land management make it an important first step.

The clearest expression of the trust's values is to be found in the management principles it has adopted, which are reproduced in the box on page 13. These principles are an essential part of the

foundation on which this framework is built, and their development was a signal event in the early history of the trust.

In the late winter and spring of 2001, as one of its first official acts, the board of the Valles Caldera Trust initiated a series of seven public "listening sessions" in communities throughout the region. The board held two listening sessions in Albuquerque and one each in the Jemez Valley, Santa Fe, Los Alamos, Española, and Ghost Ranch. The board's purpose was to learn as much as possible about the hopes people held for the preserve and to solicit ideas about the kinds of goals and programs that should dominate management of the preserve. Digests of those listening sessions are available on the trust's Web site at www.vallescaldera.gov.

In late April 2001, as the listening tour was drawing to a close, the board held a retreat at Bandelier National Monument (heavy snowmelt prevented use of the preserve) to reflect on the commentary it had received at the listening sessions and to explore areas of general agreement among board members. In the course of the Bandelier retreat, the trustees discovered that they were substantially united in the set of values that they wished to bring to the task of management. They expressed these values as a draft of 10 management principles, which they periodically revisited over the ensuing months. Ultimately, having made only minor changes to clarify the original draft, the board formally adopted the management principles at its public meeting on December 13, 2001.

The board believes that these principles should guide the evaluation of management decisions relating to the preserve and that the principles themselves should inform and unify the programs of the preserve.

In these management principles the board expresses appreciation for the complexity of the preserve. The members acknowledge the richness of the land's cultural and ecological character, and they implicitly conclude that the best way to respect and conserve that richness is by approaching the challenges of management with an ethic of restraint. In general, this means starting programs on a small scale, expanding them carefully, and monitoring their impacts alertly as development proceeds. In this kind of approach, every significant management undertaking becomes a kind of experiment, and the trust hopes that its management will be seen in exactly this light. In fact, readers will find that the word *experiment* occurs many times in this document. Congress explicitly called for development of "an experimental management regime" for the preserve

MANAGEMENT PRINCIPLES OF THE VALLES CALDERA TRUST

1. **Future Generations.** We will administer the preserve with the long view in mind, directing our efforts toward the benefit of future generations.
2. **Protection.** Recognizing that the preserve imparts a rich sense of place and qualities not to be found anywhere else, we commit ourselves to the protection of its ecological, cultural, and aesthetic integrity.
3. **Integrity.** We will strive to achieve a high level of integrity in our stewardship of the lands, programs, and other assets in our care. This includes adopting an ethic of financial thrift and discipline and exercising good business sense.
4. **Science and Adaptive Management.** We will exercise restraint in the implementation of all programs, basing them on sound science and adjusting them consistent with the principles of adaptive management.
5. **Good Neighbor.** Recognizing the unique heritage of northern New Mexico's traditional cultures, we will be a good neighbor to surrounding communities, striving to avoid negative impacts from preserve activities and to generate positive impacts.
6. **Religious Significance.** Recognizing the religious significance of the preserve to Native Americans, the trust bears a special responsibility to accommodate the religious practices of nearby tribes and pueblos and to protect sites of special significance.
7. **Open Communication.** Recognizing the importance of clear and open communication, we commit ourselves to maintaining a productive dialogue with those who would advance the purposes of the preserve and, where appropriate, to developing partnerships with them.
8. **Part of a Larger Whole.** Recognizing that the preserve is part of a larger ecological whole, we will cooperate with adjacent landowners and managers to achieve a healthy regional ecosystem.
9. **Learning and Inspiration.** Recognizing the great potential of the preserve for learning and inspiration, we will strive to integrate opportunities for research, reflection, and education in the programs of the preserve.
10. **Quality of Experience.** In providing opportunities to the public, we will emphasize quality of experience over quantity of experiences. In so doing, while we reserve the right to limit participation or to maximize revenue in certain instances, we commit ourselves to providing fair and affordable access for all permitted activities.

(see Appendix A: Valles Caldera Preservation Act, sec. 102[a]12 and [b]4), and nearly every aspect of the Valles Caldera Trust, from its overall structure to its methods of handling minor purchases, is experimental in some respect. The trust has been obliged to break new ground in a multitude of areas. This certainly holds true for its approach to planning. This framework and the program of comprehensive management of which it is a part are unique to the VCNP and have not been applied elsewhere. Members of the public accustomed to following and commenting on the plans of other federal agencies should not expect a close duplication of that experience here. Instead, they should expect to participate in an experimental effort to implement a thrifty and flexible planning process that is designed to absorb new learning rapidly and to adapt continuously to changed conditions. They should further expect a process to which they can materially contribute through constructive participation. This, at least, is the desire of the trust, and we hope that the broad community of the preserve's friends and supporters shares that desire. The process will be a success only if the trust and its stakeholders work toward these goals together.

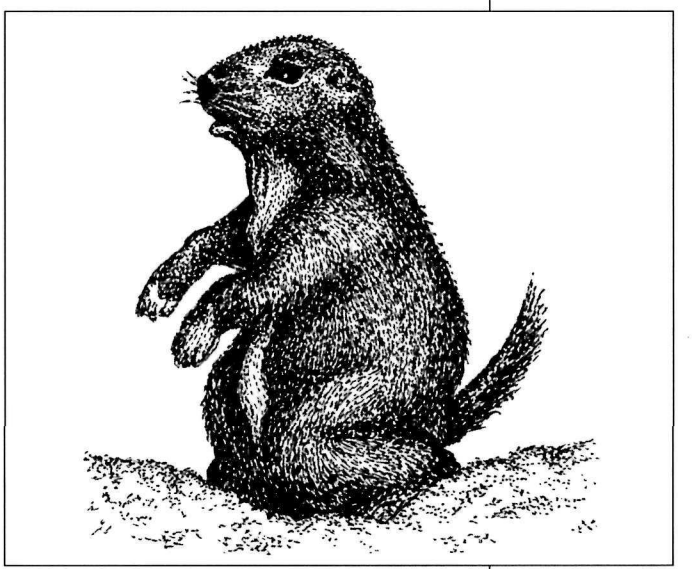
This document is the first step toward describing two of the three parts we will use to convey comprehensive management of the preserve. The first sections of the framework provide the initial steps toward developing the documentation we will call the "state of the preserve" (see page 135) by laying the foundation describing the resources as we currently understand them. As we gain more knowledge of the resources and their condition, we will be developing efficient methods for understanding the impact of our management on these resources. We will also be documenting that understanding through periodic revisions and updates to the "state of the preserve."

The later chapters of this document begin to formally lay out the board's strategic guidance for the trust in its management of the preserve. These are very conceptual goal statements that list the programs and projects the board feels are most important to initiate in the next several years. In most of these identified programs and projects, there are short lists of issues and questions that the board expects the trust to consider before deciding when and how to put these programs in place. This is one of the areas where the public can be most helpful to us now, by helping to identify those issues and questions that we will consider as we plan and decide if and how we are to implement these programs and

projects. In addition, the public can help by identifying other programs and projects we should consider over the next several years.

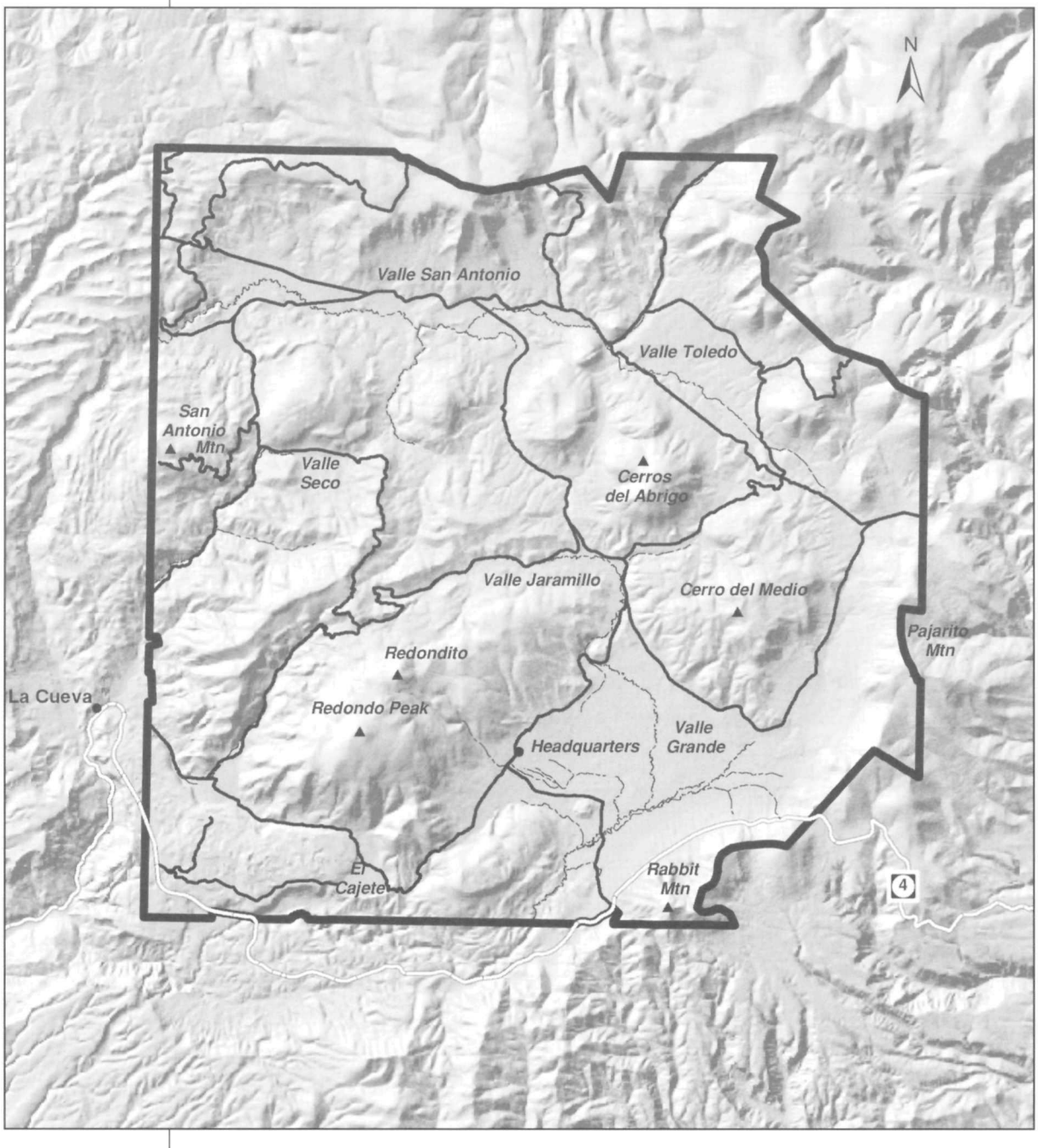
The final part of documenting comprehensive management will be the records we keep on actions and activities we will initiate on the preserve. This documentation will be known as stewardship registers, which are described more fully later. These records will become available to the public as the trust proposes, analyzes, and implements programs and projects on the preserve.

Please contact the trust for more information and to provide feedback on our programs and planning.



Gunnison's prairie dogs are common in the grasslands of the VCNP.

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Geographic Features

Miles

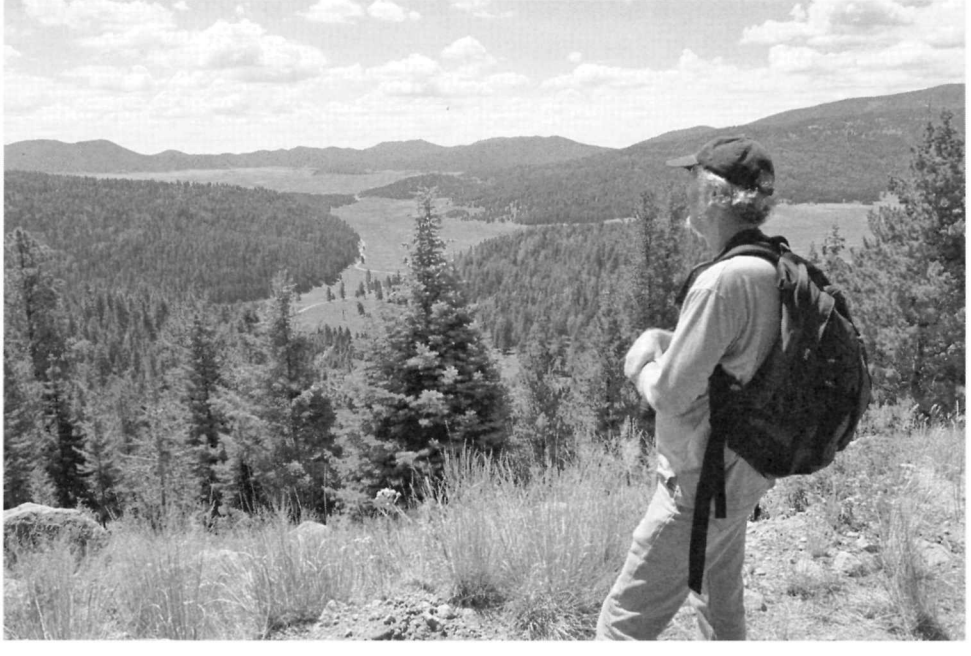
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Preserve Boundary
State Road 4
Preserve Open Roads
Stream, Perennial

2

THE NATURAL LANDSCAPE

The main features of the preserve and why they are important and valuable



The Valles Caldera is a land of superlatives. In beauty, productivity, ecological significance, scientific interest, cultural and religious importance, and many other respects, it is a landscape of the first rank. Few first-time visitors, beholding the caldera's largest valle, the Valle Grande, fail to stop and gaze in wonder. What they see is a vast bowl of grass, rippled in myriad subtle greens and tans, split by meandering streams and ringed by dark, timbered mountains. They sense an interplay of light, distance, and spaciousness in the vista before them that is different from what they have experienced in other places. Perhaps what sets the caldera apart is the brilliance of the light that shoots through its thin mountain air, or it may be the sense

of self-containment conveyed by the steep enclosing slopes. Perhaps it is the contrast of dark, dense forests with lighter, sprawling grasslands. Perhaps it is the seeming absence of disturbance or intrusion across so large a space (although past years have seen disturbance and activity aplenty). Perhaps the bugle of an elk suddenly shatters the silence and animates the moment with a flavor of wildness. Perhaps what makes the place so extraordinary is all of these things and more, working in combination and repeating themselves vista by vista, mountain by mountain, and valle by valle throughout the 89,000 splendid acres of the preserve.

GEOLOGY

The singularity of the Valles Caldera begins (but hardly ends) with its geology. The volcanic pile underlying the Jemez Mountains of northern New Mexico has been active for at least the past four million years, and it is by far the largest and most powerful such formation in the region. The events that define the present landscape began approximately 1.22 million years ago, when a previous caldera, known to geologists as the Toledo Caldera, became the scene of renewed volcanic activity. A field of multiple volcanic domes within the caldera erupted, spewing vast quantities of ash and magma and making the area of the present Jemez Mountains a scene of sustained violence far greater than anything that has been recently observed on earth. Many Americans remember the eruption of Washington's Mount St. Helens in 1980, which resulted in the rapid ejection and displacement of about 2.8 cubic kilometers of material, including landslides triggered by the eruption. By comparison, the eruptions that formed the Valles Caldera displaced some 292 cubic kilometers of the earth's crust and produced the titanic flows of superheated, liquid mineral that cooled to form the Pajarito Plateau. Ash that can be traced to the eruptions has been found as far away as Kansas.

The ejection of so much material left the subterranean innards of the former Toledo Caldera hollow and eviscerated. Devoid of structural support, the ravaged landscape fell in on itself, the floor of the land sinking to form the bottom of a giant, roughly circular bowl 13 to 14 miles across and bounded by a knife-edged rim of mountains. This collapsed volcanic field was the Valles Caldera, which remains today one of the best exposed examples of caldera formation known to science. Although by no means the largest of the world's calderas nor the oldest or youngest, the landscape of the preserve is unsurpassed in the perfection of its

expression of the caldera landform. This is one of many reasons for the preserve's great value for study and education.

The Jemez country's volcanism hardly ceased with the formation of the present caldera. The uplift of Redondo Peak, which towers above the center of the caldera, continued long after the eruption of the caldera. About 1.1 million years ago, new eruptions welled up to the northeast of Redondo, forming a mountain 1,200 feet higher than the surrounding caldera floor. This was Cerro del Medio, which separates what is today the Valle Grande from the Valle Toledo. About a hundred thousand years later a second cluster of mountains, Cerros del Abrigo, welled up, after which came a third, a fourth, and more eruptions, each spaced more or less a hundred thousand years apart, as the site of the eruptions moved at first counterclockwise around the northern and western interior of the caldera and later clockwise across the southern interior. Last in the sequence of volcanic events sculpting the interior of the Valles Caldera was the El Cajete eruption of 40,000 to 60,000 years ago, which deposited thick layers of pumice in and near the southern parts of the preserve. Almost certainly there will be more eruptions in the future—the magma underlying the caldera lies only about five kilometers beneath the surface, rather than the 30 kilometers typical throughout most of the world—but such eruptions probably will be far in the future. The presence of geothermal waters in and around the Valles Caldera serves as a reminder that this volcanic field is dormant, not extinct.

Water as well as fire has shaped the present landscape. At various times lakes have filled parts of the caldera, and the soils that formed from the sediments that collected beneath their waters help account for the famous grasslands of the valles. One of the lakes that formed within the caldera also shaped lands beyond its boundaries. About half a million years ago, the waters of a lake filling the Valle Grande breached the southern rim of the caldera, and once the breach began, the escaping waters flowed faster the more they opened the breach, widening and deepening their channel and eventually becoming a violent, sustained, and stupendously erosive flood. The result was the formation of the Cañon de San Diego, the narrow, steep-walled canyon through which the Jemez River flows today.

AQUATIC AND RIPARIAN COMMUNITIES

The rivers and streams of the preserve are its lifeblood. Their health is a major indicator of the condition

of the preserve in general. With minor exceptions, the headwaters of the streams that flow out from the preserve are entirely contained within its boundaries, making the VCNP a self-contained watershed unit. With no other lands and no other land managers upstream from the VCNP, any changes in the quality of water leaving the preserve or in the ecological condition of its aquatic and riparian communities are wholly attributable to the interplay of human activities, ecological succession, geology, climate, and other natural processes occurring within the preserve.

The water-collecting basin of the preserve contains a number of unique and uncommon aquatic and wetland features, ranging from warm and extremely acidic geothermal waters to numerous springs, seeps, and boggy wetlands. These water-rich environments, combined with the preserve's many creeks and streams, provide a robust foundation for the ecological diversity and productivity that characterize the preserve.

Approximately 27 miles of streams within the preserve offer habitat suitable for trout, although part of this habitat is in need of rehabilitation. The commonest impairments to these streams are a lack of pools due to sedimentation and stream channels that are wider and shallower than they should be. Other stream segments within the preserve, however, feature habitats that are in excellent condition and that can serve as models for the eventual restoration of the impaired reaches. Moreover, the present trend of ecological change appears to be toward recovery. Certainly trampling and grazing by elk, cattle, and sheep are partly to blame for the condition of damaged stream sections, but the dynamic of that impact is imperfectly understood. The respective contributions of elk and domestic livestock and of historical versus current grazing are difficult to separate.

Substantial uncertainties also exist concerning both the historical species composition and the ecological potential of the caldera's streamside communities. Nonnative Kentucky bluegrass is dominant in many riparian areas, and the potential for reestablishing the dominance of native species remains unclear. In addition, stream banks in the western United States are typically occupied by woody shrubs, especially willow, but relevant historical photographs of the VCNP, the earliest of which date from about 1906, show no such vegetation along its principal streams. Whether or not woody shrubs existed along VCNP stream banks prior to the 1900s is unknown. At present, one rarely finds willow, alder, or other woody



A meander of the Rio San Antonio.

shrubs growing along the banks of the caldera's watercourses, and where these plants are found, they show the effects of heavy browsing by elk. Much of this browsing occurs in late winter and early spring, when the twigs of woody plants prepare for spring growth before the first grasses in the parks and meadows turn green. These woody stems offer rich nutrition at a time of year when other food is scarce, and the large numbers of elk in the caldera appear to exploit fully what woody riparian growth is present. Before elk were present in large numbers (they were reintroduced to the Jemez Mountains in 1947 and 1964), more than half a century of heavy early season grazing by sheep may have had a similar effect. It is possible that these pressures, augmented by decades of cattle grazing, removed woody riparian vegetation from part of its natural range within the caldera, but the limits of that range are by no means well understood. It may be that woody plants should not be expected to grow along certain stretches of stream, such as the East Fork of the Rio Jemez through the Valle Grande, where the gradient is nearly flat and the soils fine textured and water saturated.

To address these uncertainties and other questions, the trust has established an extensive network of

upland range and riparian monitoring sites. The trust has also initiated a long-term field experiment that uses large fenced exclosures to collect data on the response of riparian areas to three levels of use: no grazing, grazing only by elk, and grazing by both elk and cattle. By learning through scientific experimentation and adaptive management, the preserve expects to contribute to improved management of riparian zones here and elsewhere in the Southwest.

GRASSLANDS

No feature of the caldera is more stunning than the sprawling, open grasslands that define its famous valles.* Cumulatively these giant, sun-drenched spaces account for about a quarter of the area of the preserve. Although at first impression these blankets of grass may seem uniform, the ecological communities found within them are actually quite diverse. Under the gentle light of early morning or late afternoon, the summer landscape of the Valle Grande reveals an intricately varied mosaic of countless shades of green, each hue and location reflecting a particular composition of grasses, forbs, rushes, and sedges at a particular stage of annual development. It is also important to note that the diversity of grasslands within the preserve is not solely a phenomenon of the valles. Additional grassland types grace the slopes of the preserve's mountains, even to the summits.

A number of useful approaches exist for evaluating the condition and health of grassland systems. One that is widely used compares existing vegetation to the vegetation that would be present under pristine conditions, uninfluenced by livestock grazing or other significant impacts caused by humans. By this measure, some of the preserve's communities—notably certain of the bunchgrass meadows on the upper slopes of its mountains—are in excellent condition, but most of its valles rate only a grade of "high fair." This is because of the extensive presence of Kentucky bluegrass and other non-native species. These non-natives are pervasive throughout the mountain grasslands of the surrounding region, including wilderness areas.

Another way to appraise the grasslands of the preserve is to evaluate their effectiveness in terms of watershed function: do they absorb and retain precipitation, do they

**A note on terminology: the Spanish word* valle *approximates but is not entirely synonymous with the English word* valley. *Valles are always open and for the most part treeless, while a valley may be heavily wooded. In both cases, the land in question is lower and enclosed in relation to the surrounding land, but a valle may be only slightly depressed or bowl-like, while valleys tend to be pronouncedly so.*

hold soil in place and retain nutrients, and are they productive and diverse? By these criteria, the grasslands of the VCNP are among the finest to be found in the entire Southwest. The soils are by and large superb, and the vegetative cover, in general, is excellent. Nevertheless, significant areas are in need of improvement. The Valle Jaramillo, for instance, receives heavy and sustained impacts from elk, for which it is a key calving and nursery area, and parts of the Rincon de los Soldados are likely less productive than they could potentially be because the area underwent long-term use as a bedding ground for sheep both entering and leaving the caldera through Valle Pass (between Cerro Grande and Pajarito Mountain). Restoration of a more natural fire regime among the grasslands of the preserve may help improve vigor and diversity in the future.

FORESTS

In 1918 the Redondo Development Company, an investment group based in Pennsylvania, sold Baca Location No. 1, including all of today's Valles Caldera National Preserve, to Frank Bond. But the company did not sell Bond all its interest in the property. It held back the rights to the timber of the caldera, in expectation that the lumber resource would become extremely valuable once reliable roads penetrated the area and allowed the efficient transport of logs to mills and markets.

That day came in 1935, when the Civilian Conservation Corps finished construction of an evenly graded and reliably drained road from what is today known as Ponderosa (near Jemez Pueblo) northward into the Valle Grande and thence eastward over the rim of the caldera to the Pajarito Plateau. Changes in state law also spurred logging activity. Immediately the Redondo group sold the timber of the Baca Location to the New Mexico Timber and Lumber Company, which thereafter commenced operation within the caldera. Between 1935 and 1972, when Bond's successor in ownership, Patrick Dunigan, managed at great expense to terminate the timber lease, New Mexico Timber logged more than 36,000 of the caldera's timbered acres, much of it by clear-cutting. Most of the logged lands have since grown back with secondary growth, sometimes in mixes of species different from those that were removed. In the latter part of this period, about a thousand miles of roads were bulldozed into otherwise inaccessible upper-elevation stands. This episode of construction, the results of which account for the ubiquitous sight of roads corkscrewing up the forested

Photograph courtesy of Museum of New Mexico



Sheep grazing on Rito Jaramillo in Valle Grande, T. Harmon Parkhurst, ca. 1935.

Same view, 2001.



Photograph courtesy USGS Jemez Mountains Field Station

slopes of the preserve, no doubt caused widespread erosion, and while most such roads have at least stabilized, erosion within certain problem areas continues.

Although New Mexico Timber harvested most of the preserve's old-growth ponderosa pine, an extremely impressive uncut stand remains in the headquarters area of the preserve. This stand, which runs for about a mile and a half in a narrow strip between the base of Redondo and the grasslands of the Valle Grande, is one of the great natural features of the preserve. Many of the huge old pines exceed 300 years in age, and their majestically tall, straight trunks and high canopies allow for a spacious, sunny, and open understory that features abundant grasses and expansive views. Perhaps no finer example of an open ponderosa pine grove exists elsewhere in the Southwest, at least not in a location easily accessible by road.

Over a century of fire suppression has greatly altered most forests on the preserve, and the old-growth stand in the headquarters area is no exception. Parts of it are heavily stocked with an understory of smaller trees, which in the event of fire entering the stand might serve as ladder fuels carrying flames into the canopies of the oldest, tallest pines and Douglas firs, endangering the stand with crown fire.

Many other forested areas within the preserve are similarly overstocked with young, small-diameter trees and remain vulnerable to high-severity, stand-changing fire. As is the case on much of the surrounding public land, large parts of the forests of the Valles Caldera will require thinning and fuel reduction treatments if they are to return to a more natural level of resistance to fire and drought stress. Restoration of natural, low-severity surface fires will be essential to improving forest conditions on the preserve.

The forests of the preserve possess considerable potential for sustainable sawtimber production. Soils are highly productive, and most sites are fully stocked or overstocked, so that limited thinning operations may produce marketable benefits.

Other noteworthy features of the forests of the preserve include the presence of a variety of natural forest insects and diseases that sometimes flare up and cause the death of many trees; the absence of significant regeneration among aspen, due in large measure to elk browsing and fire suppression; and the historically recent encroachment of trees, especially ponderosa pine and blue spruce, into grassland areas.

VEGETATION AND FLORISTIC DIVERSITY

Initial surveys of the plant life of the VCNP have identified over 550



One sees evidence of past logging in many areas of the VCNP.

species, with roughly another 100 species expected to be present but not yet fully documented. Unusual species found so far include bog birch and short-awn mountain ricegrass, both about 100 miles from the nearest known populations.

Compared to other high-elevation sites in the southern Rocky Mountains and Colorado Plateau, the vegetative communities of the VCNP are quite diverse. In surveys conducted in 2001, the New Mexico Natural Heritage Program documented 60 distinct plant associations within the preserve. Of these, fully half were associations that had not been identified elsewhere, mostly grassland and wetland vegetation types. Particularly interesting and unique is an acidic, boggy, wet meadow (or fen) in Alamo Canyon with peat deposits more than 16 feet thick that contains a record of vegetation and fire activity dating over 9,000 years. In general, the preserve supports some of the largest tracts of old-growth conifer forest remaining in the Jemez Mountains, along with extensive montane grassland and wetland communities that are relatively rare in the southern Rocky Mountains.

WILDLIFE

Elk were extirpated from the Jemez Mountains by 1900, but today,

following transplants of 49 head in 1947 and an additional 58 in 1964, they are abundant and conspicuous, especially within the preserve. The New Mexico Department of Game and Fish (NMDGF) estimated in 2004 that 2,500 to 3,500 elk may use the VCNP during the summer months. The preserve is a core breeding ground for elk in the Jemez Mountains. Although deep winter snows drive many elk to lower elevations on nearby lands, in dry winters large numbers remain on the preserve year-round.

Elk hunting and elk viewing are among the greatest attractions of the VCNP, and management of elk populations within the preserve will unquestionably be one of the most complex challenges facing the Valles Caldera Trust, as well as the New Mexico Department of Game and Fish, which bears primary responsibility for managing game animals within the state. Because large numbers of elk migrate annually between the preserve and the rest of the Jemez Mountains, the VCT, the NMDGF, and other entities from throughout the region will need to cooperate closely to address elk management in a broad, ecosystem context.

Beyond elk, Valles Caldera wildlife was poorly documented until baseline studies began in 2001. The preserve is currently working with many partners to learn about the status and trend of local animal populations from birds to butterflies. For example, fieldwork on the preserve in 2001 and 2002 documented 63 species of butterflies, and the preserve appears to be the southernmost limit of the range for one of them.

Once considered plentiful in the Valles Caldera, mule deer are now scarce. The decline of mule deer is a region-wide phenomenon and, while not fully understood, is usually attributed to a combination of factors, including overhunting, territorial competition with elk, increased predation by coyotes, and a decrease in the early successional shrubby vegetation that is a mainstay of their diet. The last three of these factors may account for the low deer numbers within the caldera. It is unknown whether deer numbers are continuing to decline or have stabilized at low levels.

Other large mammals present within the preserve include coyotes, which are ubiquitous and plentiful, black bear, mountain lion, and bobcat. Although the latter three species are rarely observed, their populations are presumed to be viable and proportionate to available habitat, given the abundance of prey and the absence of recent hunting pressure.

Many other smaller mammals are also present, notably including the isolated Jemez Mountains population of pikas. The preserve contains



Vegetation Map

Miles

0 5

Preserve Boundary
State Road 4
Plant Assemblages
Preserve Roads
Stream, Perennial
Stream, Intermittent

Vegetation map showing different plant assemblages on the Valles Caldera National Preserve. Shades of gray indicate different plant assemblages (grasslands, wetlands, ponderosa pine forests, mixed-conifer spruce-fir forests, and aspen stands).

This map is representative of the research, inventory, and monitoring projects under way on the preserve; other maps of preserve resources currently being developed include soils, geologic formations, forest biomass (fuel) inventories, and species distributions (plants and animals).



Elk are the most conspicuous wildlife of the VCNP.

most of the habitat for this most southerly subspecies of pika. The preserve also supports substantial numbers of Gunnison's prairie dog, which is relatively common throughout the grasslands of the caldera. The population of this species appears to fluctuate widely, due possibly to localized outbreaks of sylvatic plague. Prairie dogs are an important prey species for a number of predators, including golden eagles.

Three important mammals are no longer present in the caldera. Grizzly bear and gray wolf were eliminated from the Jemez Mountains early in the last century, and the last beavers in the caldera were observed along Indian Creek in the 1990s. At 89,000 acres, the preserve is far too small to host the reintroduction of grizzly bears or wolves, but eventually, if woody vegetation can be restored to key riparian habitats and if substantial stands of aspen can be reestablished, the reintroduction of beaver may become practical.

Bird surveys in 2001 and 2002 found at least 107 species on the preserve, of which 92 species showed evidence of breeding locally. Uncommon species recorded so far include Wilson's snipe, Savannah sparrow, eastern meadowlark, and ruby-crowned and golden-crowned kinglets. Sensitive raptor species

found here include northern goshawk, golden and bald eagles, and peregrine falcons. The abundance of fish and the presence of elk carcasses attract significant numbers of bald eagles in the fall, which feed and roost on the preserve for weeks.

Four native fish species are known from the preserve, along with abundant non-native brown and rainbow trout that have apparently displaced the native Rio Grande cutthroat trout. The preserve will work with the New Mexico Department of Game and Fish and others to consider the potential for restoring native cutthroat trout to parts of one or more of the preserve's streams.

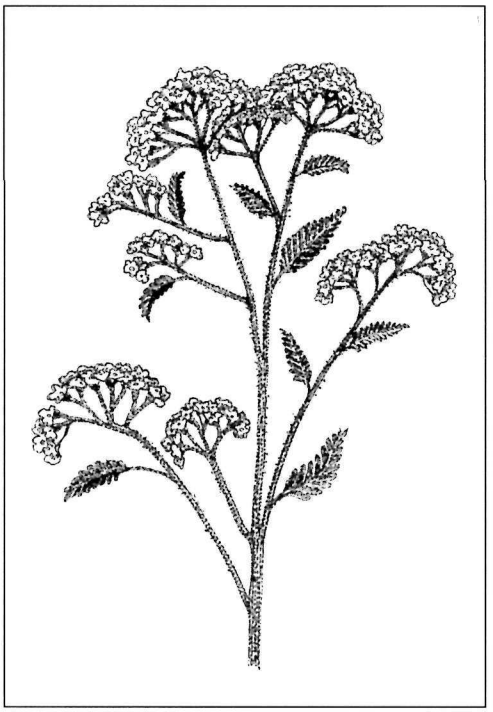
Amphibian surveys in 2002 found abundant chorus frogs and tiger salamanders. Northern leopard frogs, abundant as recently as the 1970s along Redondo Creek, appear to have been extirpated from the preserve, as is the case across much of the region, perhaps due to the spread of disease. A few endemic Jemez Mountains salamanders were found in 2002, but population trends for this rare creature are unknown, in part because the salamanders, which live mainly underground, are extremely hard to study. The preserve includes the heart of the small range of this unique salamander, which is listed as "threatened" by the state of New Mexico. In addition, two lizard and three snake species have thus far been found on the preserve.

WEEDS AND PROBLEM SPECIES

In general, invasive or noxious weeds are not at present a major problem, although 20 species of state-listed "noxious weeds" have been identified within the preserve. The challenge will be to prevent significant problems as human activities increase and as people inadvertently transport the seeds of weed species into the preserve. The extensive network of old roads, arroyos, abandoned salt grounds, and other high-impact spots provides receiving areas for weeds to become established. Eleven discrete concentrations of Canada thistle, only one of which exceeds an acre in size, have been identified within the preserve. Treatment of these areas should begin in 2004. Many other potential problem species are unknown within the preserve but are present in surrounding areas, and so the trust will need to be vigilant in guarding against weed introductions and in detecting and responding to any introductions that occur. Similarly, vigilance will be required to prevent the introduction of such non-native pathogens as whirling disease, which devastates trout populations, and white pine blister rust, which could damage the stately southwestern white pines found within the preserve.

SUMMARY

The valles and volcanic domes within the main caldera have been formed over the last 1.22 million years by a long series of volcanic eruptions. The caldera itself has changed considerably through time, with 10 major domes formed incrementally at approximately 100,000-year intervals. About 500,000 years ago, the caldera was a closed basin containing a large lake; the water from this lake eventually broke through the western wall of the caldera and, in a cataclysmic flood, formed the present-day Cañon de San Diego, through which the Jemez River currently flows. The present-day ecosystems of the caldera include grasslands, mixed-conifer forests, and a variety of aquatic habitats (including geothermal hot springs, cold-water springs, acid pools, bogs, and two major mountain stream watersheds). Over 550 species of plants, constituting 65 vegetation associations, are supported across these ecosystems. The caldera also supports a rich community of mammals, birds, and invertebrates, along with smaller contingents of reptiles, amphibians, and fishes. Although a considerable part of the caldera is in relatively good condition, other sections exhibit signs of degradation, likely due to historic human land uses such as livestock grazing, forestry, and road development. Preliminary assessments indicate that these degraded areas are beginning to recover, and with continued careful stewardship, these habitats should continue their recovery in the future.



Yarrow is a common herb of the VCNP.

3

THE CULTURAL LANDSCAPE

The main ways people used the Valles Caldera over the ages and how these traditions of use add to the significance of the preserve

People have used the Valles Caldera for a variety of purposes and in a variety of ways for thousands of years, probably as far back as the end of the Pleistocene epoch, about 12,000 years ago. As different as the earliest visitors to the caldera may have been from the visitors of today, all of the people who have been drawn to the caldera over the millennia are no doubt united by the awe they experienced on first seeing the great valles and the pleasure that accompanies repeated encounters.

Archaeology

Although the Jemez Mountains are one of the most intensively surveyed landscapes in North America and possibly the world, the Valles Caldera, privately owned until July 2000, remains a relatively blank spot on its archaeological map. Recent work commissioned by the trust, however, is beginning to enlarge our knowledge of the caldera's human past. The main upshot of recent learning is that the preserve's archaeological past appears to be richer and more complex than most area experts had expected. From evidence of seasonal encampments of large size and great time depth (repeated use over many decades or even centuries), to obsidian "quarries"—areas of tool use and manufacture—that are kilometers long and wide, to dense concentrations of "field houses" at the extreme upper limit of agricultural potential, the caldera offers a wealth of opportunity for improving our collective understanding of the region's distant past. With this abundance comes a great responsibility. The caldera's prior status as private land protected its archaeological resources from surface disturbance and collection. In few other places does one encounter so many important

archaeological sites with their integrity so well preserved. Many of these sites have yet to be recorded, let alone evaluated. Ensuring their continued protection, while at the same time providing substantial public access to the lands of the preserve, represents a major challenge for the trust.

TRADITIONAL USES

Native Americans have used the Valles Caldera since time immemorial for hunting; gathering medicinal plants, wild grains, and other vegetal foodstuffs; and the collection of useful materials such as obsidian. Numerous archaeological sites within the preserve give evidence of these uses, which the oral histories told by the elders of neighboring pueblos also confirm. Various types of wood gathered from the caldera yielded tool handles, baby cradles, rabbit sticks, and clubs. Grasses were cut and fashioned into baskets and brushes. Alder and other tree barks provided dyes. Minerals such as manganese and iron supplied pigment for painting ceramics. The list of such uses is very long, and even so, it only begins to suggest the significance of the preserve to neighboring tribes, because much of that significance is spiritual rather than material. According to oral tradition, neighboring pueblos have long used specific localities within the caldera for cultural and religious purposes. In carrying out their cultural duties, these pueblos express their belief that they bear a responsibility to respect and perpetuate the vitality of the land through their religious practices.

Human use of the caldera grew still more intensive with the introduction of domestic livestock to the region. Without exception, the pueblos of northern New Mexico took up raising sheep, goats, and cattle and made tending and use of those animals an integral part of their economies. Oral history preserves the memory that the Valle Grande served as pastureland for Indian cattle, sheep, and horses. Elders from Jemez Pueblo remember that the pueblo's war captains used to be responsible for ensuring that the pueblo's horses grazed in different areas to avoid overgrazing.

The raising of domestic livestock, meanwhile, became even more central to Hispanic communities in the region, whose ranching traditions are probably the oldest, and possibly the most deeply felt, in America north of Mexico. These traditions contribute to the distinctive culture of northern New Mexico.

By the 1830s livestock production had developed in New Mexico to the point that large herds of sheep were exported annually south to Chihuahua and west to



The VCNP has functioned as a working ranch for over a century.

California. Certainly by that time, the grasslands of the Valles Caldera were receiving significant use. The high mountain country, however, was contested terrain. Hispanic ranchers such as the Baca family of Peña Blanca—the same family that in 1860 would acquire title to the caldera as Baca Location No. 1—together with Indian herders from nearby pueblos were obliged to test their ability to protect their livestock from the raiding parties of other tribes, notably Navajos, who roamed the region. In many years up to and through the middle of the nineteenth century, grazing was probably successful in the remote valles of the caldera. In others, however, hostilities may have prevented grazing of any significant scale from taking place.

Modern livestock operations began to develop rapidly in northern New Mexico after the arrival of the railroads in the late 1870s and 1880s connected the region to distant markets. The Valles Caldera and surrounding areas soon saw heavy use, and by the last decade of the nineteenth century, if not sooner, tens of thousand of sheep grazed the valles annually through the snowless part of the year. The herders who tended sheep within the valles hailed from rural communities throughout the Jemez Mountains and from other nearby

areas. Many of them were *partidarios*—livestock sharecroppers who tended the sheep of a patron and were compensated by a share of the increase of the herd while it was in their care. Notable *patrones* in the history of the Valles Caldera included members of the Baca family, as well as Mariano Otero and his son Federico, who by 1909 had built a *dispensa,* or commissary, in the headquarters area of the ranch, from which he provided supplies to his herders. Another patron of note was Española merchant Frank Bond, who leased the grazing rights of the Baca Location from the Redondo Development Company in 1918 and ultimately acquired title to the property in 1926. During Bond's tenure, grazing within the caldera gradually shifted from sheep to cattle, a transition that Pat Dunigan completed after he purchased the property from the Bond family in 1962. Ultimately, the Dunigan family converted the ranch to a yearling operation, receiving steers in May after snowmelt and shipping them out in September before the cycle of snowfall began again.

The powerful ties of the Hispanic villagers of the region both to the culture of ranching and to the lands of the caldera are a major reason the Valles Caldera Preservation Act instructs the trust to operate the preserve as a "working ranch."

TWENTIETH-CENTURY USES

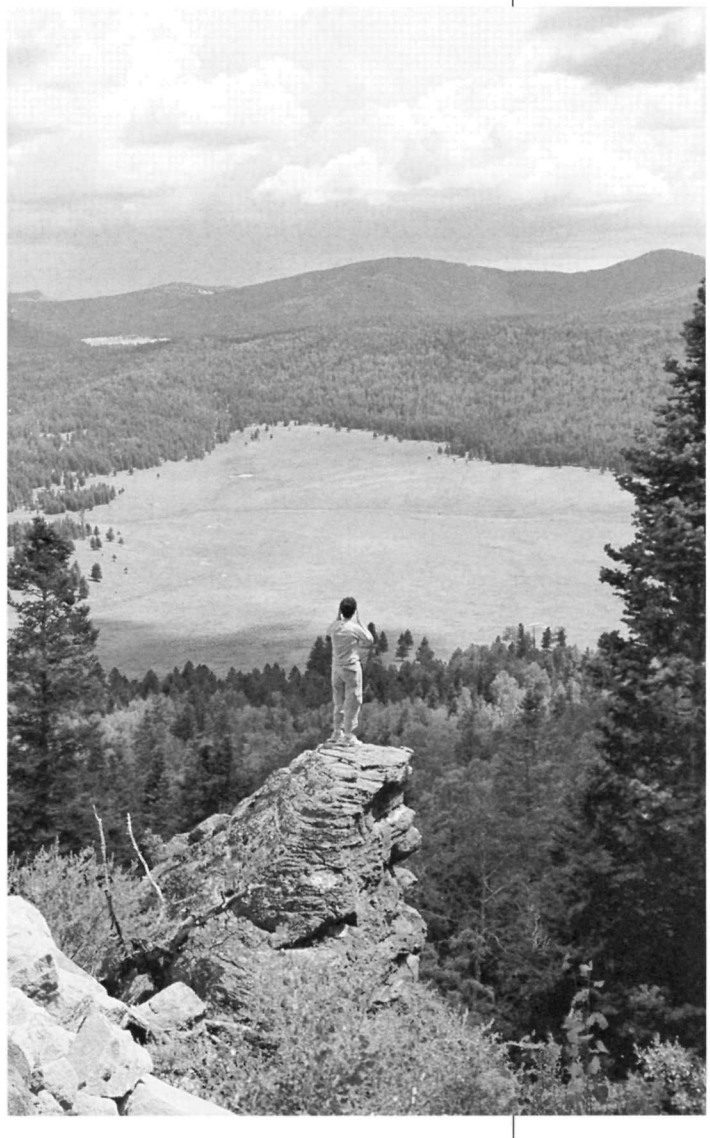
Sheep and cattle grazing dominated the use of the caldera during the past century, but they were by no means the only uses. As was briefly recounted in chapter 2, commercial logging operations gained strength after 1935, when a new road and new laws provided improved access to the Baca Location. These operations continued with growing intensity until 1972 and left a heavy imprint on the forests, soils, and watercourses of the preserve. A moderate amount of timber harvesting continued under Dunigan ownership until the family sold the property to the federal government in 2000.

A well sunk in 1959 to assess the potential for oil led to the discovery of the ranch's geothermal resources. Since then, approximately 40 wells have been drilled into the rocks and fluid reservoirs miles beneath the surface of the land. Half of these wells were drilled beginning in 1973 in an effort led by Union Oil Company, later in partnership with the Department of Energy and Public Service Company of New Mexico, to develop a geothermal plant generating at least 50 megawatts of electricity. By 1984, however, the caldera's resource was determined to be capable of supporting only a 20-megawatt generating station, and the project was terminated.

Today the leveled and cleared drill pads that mark the location of the geothermal wells remain conspicuous features of Redondo and Sulphur canyons.

Other man-made features of the landscape include gravel pits, scattered through the preserve, that yielded materials for road construction within the Baca Location and a pipeline that crosses the preserve by way of the valles San Antonio, Toledo, and Los Posos, bringing natural gas to Los Alamos from the San Juan Basin of northwestern New Mexico.

As the elk population throughout the Jemez Mountains increased in the last decades of the twentieth century, the Dunigan family developed a vigorous and well-known trophy elk-hunting program. They also successfully attracted the interest of filmmakers and advertisers, who set their stories and products amid the stunning scenery of the caldera. Today three significant movie sets remain within the caldera, one of which was used in the production of the motion picture *The Missing* in March 2003.



A LAND OF INSPIRATION

The importance of the lands of the Valles Caldera has never been limited to the economic value of the uses they support. As the site of the headwaters of rivers that provide life-giving water to lands downstream and as home to some of the highest prominences in a vast area, the lands of the caldera hold great cultural significance for nearby pueblos, which for centuries have been drawn to the caldera to enact pilgrimages, initiations, ritual hunts and collections, and other sacred activities. The trust bears a special responsibility to respect and honor these living relationships between culturally affiliated tribes and the



Gambel oak can be found on steep, rocky slopes at the lower elevations in the VCNP.

lands of the caldera.

The cultural landscape of the caldera continues to grow ever more complex and layered. Values have attached to it that were scarcely imagined a hundred or even a few years ago. Today its admirers value it as a refuge of biodiversity, as a remnant of the quintessential West, as a place of rare silence and night darkness, as a self-contained and integral watershed, and as a promising arena for research, learning, and instruction. Many of these values are implicit in the designation of the caldera as a National Natural Landmark in 1975. In subsequent years the caldera's reputation and stature as a national treasure continued to grow, culminating in the enactment of the Valles Caldera Preservation Act on July 25, 2000, and the subsequent federal acquisition of the 89,000-acre preserve.

The people who come, today and tomorrow, to experience the caldera are as likely to live outside New Mexico as in the state, and many visitors will no doubt come from outside the United States. They will come for many reasons: to experience the beauty of one of the great mountain landscapes of North America; to seek spiritual renewal and inspiration; for pleasure, adventure, and economic gain; to study and to teach; for the fun of it; or just to be able to say they came. The preserve will have meaning to match all of those reasons–it will not disappoint.

VALLES CALDERA NATIONAL PRESERVE PREHISTORIC CULTURAL CHRONOLOGY

9500–5500 BC

Little is known of the Paleo Indian people of this period. The abundant obsidian found at the numerous natural quarry locations in the caldera would have been an important attraction drawing early hunters and gatherers to the area.

5500 BC–AD 400

Evidence suggests that the human use of the caldera steadily increased throughout the Archaic period, with a dramatic increase in occupation of the caldera as well as in the intensity of use in the Late Archaic period, from 1800 BC to AD 400.

AD 400–1200

Little direct evidence for ancestral Pueblo occupations in the caldera exists, but use of the area undoubtedly continued. A few small rock shelter sites in the preserve provide evidence of use during this period. Fewer agricultural sites are found at the higher elevations of the caldera, where the growing season is shorter than at lower elevations.

AD 1200–1300

A large influx of ancestral Puebloans entered the Rio Grande Valley and its tributaries, joining peoples already present in the region. Some tribes would have encountered the caldera as they migrated to their modern locations. For example, at the nearby Pueblo of Jemez, oral traditions that remain vibrant to this day recall this migration and the distinctive features of the Valles Caldera. Ancestral Puebloan people established sacred trails and shrines and used the caldera for its rich animal, plant, and mineral resources. Abundant obsidian, a black volcanic glass, was an especially prized source of points and cutting tools of many kinds.

AD 1350–1700

Throughout the middle and lower elevations of the Jemez Mountains large pueblos and numerous small rock "field houses" are found from this period. Many field houses have been recorded in the southwest corner of the preserve, but no pueblos have yet been discovered.

AD 1500–1800

After the Spanish introduced domestic livestock to the region, Puebloans and Spanish settlers began to use the Valles Caldera's rich grasslands for grazing. Use of the area for hunting, gathering, and cultural practices continued.

VALLES CALDERA NATIONAL PRESERVE HISTORICAL CHRONOLOGY

1821 Mexico gains independence from Spain. On January 16 of that year, Luís María Cabeza de Baca, for himself and his 17 sons, petitioned the provincial deputation of Nueva Vizcaya for a tract of vacant land on the Gallinas River at the place known as Las Vegas.

1826 Alcalde of San Miguel del Vado delivers legal possession of the requested grant to Baca and his sons. Luís María Cabeza de Baca builds a house on the Gallinas River at the place called Loma Montosa and runs sheep on the grant.

1835 The town of Las Vegas receives its grant (Town of Las Vegas Grant). Tomás Baca, grandson of Luís María Cabeza de Baca, protests to Governor Armijo that the Town of Las Vegas Grant covers the same lands as the Baca Grant, but Armijo takes no action.

1848 The Treaty of Guadalupe Hidalgo marks the conclusion of the war between the United States and Mexico.

1855 The surviving heirs of Luís María Cabeza de Baca petition New Mexico surveyor general William Pelham for confirmation of the grant. The heirs allege that the Town of Las Vegas Grant is null because it was made in the knowledge that its lands were part of the Baca Grant. Pelham conducts a hearing on the two applications.

1860 Surveyor General Pelham recommends to Congress that both grants be confirmed, leaving it to the courts to determine the rights of the parties. To avoid litigation, the Baca heirs offer to give up their claim, provided they get an equivalent amount of land somewhere else in New Mexico. On June 21, the United States confirms the Town of Las Vegas Grant and authorizes the heirs of Luís María Cabeza de Baca to select vacant lands in "square bodies, not exceeding five in number."

1860 The Town of Las Vegas Grant is surveyed and determined to total 496,446.96 acres. The Baca heirs receive scrip for an equivalent amount of land. They choose five tracts of equal size. The first of these is Baca Float No. 1 or Baca Location No. 1. Over the next dozen years Tomás Baca acquires interests in the Baca Location from the other heirs, eventually assembling an interest of just over one-third of the location.

1876 Deputy U.S. surveyors Sawyer and McBroom survey the Baca Location, computing its area to be 99,289.27 acres. The United States delivers title to the Baca heirs.

1893 Joel Parker Whitney of Placer County, California, petitions for partition of the Baca Location, claiming that his brother, James G. Whitney, bought a one-third interest in the grant from the widow of Tomás Baca, the grandson of Luís María Baca, and that he (Joel Whitney) then acquired this interest, and several others, from his brother.

1898 In October the court enters a decree directing partition of the Baca Location and appointing commissioners to determine the feasibility of dividing the grant into parcels equal in value to the proportionate ownership interests of all heirs and other owners. In December the commissioners report that such a partition is not possible; they recommend sale of all real property and division of the proceeds.

1899 In January the court orders the sale of Baca Location No. 1. A special master sells the grant and distributes the proceeds to 46 owners (including two groups of heirs and including Joel Whitney, Mariano Otero, and Thomas B. Catron). Whitney's attorney, Frank W. Clancy, who is also the attorney for Otero (Valles Land Company), buys the Baca Location on the Bernalillo County courthouse steps and sells it on the same day (March 18, 1899) to Mariano Otero.

1902–4 Sulfur is mined on patented claims at Sulphur Springs.

1905 The federal government establishes the Jemez Forest Reserve (subsequently Jemez National Forest).

1909 The Valles Land Company sells the Baca Location to Redondo Development Company. No reservations are shown. Federico Otero, son of Mariano Otero, then leases the grazing rights to the Baca Location.

1912 New Mexico achieves statehood.

1915 Jemez and Pecos national forests are combined to form Santa Fe National Forest.

1916 Bandelier National Monument is created, with the U.S. Forest Service responsible for its administration.

1918 Federico Otero sells the grazing rights to the Baca Location to Frank Bond.

1921 An independent resurvey is completed to correct the survey of 1876, which was determined to have been in error. The total area of the Baca Location is computed at 99,289.39 acres.

1926 Redondo Development Company sells the Baca Location to George and Frank Bond. The company, however, holds back the timber rights, reserving "all timber, trees and wood and increment thereof for and during the term of 99 years."

1930 A resort hotel is built on a private inholding at Sulphur Springs and operated as a popular mountain retreat until it is destroyed by fire in 1977.

1930s The National Park Service recognizes that the Jemez Mountains, and the Valles Caldera in particular, have special public values. There is lengthy debate over whether the area best qualifies as a National Park or National Monument.

1932 Administration of Bandelier National Monument is transferred from the U.S. Forest Service to the National Park Service.

1935 Redondo Development Company sells all "timber, trees and wood and increment thereof standing, growing, lying and being upon the Baca Location No. 1" to Robert Anderson of Ontonagon, Michigan, doing business as Firesteel Lumber Company, for $150,000, for a term of 99 years. This action begins a chain of transfers of timber rights, which culminates in the consolidation of all timber assets in the ownership of the New Mexico Timber Company (T. P. Gallagher, president) in 1940.

1935 The CCC builds a road through the Valle Grande. New Mexico Timber Company begins logging operations; the company establishes a logging camp in Redondo Meadows for loggers and their families, with cabins, sheds, stables, mess hall, and school. This camp is abandoned in 1939.

1940s Cattle grazing is initiated; sheep grazing is gradually phased out.

1945 Frank Bond dies.

1947 Elk from the Yellowstone area are introduced into the Jemez Mountains. About 49 head are released approximately 10 miles west of the Baca Location.

1959 The first exploration well is drilled within the Baca Location. The purpose of the well was to search for oil and gas; hot water is encountered instead.

1962-3 The Forest Service and Park Service compete to purchase the property. Various legislative proposals are introduced, but none passes. Tension is fueled by a long-standing disagreement between the two agencies on management in the Jemez Mountains. Key differences stem from the agencies' respective missions.

1963 George W. Savage, trustee for Ethel Bond Huffman (widow of Franklin Bond), sells the Baca Location to interests controlled by James Patrick Dunigan for $2.5 million.

1964 Dunigan's Baca Land and Cattle Company sues New Mexico Timber, Inc., and T. P. Gallagher & Co., Inc., seeking damages for timber cut in violation of applicable deeds and agreements and seeking damages for wasteful logging practices.

1964–5 About 58 elk from the Jackson Hole area are released near the southeast corner of Baca Location No. 1.

1966 The Cochiti Land Exchange is finalized. Dunigan receives land northeast of Santo Domingo Pueblo (the "La Majada" tract) in exchange for which the United States receives land along the north boundary of the Baca Location to be used for an access road.

1967 A right of surface use on 185 acres along the eastern boundary is sold to Los Alamos Ski Club for ski area operation.

1971 After protracted legal wrangling, James P. Dunigan buys the logging rights to Baca Location No. 1 from New Mexico Timber, Inc., and halts logging on the location.

1973 A geothermal lease is issued to Union Geothermal of California. During the next few years about 40 wells are drilled.

1975 The National Park Service designates Baca Location No. 1 as a National Natural Landmark.

1977 Baca Land and Cattle Company sells 3,076 acres in the southeast corner of the Baca Location to the United States, to be incorporated into Bandelier National Monument. This gives Bandelier control of the upper end of the Frijoles watershed.

1978–80 James P. Dunigan and federal agencies (Forest Service, National Park Service, Fish and Wildlife Service) discuss sale of the property. Reports are prepared by each agency on the property's importance and how it could be managed.

1980 James Patrick Dunigan dies. Discussion on sale of the property ceases.

1982 Geothermal drilling ends; plans for a generating plant are scrapped and leases are relinquished.

1990 P.L. 101-556, the Baca Location No. 1 Land Acquisition and Study Act of 1990, is enacted, authorizing federal acquisition of approximately 36 acres in two tracts along the south boundary of the Baca Location. The act also directed the Forest Service to conduct a study of the location to assess its "scenic, geologic, recreational, timber, mineral, grazing, and other multiple use attributes" and to assess options for federal acquisition, in whole or in part. The study was completed and delivered to Congress in 1993.

2000 P.L. 106-248, the Valles Caldera Preservation Act, is enacted, designating 89,000 acres of the Baca Ranch as the Valles Caldera National Preserve, a unit of the National Forest System. The legislation creates the Valles Caldera Trust and charges it with responsibility for management of the preserve.

4

THE VALLES CALDERA TRUST

Congress gave the trust certain instructions for the use and stewardship of the preserve

A Brief History of the Valles Caldera Trust

Congress passed the Valles Caldera Preservation Act and sent it to the White House for the president's signature on July 14, 2000. President Bill Clinton, who took a strong personal interest in the acquisition of the caldera, signed the bill at Camp David on July 25. A copy of the act is incorporated in this framework as Appendix A. The act authorized federal purchase of Baca Location No. 1 and, after providing for separate disposition of parts of the property, designated the balance of the new acquisition the Valles Caldera National Preserve. The act also established the Valles Caldera Trust as the eventual manager of the preserve.

With lightning speed, the purchase of the property was accomplished on the day the president signed the bill, providing authorization for the purchase to go forward. The sellers were the heirs of James P. (Pat) Dunigan, who bought the property in 1962 and died in 1980, even as he was negotiating sale of the property to the United States. In a very real sense, the successful sale of the property by Dunigan's heirs to the United States in 2000 may be seen as the fulfillment of the negotiations that were tragically terminated in 1980.

One of the special dispositions addressed in the bill authorized the government to assign to Santa Clara Pueblo the right to purchase 5,046 acres at the headwaters of Santa Clara Creek in the northeast corner of the property. Using funds provided by a private foundation, Santa Clara completed this transaction simultaneously with the government's purchase of the rest of the Baca Location on July 25, a day that the pueblo subsequently designated an annual feast day, so important was the achievement of securing ownership of the Santa Clara headwaters. Santa Clara and the United States also subsequently carried out a reciprocal exchange of

conservation easements along their common boundary at the northeast corner of the preserve. These easements guarantee that no inappropriate development will occur along the part of the caldera rim that defines the boundary.

Another provision of the act provided for a few hundred acres of Baca Location land at the headwaters of Capulin Canyon to be incorporated into Bandelier National Monument, which adjoins the preserve at its southeast corner. Like the Santa Clara headwaters, the lands transferred to Bandelier lie outside the rim of the caldera and drain not into the Rio Jemez watershed (as does virtually all the rest of the preserve), but eastward to the Rio Grande. These two adjustments resulted in the present boundaries of the Valles Caldera National Preserve, which comprises approximately 89,000 acres.

The act instructed the U.S. Forest Service (USFS) to manage the preserve until the trust had developed sufficient capability to assume management responsibility. It further specified that the land of the preserve would be included as a unit of the National Forest System, but it made an interesting and very meaningful distinction: the Valles Caldera Trust, which was to manage the land, would be in essence autonomous and in many ways unconstrained by standard methods of the Forest Service. It was to be a new kind of administrative structure, freestanding, entrepreneurial, and innovative in its approach. Limited precedent existed for such an entity. The two closest examples of trusts organized to be stewards of sites important to our national heritage are the Presidio Trust, which Congress authorized in 1996 to manage a former army base within Golden Gate National Recreation Area in San Francisco, and the Oklahoma City National Memorial Trust, which came into being in 1997 to establish and maintain a memorial at the site of the tragic bombing that occurred in April 1995. Neither of these examples, however, involved the management of a large, complex ecosystem in the context of multiple use. The Valles Caldera Trust was destined to be a singular undertaking.

(In a separate title, the act also specified new procedures for the disposition of surplus federal land, but these matters are not germane to the preserve or this framework.)

As chartered by the act, the Valles Caldera Trust is a wholly owned federal corporation, governed by a nine-member board of trustees, with broad authority to conduct its business independent of other agencies. Two of the trustees, the supervisor of Santa Fe National Forest and the superintendent of

Bandelier National Monument, serve in an ex officio capacity, which means that they become trustees by virtue of the jobs they hold. The president, in consultation with the New Mexico congressional delegation, appoints the other seven trustees, five of whom must be residents of New Mexico. The act specifies that the appointed trustees be selected from seven distinct areas of expertise or activity:

1. Domesticated livestock management, production, and marketing, including range management and livestock business management;
2. Management of game and nongame wildlife and fish populations, including hunting, fishing, and other recreational activities;
3. The sustainable management of forest lands for commodity and noncommodity purposes;
4. Nonprofit conservation activities concerned with the Forest Service;
5. Financial management, budget and program analysis, and small business operations;
6. The cultural and natural history of the region; and
7. State or local government activities in New Mexico, with expertise in the customs of the local area.

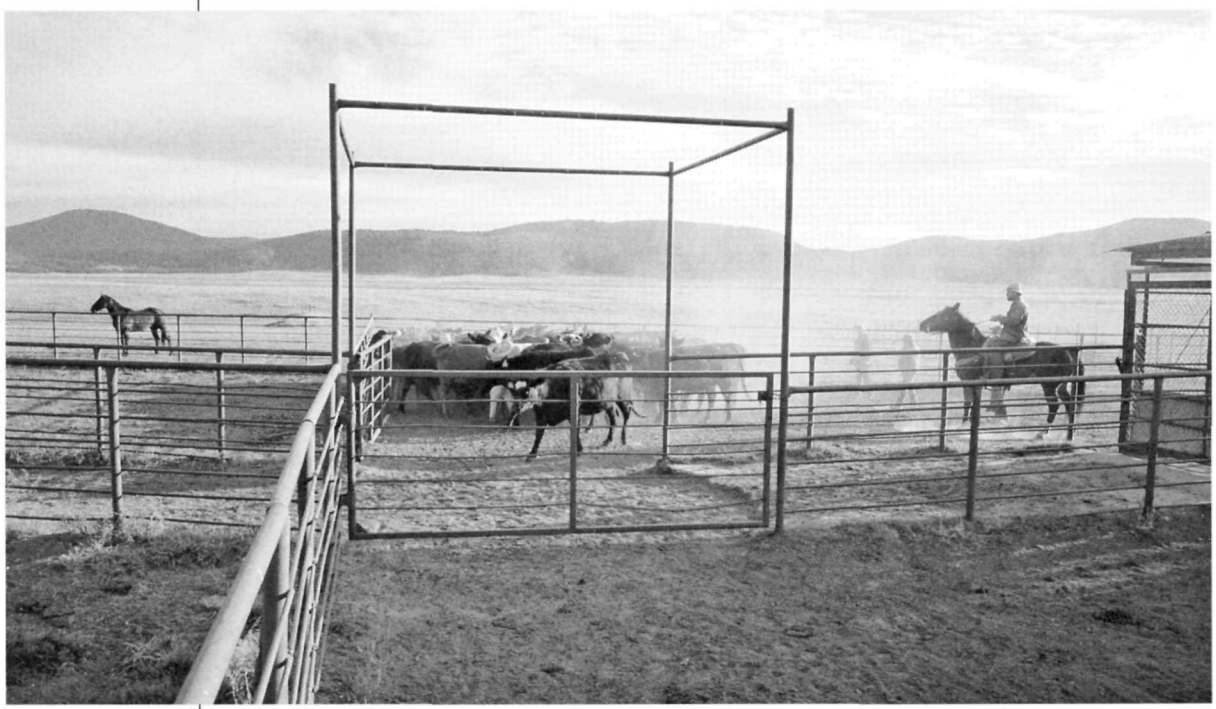
President Clinton announced his seven appointments on December 12, 2000, and all nine trustees were sworn in on January 10, 2001. They then commenced the discharge of their duties, which include

- Development of the Valles Caldera Trust as an institution;
- Development of programs and plans for the Valles Caldera National Preserve to achieve the goals set forth in the Valles Caldera Preservation Act; and
- Following formal assumption of management authority, which Secretary of Agriculture Ann Veneman delegated to the trust on August 2, 2002, direction and supervision of the day-to-day stewardship of the preserve.

PURPOSES OF THE TRUST AND PRESERVE

The Valles Caldera Preservation Act states that Congress established the preserve in order "to protect and preserve the scientific, scenic, geologic, watershed, fish, wildlife, historic, cultural, and recreational values of the preserve, and to provide for multiple use and sustained yield of renewable resources within the preserve, consistent with this title" (VCPA sec. 105[b]).

Consistent with this purpose, the act further instructs the trust to pursue six goals. (VCPA sec. 108 [d]). None of the goals is asserted to be more important than the others, and no specific direction is given for resolving conflicts that may arise among them. A close reading of the act suggests that the authors of the legislation understood that they were charging the trust with a



Sorting cattle at the pens near Cerro la Jara in the Valle Grande.

complex mission and that achieving an acceptable balance in the pursuit of the six goals represented a significant challenge.

The goals are as follows:

1. Operation of the preserve as a working ranch, consistent with goals 2 through 4;
2. Protection and preservation of the scientific, scenic, geologic, watershed, fish, wildlife, historic, cultural, and recreational values of the preserve;
3. Multiple use and sustained yield of renewable resources within the preserve;
4. Public use of and access to the preserve for recreation;
5. Renewable resource utilization and management alternatives that, to the extent practicable—
   a. Benefit local communities and small businesses;
   b. Enhance coordination of management objectives with those on surrounding National Forest System land; and
   c. Provide cost savings to the trust through the exchange of services, including, but not limited to, labor and maintenance of facilities for resources or services provided by the trust; and
6. Optimizing the generation of income based on existing market conditions, to the extent that it does not unreasonably diminish the long-term scenic and natural values of the area or the multiple

use and sustained yield capability of the land.

The trust's goals, and particularly the interrelationships among the goals, deserve elaboration.

GOAL 1: WORKING RANCH

The act's first goal is to continue what has been the dominant use of the caldera for the previous century: ranching. We define a "working ranch" as an operation that places its primary emphasis on stewardship of resources as the foundation for both ecological and economic sustainability. The goal of implementing a working ranch includes the other goals set forth in the act, such as protection and preservation of the values of the preserve, multiple use and sustained yield, recreation, and generation of income.

GOAL 2: PROTECTION AND PRESERVATION

Although the preserve is to be the scene of a wide range of activities, including grazing and multiple kinds of recreation, these activities must not diminish the values that inspired Congress to acquire the property on behalf of the American people. Clearly the act intends that the exceptional qualities of the preserve that make it deserving of designation as a "national preserve" should be passed on intact to succeeding generations.

GOAL 3: MULTIPLE USE AND SUSTAINED YIELD

The meaning of this phrase is fully set forth in the Multiple Use and Sustained Yield Act of 1960, which is one of the principal laws governing use and management of the National Forest System. By referring to existing law, Congress wanted to ensure that the trust would attempt to achieve balance in its use of the resources of the preserve and that it would enjoy flexibility in its effort to do so, while allowing for adjustments to meet changing needs and conditions. This goal also calls for managing resources in a manner that does not impair the productivity of the land, and the management regime may not necessarily seek to generate the greatest possible financial return.

GOAL 4: PUBLIC ACCESS AND RECREATION

The act does not limit the kinds of recreation that the preserve might support, but its "Findings" suggests several activities that the land would support: "The Baca ranch's natural beauty and abundant resources, and its proximity to large municipal populations, could provide numerous recreational opportunities for hiking, fishing, camping, cross-country skiing, and hunting."

GOAL 5: RENEWABLE RESOURCE UTILIZATION

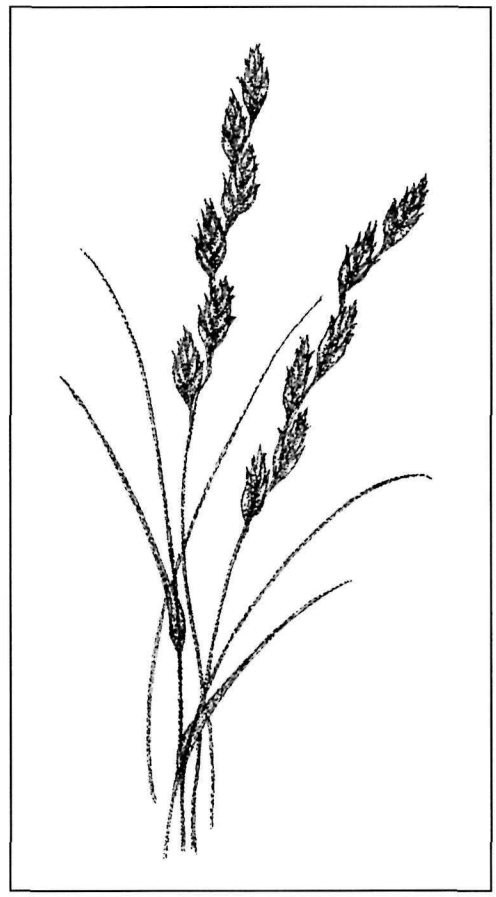
This goal suggests that the trust

should strive to utilize renewable resources in a manner that is connected to the surrounding ecological and social landscape. It calls for the return of benefits to the communities that lie close to the preserve, coordination of management with surrounding National Forest land, and cooperative relationships with other agencies, private groups, or individuals through which the trust might realize economic savings.

GOAL 6: OPTIMIZING INCOME
This goal touches on one of the most frequently misunderstood provisions of the act. Coupled with language in section 106(e)(3)(a) that instructs the trust to strive to become financially self-sufficient within 15 years, this goal emphasizes that all actions of the trust be subjected to rigorous economic evaluation. It does not, however, mean that the generation of income should take precedence over other goals.



Optimization of income and attainment of financial self-sufficiency must be pursued in the context of all the goals that the act establishes for the trust and the preserve.



Western wheat is a constituent of some grassland communities within the VCNP.

GEOTHERMAL ENERGY

When the federal government acquired the preserve in 2000, it also acquired 87.5 percent of all mineral rights on the property. The outstanding 12.5 percent of the mineral rights were not a part of the sale. The intent of the Valles Caldera Preservation Act is clear, however: the act instructs the Department of Agriculture to negotiate with the owners of the outstanding mineral rights and to acquire those rights from all willing sellers. The trust wants the federal government to acquire all outstanding mineral rights.

The U.S. Forest Service conducted negotiations with the minority mineral interest holders and ultimately offered $1.87 million for their holding. This offer was rejected, and negotiations ceased. Meanwhile, those minority mineral interests were leased by the various owners to GeoProducts of New Mexico, Inc., for the declared purpose of developing the preserve's geothermal assets for electric power generation.

The trust believes these plans profoundly conflict with its mission to preserve and protect the qualities of the Valles Caldera for which the national preserve was created, and so it has vigorously opposed GeoProducts' activities. It has also taken steps to ensure, at the least, that the proper care is taken in the pursuit of any such development. By the close of 2004, as the publication of this document neared, Congress had failed to pass legislation to set in motion the acquisition of the remaining mineral rights. Ths bill will likely be taken up again in 2005.

REPORTS TO CONGRESS

The act requires the trust to submit an annual report by January 15 of

each year to the Secretary of Agriculture and the "Committees of Congress." This report is to include discussion of operations, activities, and accomplishments for the prior year and goals for the year ahead. It should also provide "information on the status of ecological, cultural, and financial resources being managed by the trust and benefits provided by the preserve to local communities."

On the subject of self-sufficiency, the act instructs the trust to submit a financial plan to Congress within two years after the first meeting of the board, which was January 23, 2001. The plan must include "a schedule of annual decreasing appropriated funds that will achieve, at a minimum, the financially self-sustained operation of the trust within 15 full fiscal years after the date of acquisition of the Baca ranch" (see Appendix B). This plan was submitted to Congress in November 2003.

The act also invites (but does not require) the trust to submit a report to the Secretary of Agriculture and the Committees of Congress on the rules and regulations that it finds "inappropriate, incompatible with [the purposes of the act], or unduly burdensome."

The act authorizes the trust to receive appropriations from Congress for 15 full fiscal years following acquisition. If it has not achieved financial self-sufficiency after 14 fiscal years have gone by, the trust may request that authorization for appropriations be extended. During the eighteenth full fiscal year following acquisition, the trust is to recommend to the Secretary of Agriculture whether it believes the life of the trust should be extended past its initial 20-year authorization.

In order to provide an outside view of the trust's performance, the act instructs the General Accounting Office to prepare a pair of reports on how well the trust is meeting its obligations. These reports are due three years and seven years, respectively, after the trust's assumption of management responsibility.

5

STEWARDSHIP

The values of the trust and our vision for how we will conduct our business

MANAGEMENT PRINCIPLES

The core values of the Valles Caldera Trust are expressed in its management principles, which are presented on page 13 of this framework. These 10 principles are united by a number of qualities, foremost among which are

- An appreciation of the richness and complexity of the Valles Caldera National Preserve in both its ecological and cultural dimensions,
- A respect for the needs and interests of a wide range of stakeholder groups,
- A commitment to consider financial impacts and realities,
- A commitment to monitor the impacts of management and use the learning thus gained to inform subsequent management decisions, and
- A general ethic of care and restraint in the development of programs.

The management principles constitute the first set of criteria the trust will use to evaluate the projects, programs, and policies it considers. A number of additional values and goals, some of which are implicit in the principles, will also shape the development of the trust and its programs. Among these are the pursuit of financial self-sufficiency, the operation of the preserve as a working ranch, the protection of cultural resources and traditions, and the trust's commitment to involve the public in decisions affecting the preserve. These goals and values are emphasized in the trust's instructions from Congress. The Valles Caldera Preservation Act also urges that the preserve become "a demonstration area for an experimental management regime adapted to this unique property." In response to this charge the trust has committed itself to "science-based adaptive management." All of these ideas are discussed in the balance of this chapter, with the exception of public involvement, to which the entirety of chapter 7 is devoted.

FINANCIAL MANAGEMENT AND SELF-SUFFICIENCY

Perhaps the most uncommon management challenge facing the trust involves the goal of attaining financial self-sufficiency within a 15-year period. This means becoming capable of operating successfully, while meeting the trust's other five goals, without requiring federal appropriations to offset annual operating costs. This goal clearly requires the trust to evaluate its overall management approach, as well as individual management decisions, in terms of revenue generation potential as well as mitigation of administrative costs. The trust is fully committed to achieving financial self-sufficiency through prudent financial management. Two key management considerations will contribute to financial success: revenue generation and cost control.

The trust is committed to adaptive financial management in a manner similar to its commitment to science-based adaptive management in its stewardship of the lands of the preserve. The financial goal of self-sufficiency is fundamentally untested and complex. Accordingly, the trust will implement programs conservatively and incrementally, documenting costs and revenues while taking only measured financial risks. We expect that some programs will yield high financial returns (i.e., high revenues with low operational costs), while others will offer low or even negative financial returns (i.e., high operational costs with low revenue potential). The trust recognizes that long-term financial self-sufficiency will likely require multiple sources of funds, such as donations, gifts, and bequests, beyond revenues acquired from public program fees.

The goal of financial self-sufficiency is one of several that will define the success of the trust over time. But it is only one of several. We understand Congress to have intended that none of the six purposes for which the preserve was established be pursued solely for its own sake, at the material expense of the others. One of the objectives of the Valles Caldera Trust experiment is to determine if through wise and measured stewardship, and by approaching administrative and programmatic matters in a businesslike manner, the trust can eliminate its reliance on annual federal appropriations. This opportunity is bestowed upon few, if any, other federal organizations, and it is unique in the land and resource management arena. It is therefore imperative that we view the concept of financial self-sufficiency as a means to achieve our primary mission, that of wise and measured stewardship, rather than an end to be achieved in and of itself.

By any reasonable assessment, financial criteria must play a role in decision making, but it is not in the long-term interest of the trust or the preserve to base decisions solely on a revenue motive. We consider good stewardship to be a prerequisite for achieving long-term financial stability, for the resources we are charged with managing must be well tended if they are to provide a foundation for producing continuous and sustainable revenues. Therefore, as we decide among competing uses for the preserve, we will take into account financial matters in the context of what will best serve the long-term social, ecological, and resource needs of the preserve.

Challenges and Risks

The trust's current financial model calls for receiving appropriations to fund operations and to develop the infrastructure necessary to support a variety of revenue-generating public programs. This model should allow gradual achievement of financial self-sufficiency, assuming infrastructure can be developed fast enough for programs to grow and substantial annual revenues to be realized. Nevertheless, unforeseen developments could render the goal of financial self-sufficiency unachievable within the intended 15-year period.

For example, natural events, such as catastrophic fire or prolonged regional drought, could significantly impact the aesthetic beauty and sense of place on the preserve, resulting in a decrease in visitors and a decline in revenues. Additional natural limitations for revenue generation could result from prolonged closure of the preserve due to fire danger or from suspension of programs due to unacceptable cumulative effects.

Significant changes in the regulatory environment might also impact the operating costs of the trust or delay program implementation. In addition, the reliance on the federal appropriations process could hamper development efforts if, for example, the appropriations necessary for infrastructure improvements do not materialize in a manner timely enough for key revenue-generating programs to be launched in the near term.

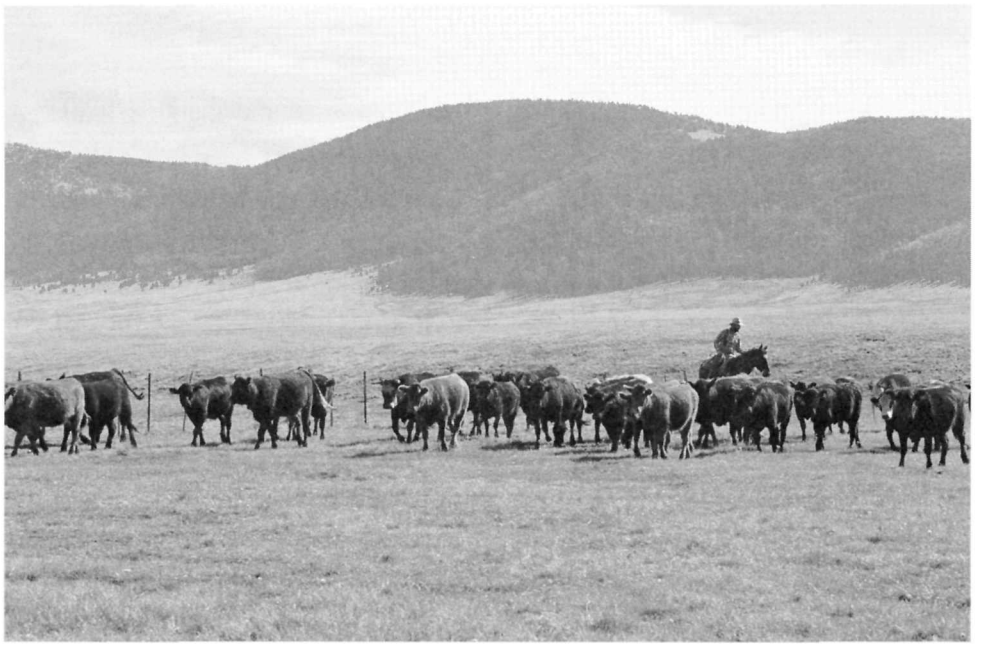
These issues, alone or in combination, could necessitate appropriations at some baseline level into the indefinite future and past the 15 years given in the act for attaining financial self-sufficiency. How could the justification for continued appropriations be understood, beyond the simple fact that the trust "needs more money"? Clearly, while the trust has all of the tools available to operate "commercially" as a working ranch, it also bears obligations not found in the private sector, not least in that the trust will

be held to a high and legally obligatory standard of performance, especially in terms of environmental stewardship. Costs associated with these important responsibilities, which the trust appreciates and accepts, include research, inventory, and monitoring; archaeological assessments; compliance with the National Environmental Policy Act; outreach and dialogue with the public; and cultural interaction and compliance with the pueblos. The sum of these costs, all of which are attributable to the preserve's federal status, might be thought of as "federal overhead." The trust has taken important steps to mitigate some of these costs through, for example, streamlined procedures for NEPA compliance and through the trust's internal Stewardship Action Record System (StARS), which is designed to facilitate communications with the public during the planning of programs and other actions on the preserve. Nonetheless, it may prove reasonable for continuing appropriations to cover these costs, while the balance of the trust's programs operate in a financially self-sufficient manner. (Chapter 6 discusses the trust's NEPA and StARS procedures in fuller detail.)

GUARANTEEING FAIR PUBLIC ACCESS

We interpret our mandate to provide reasonable public access for recreation to be variable only in the determination of what activities are offered and what level of use is deemed reasonable. In this context, the trust will not consider it reasonable to limit the opportunities for the public's enjoyment of the preserve based solely on an individual's ability to pay a fee. The preserve was clearly established to provide opportunities for the American people to enjoy and learn from the lands of the caldera. We consider it a part of our mission to establish fee structures that will provide the trust with the means to manage and administer the operations of the preserve, but we do not intend to use fees as a means of limiting access to the preserve.

The trust has explicitly committed to a high level of social equity in the operation of its public programs. This commitment means affording to members of the public from all social and economic strata a reasonable opportunity to participate in preserve programs. Lotteries offer one means for keeping the cost of program entry low and the potential for revenues high. Lotteries, however, are unlikely to be appropriate for all preserve programs. As a result, the trust may need to provide access to certain programs at rates below the true unit cost of program participation. It may become necessary to subsidize some programs with revenues



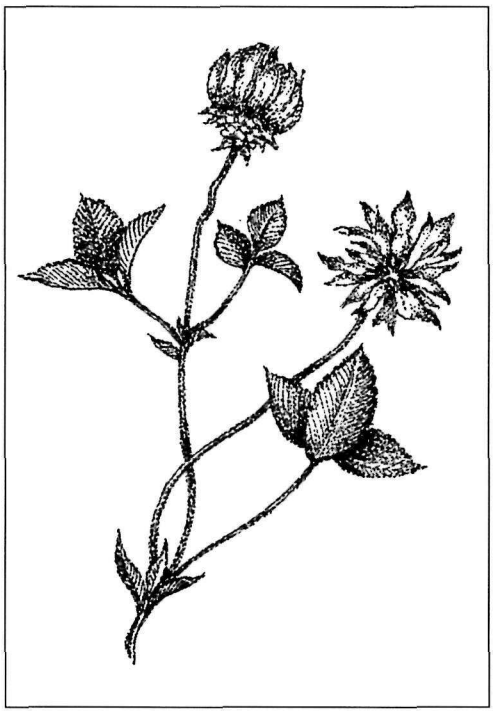
from other programs or from appropriations, if moneys earned from revenue-generating programs are insufficient to cover the full operating costs of the trust.

THE WORKING RANCH

We define a "working ranch" as an operation placing its primary emphasis on stewardship of the resource as the foundation for both ecological and economic sustainability. A working ranch

- Runs a sustainable level of livestock, adjusting numbers as necessary;
- Makes resources available for other revenue-generating activities such as bird watching, hunting, fishing, and other low-impact recreational activities;
- Applies adaptive management on a day-to-day basis to ensure resource protection; and
- Monitors the impact of its activities.

Adaptive management is not a new concept in ranching. Ranchers practice adaptive management every day, taking into consideration such factors as wind, rain, temperature, and livestock markets. Ranchers learn to be conservative, inventive, and flexible to manage effectively, especially in times of drought. At the preserve, we have the opportunity to enhance and expand such adaptive management through the availability of scientific monitoring. Through a variety of scientific experiments and monitoring protocols, we have a tremendous opportunity to understand the workings of the preserve's ecosystems. In addition, we may be able to conduct research on new ranching techniques to determine their efficacy in both maintaining and improving rangeland.



Alsike clover is a nutritious forb, found within the grasslands of the VCNP.

The trust will assess the cumulative impacts of all activities on the preserve. This will include assessing the cumulative impacts of the ranching operation in conjunction with recreation and with the impacts from the resident wildlife such as elk.

In addition, through its working ranch operation, the trust will have the opportunity to provide benefits to neighboring communities through education and through potential use of the preserve as a grassbank.

The ranch and its daily practices appeals to visitors. The trust will consider how to weave this working operation into the visitor experience.

STEWARDSHIP OF THE CULTURAL LANDSCAPE

Most people, seeing the VCNP for the first time, marvel at the sweep and beauty of its natural landscape. Less visible but no less important is the human presence in the land: the archaeological evidence of past occupations, the buildings and sites of historical importance, and the relationship of the preserve to living cultures that revere the land and depend on it in numerous and complex ways.

One glimpses the importance of such a relationship in the Valles Caldera Preservation Act, which forbids the erection of structures on the upper elevations of Redondo Peak and similarly bans the entry of motorized vehicles there, except for administrative purposes (sec. 105[g]). The act also explicitly references the trust's duty under the American Indian Religious Freedom Act (sec. 108[f]5), which includes making the preserve available for the religious observances and traditional cultural uses of culturally affiliated tribes. Several nearby pueblos nurture connections to the lands of the preserve that are long in duration and deep in significance, and the trust has consulted with them concerning the perpetuation and, in certain cases, restoration of traditional practices. This kind of cooperation and consultation will continue and will pervade all preserve operations, both to protect the cultural values of preserve "resources" and to avoid conflicts between preserve programs and essential tribal practices. These

consultations will require a high level of confidentiality. Consistent with this area of responsibility, the trust has developed a tribal access and use policy that sets forth how the trust will respond to the needs of culturally affiliated tribes for access to the preserve and uses relating to traditional cultural and religious activities. As a result of the implementation of this policy, certain areas of the preserve may be closed to general uses from time to time. In general, these closures are expected to be temporary and localized.

The Hispanic heritage of northern New Mexico has also influenced and been influenced by the lands of the caldera, particularly in relation to the preserve's long history as a working ranch, producing both sheep and cattle. Awareness of this heritage and its traditions will be especially important as the trust develops and operates its livestock grazing program.

Protection of archaeological resources poses a different class of challenge. As was noted in chapter 3, the lithic resources, big game, and other qualities of the caldera have attracted people to its mountains and valles for thousands of years, and as a result the archaeological resources are exceptionally rich. Until now, because investigations have been few and limited, archaeologists have been able to reconstruct relatively little about the patterns of those long-ago uses, but the potential for expanding our understanding of the distant past is enormous. Compared to lands that have been in public ownership for a long time, most VCNP sites have not previously been subjected to surface disturbance and artifact removal. They therefore represent a remarkable opportunity for recovering an abundance of valuable information—so long as the sites remain undisturbed. If the surface resources of the caldera were compromised, the cost of recovering equivalent information would soar, for archaeology becomes increasingly expensive and difficult the deeper one goes beneath the surface.

The imperative to protect the integrity of surface archaeological resources could constrain the trust's ability to provide unguided visitor access to parts of the preserve. Similarly, the necessity of archaeological surveys and the complexity of the archaeological record at the preserve may significantly delay or constrain the trust's ability to initiate a wide range of actions, from maintenance of roads to provision of recreational opportunities. The trust is presently developing its own staff capacity to address these challenges, and even as its capacity grows, it will continue to draw on the resources of its neighbors, including Bandelier National



Mist clearing in the Valle San Antonio.

Monument, the Forest Service, and nearby tribes. In partnership with the New Mexico State Historic Preservation Office (SHPO), the trust will develop a "programmatic agreement" consistent with the National Historic Preservation Act to guide the protection of the preserve's cultural resources, including procedures for consultation with the SHPO and interested tribes.

The programmatic agreement to be developed between the SHPO and the trust will also address the preservation of historically significant buildings within the preserve. Not all of the preserve's buildings are historically significant. Some of these buildings need extensive repair simply to maintain their structural and aesthetic integrity; others will require remodeling, including adaptation to standards set by the Americans with Disabilities Act, if they are to provide support for the preserve's public programs; a few function effectively in their present state. Maintenance and upgrading of the preserve's existing buildings represents a significant capital cost for the trust.

SCIENCE-BASED ADAPTIVE MANAGEMENT

For years, land managers and scientists from a broad range of fields

have agreed that knowledge obtained from site-specific scientific inquiry can substantially improve the quality of management decisions. Moreover, strong agreement exists that this kind of knowledge must be applied in the management of natural systems and that the gathering of such knowledge should be a continuous, or at least regular, process so that managers, scientists, and the public in general can inform themselves of the impact of activities on systems of concern and make management adjustments accordingly.

This approach to the stewardship of natural systems is most commonly referred to as "science-based adaptive management." Its chief characteristic is a commitment to monitor natural systems and the human activities that impinge on them, coupled with an equal commitment to use the monitoring information thus gained to guide and, when necessary, revise the goals and activities of management. (In this context, "human activities" include economic and social considerations.) Although there is broad agreement that this kind of management is desirable, achieving it in practice, especially on public lands, has proved difficult. Obstacles have included the sometimes daunting cost of baseline inventories and ongoing monitoring, the difficulty of changing long-established patterns of land use, and uncertain administrative support for the kind of long-term discipline that adaptive management requires. Perhaps most fundamentally, the traditional separation in most land management agencies of scientific activities from on-the-ground, management decision making has contributed to development of institutional cultures that do not easily embrace a close partnership between science and management.

Inherent in adaptive management is a commitment to apply the scientific method to the experimental problems. This includes formulating and testing a priori hypotheses; the use of control sites where a particular management action is not imposed, in order to distinguish the management effects; the establishment of replicate study sites for statistical analysis of treatment effects; and peer review by other scientists to evaluate the scientific results. When appropriate, this also includes economic and social analysis.

The Valles Caldera Trust has an opportunity to begin afresh. As it develops as an institution, every effort is being made to build an organizational culture and structure that will fully support adaptive management. Moreover, from its earliest days the trust has invested heavily in the kinds of inventory and monitoring work needed to

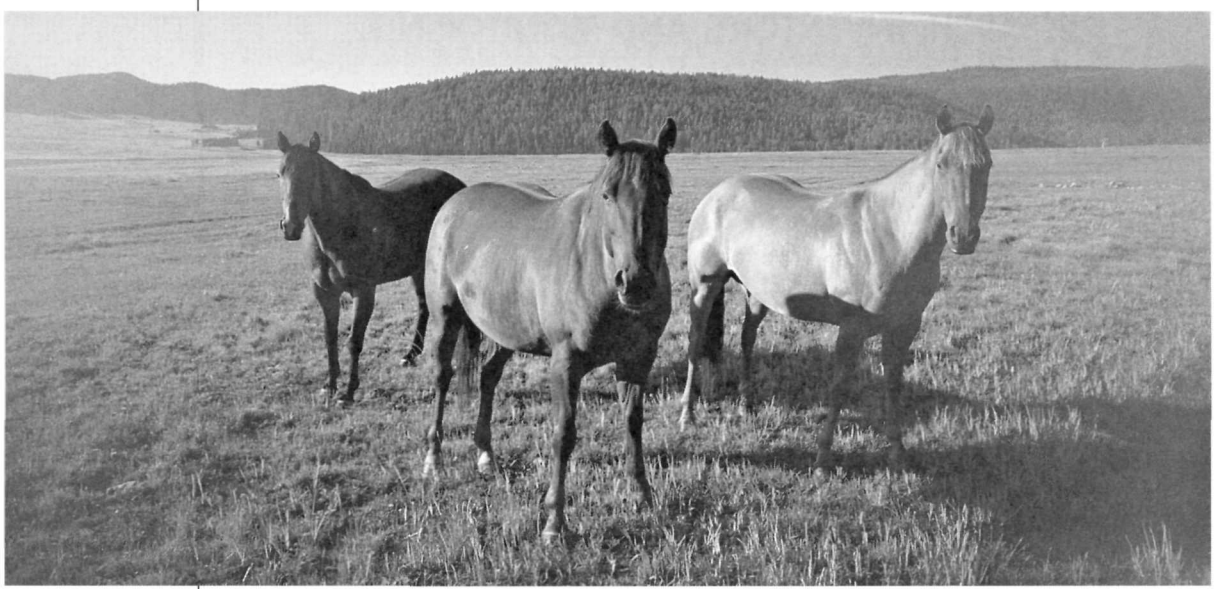
SCIENCE-BASED ADAPTIVE MANAGEMENT IN ACTION: THE VALLES CALDERA LIVESTOCK GRAZING PROGRAM

The livestock grazing program is carefully monitored to assess the combined impacts of livestock and other wildlife (primarily elk) on the vegetation of the VCNP. Before each summer grazing period, a range assessment is undertaken to determine the maximum number of cattle that can be supported within each major pasture area. This assessment conservatively assumes that only spring forage will be available for the entire season (a prudent approach, given the current long-term drought forecasts for the region). Once this assessment is conducted, the VCT adjusts the planned number of cattle to be introduced to the VCNP pastures to ensure that the available forage is not overutilized. At the end of each season, the forage remaining is measured for the purpose of assessing total utilization by cattle and elk, and these values are then used to begin planning for the next season. In addition, the VCT is conducting an experiment using ungulate (livestock and elk) exclosures to determine the relative roles of these major herbivores on removing forage in the riparian zones of the VCNP. These experiments, in combination with future acquisitions of satellite imagery, will make possible a more detailed assessment of large herbivore impacts on the VCNP grasslands, thereby allowing a high degree of accuracy in planning future livestock stocking rates.

provide baseline information for the comparative evaluation of future resource conditions. These investigations have included surveys of water quality, range condition and composition, forest stand structure, riparian and aquatic habitat, various wildlife populations, and many other features of the preserve. They have also been carefully designed to provide a dependable framework for long-term monitoring. As the trust's recreational programs expand, the emphasis on monitoring will be extended to the evaluation of visitor activities and visitor satisfaction. The unifying theme behind all of this work is to assert the importance of continuous learning in everything the trust undertakes. Leading advocates of science-based adaptive management have argued that "knowledge may be a resource equal or greater in value than the physical resource." The principles associated with this kind of place-based learning are

RESEARCH, INVENTORY, AND MONITORING, 2001-3

PROJECT NAME	ORGANIZATION
Vegetation map	University of New Mexico/NM Natural Heritage Program
Soils map	National Resources Conservation Service, U.S. Forest Service
Forest fuels map	University of Arizona
Geology map	Los Alamos National Laboratory, U.S. Geological Survey, NM Bureau of Mines
Plant species survey	University of Wyoming
Breeding bird survey	Ornithology volunteers
Breeding bird atlas	Ornithology volunteers
Raptor survey	Ornithology volunteers
Amphibian survey	Utah State University, Bandelier National Monument
Butterfly survey	University of Wisconsin
Elk browse survey	Bandelier National Monument
Elk radiotelemetry study	Los Alamos National Laboratory
Fish community study	Aquatic Consultants
Aquatic insect survey	Colorado State University
Aquatic invertebrate production	VCNP
Fairy shrimp survey	NM Department of Game and Fish
Fire history	Bandelier National Monument
Forest-grassland ecotones	University of Wisconsin
Historic routes report	Volunteers
Watershed survey	USFS National Riparian Service Team Review
Meteorological data	Bandelier National Monument
Hydrogeochemistry well study	Los Alamos National Laboratory
Range grazing assessment	New Mexico State University, Bureau of Land Management (BLM)
Range monitoring	Ecology Consultants
Grasshopper study	U.S. Geological Survey
Repeat photo project	Bandelier National Monument
Stream inventory	U.S. Forest Service
Water quality data	NM State Environment Department
Whirling disease testing	NM Department of Game and Fish
Prairie dog survey	Bandelier National Monument
Ungulate exclosure study	VCNP, Bandelier National Monument



multidisciplinary, holistic, and collaborative. They lead toward open and informed management, and as the learning proceeds, it will inform the educational and interpretive aspects of all preserve programs, continually enriching visitor experience.

PUBLIC INVOLVEMENT

The VCT's approach to planning and decision making emphasizes soliciting and incorporating the public's ideas and concerns throughout the program planning process—and in the periodic evaluation of programs that are implemented. A full discussion of the trust's plans for public involvement, including the description of the range of opportunities available for reviewing and commenting on management of the preserve, may be found in chapter 7 of this document.

STEWARDSHIP SUMMARY

The 10 management principles presented in chapter 1 set forth the values that the board will use to guide management of the preserve. They are not necessarily simple ideas, and contradictions and conflicts can arise among them. Nevertheless, the central task of stewardship of the preserve will be to find paths of action (as well as to identify instances of no action) that best honor the spirit of restraint, respect, financial discipline, and continuous learning that underlies the principles. Toward that end, the trust will make every effort to keep its planning processes efficient, to involve the public meaningfully in the design and analysis of significant management undertakings, and to monitor those undertakings in ways that will support their periodic adjustment and revision.

6

DECISION MAKING

How we propose to develop programs and to decide among competing possibilities

The management regime Congress established for the preserve was clearly intended as an experiment, and part of the experimental purpose is to attempt to reduce the conflicts associated with federal lands. A number of other such experiments exist. Some have met with success; others have not. But no other approach to federal land management has involved an entity endowed with as much independence and flexibility as Congress provided the trust in the Valles Caldera Preservation Act.

The trust starts with a "blank slate." Seldom is a new federal property so unburdened by a previous history of public use. Seldom do land managers enjoy as much freedom to design a stewardship program specifically tailored to the character of a place.

The trust must remain a small organization if it is to have a realistic chance of becoming financially self-sustaining. Although large agencies such as the Forest Service and the National Park Service require multiple administrative tiers to ensure uniform implementation of national policies, the trust can function in a relatively unencumbered manner. Not only are its policies and decisions developed in the absence of a cumbersome bureaucracy, but the channels by which directives reach its field managers are short and direct.

Similarly, the Valles Caldera Preservation Act permits the trust to develop its own administrative and decision-making processes. This allows the trust to learn from the experience of other agencies and encourages innovation. Among the advantages conferred by this flexibility is the opportunity to develop a science-based and adaptive approach to management.

Finally, the structure of the board of trustees guarantees that major policies and decisions will be vetted from diverse perspectives that are broadly representative of the stakeholders of the preserve.



Photograph courtesy William deBuys

Board and staff planning retreat, June 2002.

Congress clearly intended that board members exchange ideas and viewpoints as they consider management options and direction. The diversity of backgrounds represented by the board has the potential to result in unusually broad consensus among divergent interests.

THE VCT'S APPROACH TO PLANNING

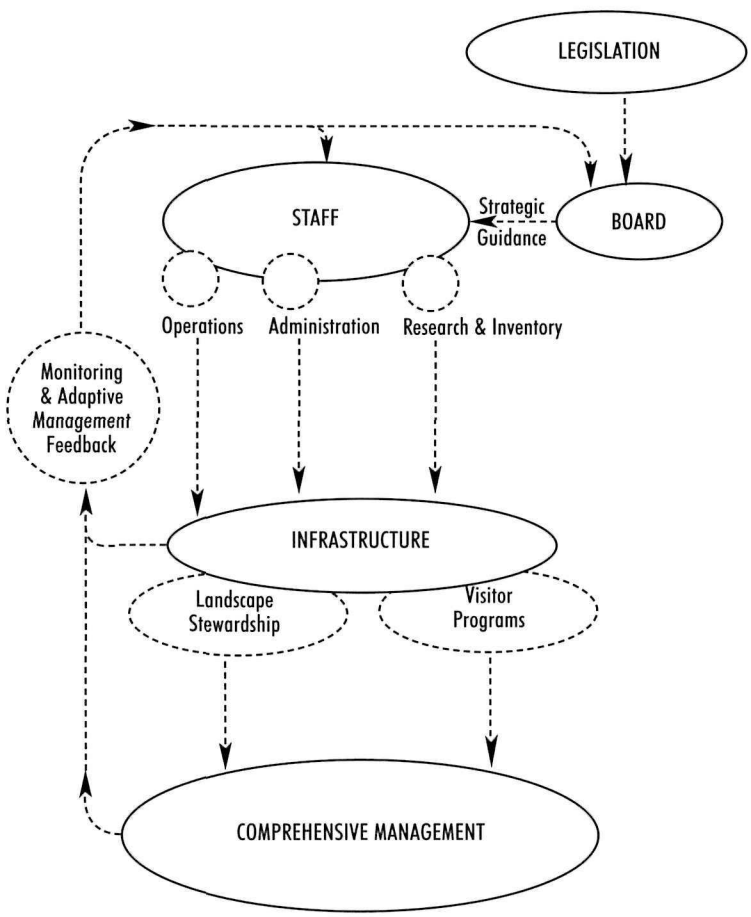
As discussed in chapter 5, the trust intends to keep the planning process for the preserve simple and accessible to anyone with an interest in the VCNP. Preserve planning begins with this document, the framework, which describes the ecological, social, legislative, and regulatory conditions in which planning must occur and identifies the principal issues that the trust must address as it develops programs.

In recent decades, planning for many federal agencies has become increasingly cumbersome. With some notable exceptions, the development of 10-year plans for individual National Forests has proved especially expensive and time consuming while failing to produce a high level of satisfaction within the agency or among its constituencies. Because of this, the Valles Caldera Preservation Act expressly exempts the trust from the obligation to produce a plan following the model required for National Forests (see VCPA 108[f]1).

Instead, the trust is free to develop programs according to planning horizons that the trust alone determines. It is also free to explore new planning approaches that are thrifty, flexible, and directly responsive to public involvement. In pursuing these goals, the trust understands that it will need to balance the development of individual plans for discrete program areas with the long-term obligation to track and respond to cumulative impacts. The diagrams in this chapter illustrate our vision for a planning and decision-making process that incorporates three key features: public involvement in the decision-making process; adaptive management and continuous feedback of new information; and a systematic, transparent process that fully integrates the requirements of the National Environmental Policy Act.

The chart below shows that the starting point for the development of a comprehensive management program for the preserve is the

What Is Comprehensive Management?



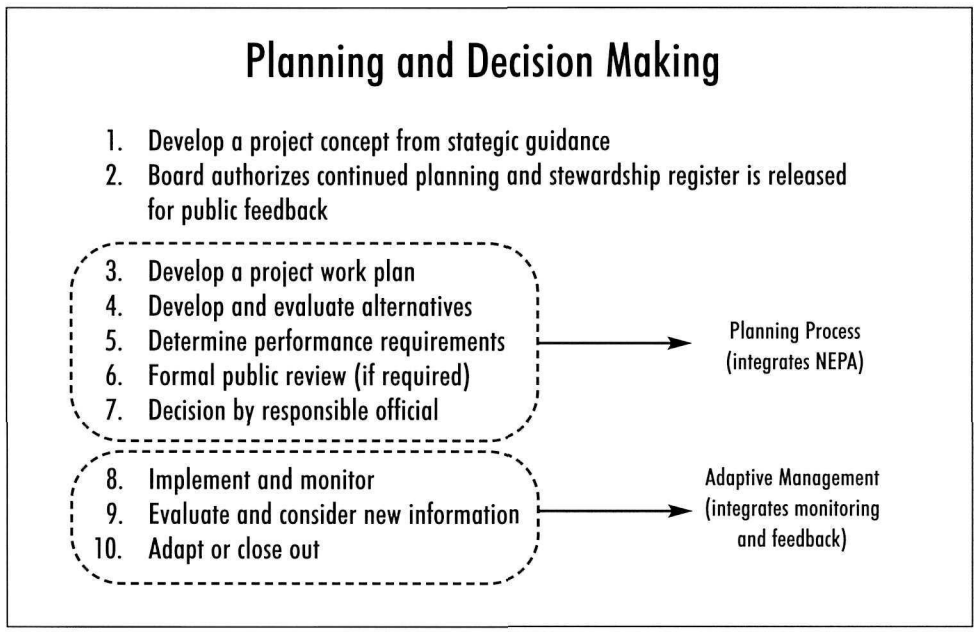
Valles Caldera Preservation Act, which brought the preserve into being and created the structure of the trust. The next step is for the board of the trust to develop a management strategy for the preserve that reflects the legislative instructions of the VCPA and that honors all other applicable laws. This framework, in draft form, is an initial expression of such a strategy. After thorough public discussion and involvement, the board will formally adopt a final version of this document, thereby providing "strategic guidance" to the staff, which then will develop and implement programs, projects, and activities to carry out the board's strategic intent. As program development goes forward, both board and staff will draw upon the participation of the public, together with learning derived from scientific monitoring, to inform ongoing planning and decision making on the preserve. This is the essence of science-based adaptive management.

Observers of the trust will note that many programs are already being developed and implemented at the preserve without a formal strategic framework in place. This is one reason the trust explicitly recognizes its present programs to be "interim." Another reason for calling them "interim" is that most of these programs are designed to generate learning that will assist in the development of successor programs of a more lasting character. They are intentionally experimental.

Because the preserve was run as the privately owned Baca Ranch for more than a century, most of the current physical infrastructure that was passed along to the trust was designed to support the cattle ranching, timbering, and hunting enterprises that constituted the main activities of the private ranch. Today the trust board and staff are working to create infrastructure for new activities that accommodate the public, such as hiking and other recreational uses. At the same time, much work is under way to develop a better understanding of the natural, cultural, and archaeological resources on the preserve. The pursuit of deeper understanding will also extend to soliciting feedback from visitors to the preserve who participate in its programs.

STEWARDSHIP ACTION RECORD SYSTEM (STARS)

The chart on page 67 illustrates the short- to midterm planning process that we have called the Stewardship Action Record System (StARS). Under this process, the staff presents the general concept for a proposed stewardship action to the board of trustees. If the board authorizes further planning and development, the proposal will be made available to the public for review, the primary



objective of which will be to inform the trust of any adjustments needed in the proposed objectives and to set the stage for developing alternatives for implementing the proposal.

In the next stage of proposal development, the trust will analyze the alternatives to determine a desired implementation strategy. In cases where the proposed action is not categorically excluded from preparation of an environmental document under the trust's NEPA procedures, the trust will disclose the results of the analysis in either an environmental assessment (EA) or an environmental impact statement (EIS). Except in cases of emergency, the public will have an opportunity at this stage to review the work of the trust. After reviewing the comments and suggestions the public provides, the trust will then make a decision whether to implement the proposed action, to implement it in modified form, or not to implement it.

For projects that have a potential impact on cultural or natural resources on the preserve, a monitoring protocol will be initiated to measure the outcomes and impacts of the action and particularly to determine if predictions about those outcomes prove accurate. This information will feed the adaptive management cycle by informing periodic review of the project. The lessons learned will allow managers to modify or adapt the program in order to better achieve its goals (see chart above).

In the coming years, the preserve will host a diverse array of programs and activities. On any

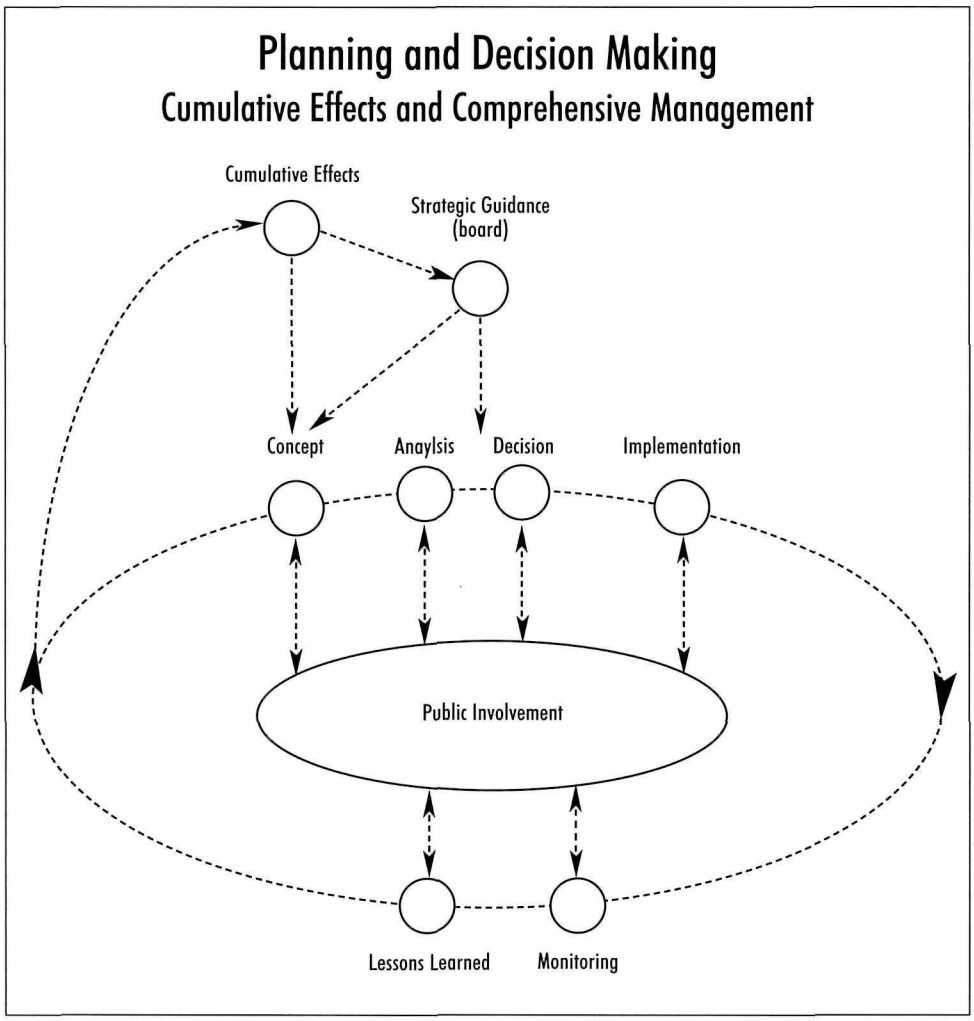
given day, we may find hikers enjoying the backcountry, cattle grazing the lush valles, scientists surveying archaeological features, school groups learning about the caldera's geology, or a production company shooting photographs for a fashion spread. The impacts of these diverse uses will be monitored under an integrated program that gives managers of the preserve a sound understanding of the overall impacts, or cumulative effects, of these activities. This grounding in science will enable the preserve to accommodate a wide variety of uses while reliably ensuring protection of its natural and cultural resources.

RESTRICTING ACTIVITIES IN TIME AND SPACE

As planning proceeds, the board may elect to reserve certain areas of the preserve for the pursuit of certain goals (e.g., ecological restoration or protection) or for accommodation of specific activities or uses. These reservations may be temporary, seasonal, or long term; they may encompass a few acres or thousands of acres; they may take the form of strict reservations for a limited set of uses, excluding all others; or they may be expressed as a "management emphasis" that establishes the primacy of one or more activities or goals without barring the possible temporary accommodation of other, even conflicting, activities and goals if such accommodation is deemed in the best interest of the preserve.

The range of goals, activities, and uses for which such reservations might be considered is extremely broad. It might include designating certain areas for ecological protection or restoration, specific recreation activities (including backcountry hiking and camping), religious and cultural uses (discussed in chapter 5), livestock production, or timber management. This is by no means an exhaustive list. Different kinds and combinations of uses will undoubtedly develop as time goes on.

As it considers the possibility of these kinds of designations, the board will bear in mind two important matters: first, that any designation will need to undergo appropriate NEPA analysis and review, including involvement by the interested public in formulating and evaluating the proposed action, and second, that management of the VCNP should be conceived and understood at the scale of the broader landscape in which it occurs. The preserve consists of only 89,000 acres within a complex of well over a million contiguous acres of public lands. The western part of Santa Fe National Forest, which is centered on the Jemez Mountains, consists of 1,000,000 acres, and Bandelier National



Monument encompasses 33,000 acres. Additional lands in the care of the BLM, mainly at lower elevations, complete the federal total. With the exception of Bandelier, the San Pedro Parks Wilderness, and a few other, small areas, nearly all this vast expanse is open to the full range of potential public uses. Given the abundance of opportunities within the regional landscape, it seems clear that the VCNP need not strive to be all things to all people. It need not accommodate all conceivable uses; rather, its management should emphasize those activities that are most compatible with the singular character of the preserve and with the goals and values of its stewardship.

ADMINISTRATIVE INFRASTRUCTURE

The trust has consciously developed its internal administrative structure in order to support its planning, decision-making, and management



Valle San Antonio.

responsibilities as effectively as possible.

The structure of the trust has three important and distinct layers. The act established the board of trustees as the governing body of the trust. As with most corporate boards, its role is to oversee the activities of the trust and to develop and provide the vision, strategic direction, and conceptual framework under which the trust will fulfill its obligations. Building on the management principles adopted in 2001, this document, the framework, is the next major expression of the board toward that end. It represents the collective thinking of the board of trustees, resulting from over two years of interaction among themselves and with the public in an effort to synthesize a comprehensive vision for the preserve.

After representatives of President Clinton seated the initial board in January 2001, the board plunged into the detail work of developing its early programs and hiring a staff. As the building of the executive team and professional staff neared completion in 2003 and with the adoption of administrative policies and procedures, the board is now focusing its attention on long-term strategic vision, upper-level program priorities and decisions, and oversight of fiduciary responsibilities, all of

THE VALLES CALDERA PRESERVATION ACT SPECIFIES THE TRUST'S RESPONSIBILITIES AS FOLLOWS:

1. To provide management and administrative services for the preserve;
2. To establish and implement management policies to achieve the purposes and requirements of this title;
3. To receive and collect funds and make dispositions for the management and administration of the preserve; and
4. To cooperate with federal, state, and local governmental units and with Indian tribes and pueblos to further the purposes of the preserve.

which will become increasingly complex over time.

Operational management of the trust and the preserve will be the responsibility of an executive team, made up of the executive director, the preserve manager, the business manager, and the preserve scientist. Although each member of the team will have specific responsibilities related to the management of the trust and the preserve, the executive director bears the responsibility to ensure that overall management is cohesive and coordinated, that it carries out the direction provided by the board, and that all relevant operational, legal, financial, and scientific issues are fully considered. In addition, the executive team will serve as primary advisers to the board.

A cadre of professional and administrative support staff has been assembled to manage programs and projects undertaken by the trust. This support staff consists of individuals drawn from a range of disciplines and possessing expertise in backcountry recreation, cultural resources, range, forestry, fisheries, and wildlife as well as administrative functions such as data management, geographic information systems (GIS), communications, and natural resources planning. As programs are developed and implemented on the preserve, seasonal staff, volunteers, and numerous cooperators and contractors will augment the personnel resources of the trust.

Given its reliance on cooperators and volunteers, it will be incumbent on the trust to develop strong, long-term relationships with partner agencies, tribes, civic organizations, surrounding communities, and the scientific community.

7

INFORMATION EXCHANGE AND PUBLIC INVOLVEMENT

How we will communicate with people interested in the VCNP

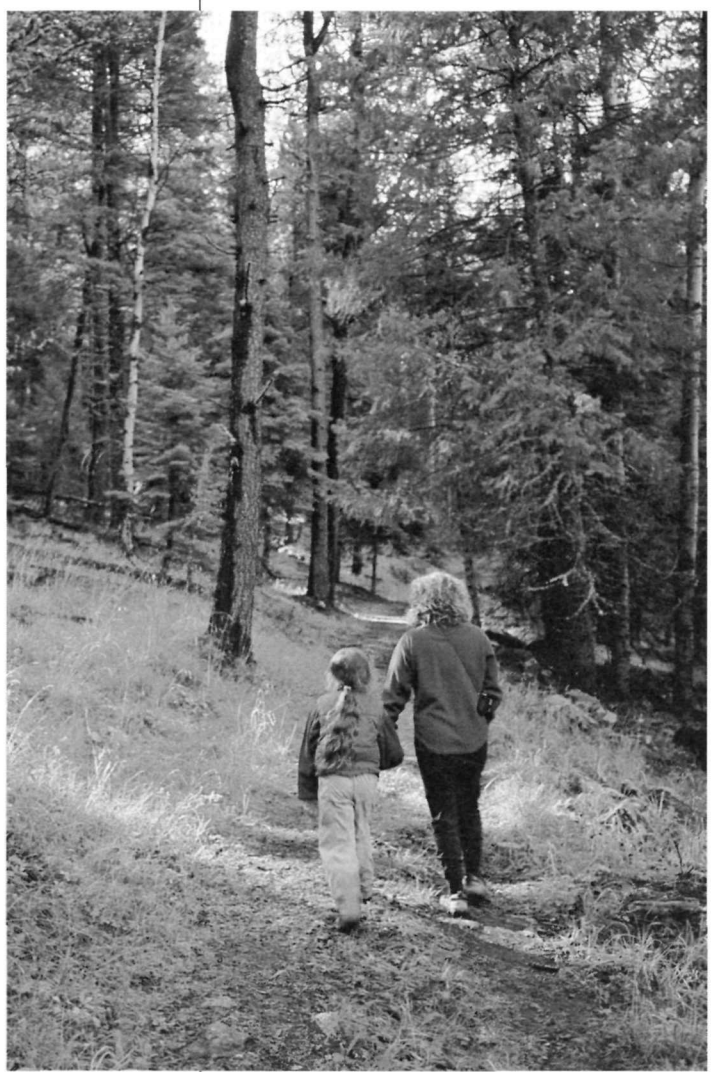
Opportunities for Involvement

Maintaining a constructive public dialogue about the goals and programs of the VCNP is a core responsibility of the Valles Caldera Trust and vital for successful management of the preserve. Without the active involvement of members of the public in its decision making, the trust will fail to honor its management principles, and its comprehensive management program will lack the vitality and responsiveness that Congress intended it to have.

The goal of the trust is to develop a dialogue with the public that

- Genuinely involves two-way communication,
- Makes relevant data and information easily and freely available, and
- Is characterized by openness and transparency (i.e., communications and decisions are direct, honest, and open to examination).

A key challenge for the trust is to provide ample opportunity for public involvement, especially in the early stages of its decision making, without asking the public for input so frequently that it wearies of participation. It is equally important that public involvement events and opportunities not be so frequent that they become merely repetitive. Striking the right balance will be key to keeping the public involvement process both inclusive and meaningful. This is what the trust has tried to do in compiling the table shown on page 78. The table details the kinds of opportunities in the course of a given decision-making process when members of the public will be best able to contribute their thoughts and perspectives. Some of these opportunities are guaranteed: the trust will always provide them. Others are noted as optional: the trust will provide them if the general level of public



interest and concern warrants them. As a rule, the greater the potential impact of a project or activity or the higher the level of public interest, the more extensive the opportunities for public involvement will be. The principal exception to this rule occurs in the case of an emergency. Under the trust's NEPA procedures, the comment period associated with an environmental analysis may be shortened or eliminated if emergency conditions requiring urgent action exist. A similar exemption, but one that requires a higher burden of proof, may also be granted with regard to the comment period for an environmental impact statement (VCT NEPA Procedures 101.7[f]).

Opportunities for comment and participation will vary. Soon after the trust formally initiates planning for a program, project, or activity, a "stewardship register" will be created for the proposed action and posted on the trust's Web site at www.vallescaldera.gov. These stewardship registers will detail the purpose, need, goals, and objectives for the proposed project, and they will also solicit comments and suggestions. The trust will send out notice of the availability of each new stewardship register via an e-mail distribution list. This procedure will allow members of the public to share their thoughts concerning a proposed program, project, or activity at the earliest stage of its development. As the project continues to develop, additional material will gradually be added to the stewardship register, which will function as a repository for all significant information about the undertaking. If and when a project is implemented, the stewardship register will also be the primary location where monitoring data about the project become available.

Tracking a project by consulting its stewardship register will be most readily achieved via Internet access, but the trust acknowledges that not all members of the public who are interested in the preserve may have, or even want, such access. Bearing this in mind, we hasten to add that we are also committed to providing opportunities for public involvement through more traditional means. These opportunities will consistently include comment periods at the trust's public board meetings, informal contact and conversation with preserve staff, and direct communication via letter and telephone. Depending on the significance of the undertaking being considered, these opportunities may be expanded to include public meetings, special outreach to interested groups, and formal comment periods associated with the review of environmental documents.

We acknowledge, however, that these alternatives may not be sufficient and that we may need to do more to inform—and be informed by—the broadest possible circle of people interested in the preserve. Should we develop a newsletter about the preserve? Should we have a toll-free number for people to use in relaying to us their questions and ideas? What other options should we consider? In the course of public review of this framework, the trust hopes to hear from the public about the methods of communication that work best for them. This information will help us develop a communications program that fully supports public participation in the stewardship, use, and administration of the preserve. We want to ensure that all of the people who are interested in the preserve have ample opportunity to voice their views—and to do so at times and in contexts that allow for the trust to give them genuinely meaningful consideration. We hope the comments and concerns we receive from people will provide thoughtful, detailed, and qualitative information about why they feel the way they do and how they think a proposed action might be improved or reconfigured. The trust will weigh such comments in making decisions that are both responsive to the public and consistent with its mission and principles.

The Valles Caldera Trust envisions many programs and activities it may undertake in the years ahead. The list on the left of the chart on page 78 captures the areas of focus in which the trust is currently engaged in its planning process. This comprehensive management framework document must be revisited in five years, and the areas of focus noted here can be expected to change over time.

OPPORTUNITIES FOR PUBLIC INVOLVEMENT

	Comment Periods	Project-Specific Meetings	Review and Comment on VCT Documents	Targeted Outreach	Comment at Board of Trustee Meetings	Visitor and Volunteer Comments and Surveys	Personal Communications
General Public Programs	bear	bear	hawk	hawk	hawk	hawk	hawk
Public Outreach/ Education			hawk		hawk	hawk	hawk
Preserve Administration & Maintenance			hawk		hawk	bear	hawk
Office Administration & Personnel			hawk		hawk	hawk	hawk
Policy & Governance	bear	bear	hawk		hawk	hawk	hawk
Infrastructure Development	bear	bear	hawk	hawk	hawk	hawk	hawk
Research, Inventory & Monitoring	bear	bear	hawk	bear	hawk	bear	hawk
Special Uses	bear	bear	hawk	hawk	hawk	hawk	hawk

A hawk indicates a guaranteed opportunity for public involvement.
A bear indicates the possibility of an additional opportunity for public involvement,
depending on the complexity of the activity or project the Valles Caldera Trust is considering.
In general, the greater the potential impact of a project or activity, the more extensive the opportunities for public involvement will be. Opportunities for public involvement may also be expanded for projects or activities that attract high levels of public interest or concern.

HOW TO STAY INFORMED

For those with access to the Internet, Web-based technologies make staying connected to the workings of the Valles Caldera Trust easy and efficient. Moreover, the trust intends to make good its commitment to openness and transparency in part by using the Web to make publicly available a broad range of information and data concerning the preserve. A visitor to www.vallescaldera.gov will be able to access schedule information about the trust's public meetings, minutes of past meetings, downloadable copies of reports on the ecology and management of the preserve, announcements concerning visitor activities, and information about how to participate, employment opportunities, and much else. As noted above, the preserve's Web site will also provide easy access to public parts of the trust's StARS database, where notices about the initiation of stewardship actions will regularly be posted. These notices will describe the process of public involvement relating to every stewardship planning and implementation activity. Visitors to the VCNP Web site will also have access, through the public part of the StARS database, to the accumulated monitoring information for virtually all features of the preserve. By making its monitoring data generally available, the trust looks forward to an informed public dialogue about the impacts of its programs and about the continuing ecological dynamism of the preserve. This dialogue should be like none other concerning public lands, for it will be thoroughly founded on hard, verifiable information, not merely on anecdote and opinion.

Important new postings to www.vallescaldera.gov will be announced via an e-mail distribution list, in which we hope the vast majority of people interested in the VCNP will choose to be included. The list will also provide a vehicle for announcement of public meetings of the trust and other time-dependent matters.

Once again, however, we acknowledge that not everyone interested in the preserve has equal access to the Internet. We will need to develop alternate means for communicating with stakeholders who obtain their information through more traditional means. We do not yet know how best to meet this need in a way that is cost- and time-efficient both for the trust and for the people with whom we need to communicate. Again, as time goes on we hope that people will let us know how they would like to hear from us. We hope to use the suggestions we receive to address this crucial and as yet incomplete component of our communications plan.



Additional vehicles for external communication will include the trust's annual report, its regular consultation with culturally affiliated tribes, and focused interaction with specific interest groups. The trust's public meetings, both regular board meetings to transact the business of the trust and meetings convened to share or solicit information on specific programs, will always provide a forum for citizen input to the board and staff.

VOLUNTEERS, EDUCATION, AND INTERPRETATION

For those who want to be truly involved as well as informed, the trust will offer a broad range of opportunities for volunteer service to the preserve. Already the trust is relying on volunteers for assistance in its recreation programs and on some projects. These opportunities are sure to expand steadily over the months and years ahead. The same may be said of the trust's educational and interpretive programs, which are as yet largely undeveloped. The little that may be said with certainty at this time is that the trust is committed to building an educational component into all of its programs and activities and that it fully recognizes the richness of interpretive possibilities arising from the preserve's geology, ecology, wildlife diversity, cultural history,

and scenic beauty. All three of these areas—volunteerism, education, and interpretation—will become important vehicles for vigorous, two-way communication between the trust and the public.

COMMUNICATIONS WITH THE TRUST

Please communicate your comments, questions, and suggestions regarding our planning and programs by any of the following means (although we confess it is hardest for us to take comments over the telephone):

E-mail: info@vallescaldera.gov
U.S. Postal Service:
The Valles Caldera Trust
2201 Trinity Drive, Suite C
Los Alamos, NM 87544
Telephone: (505) 661-3333

8

TAKING THE LONG VIEW

The trust's vision for the preserve

Our long-term vision for the preserve begins with three parts: the changes we hope to see in the ecological condition of the preserve, the future public uses we envision for the preserve, and the physical infrastructure that we will need to develop in order to support those uses. Our comprehensive vision for the preserve will involve still more than this, as will be made clear in the balance of this framework, but these three components provide an essential foundation.

Vision for the Land

To say that the lands and waters of the preserve bear the imprint of the uses to which they have been put should not for a moment diminish one's appreciation of the preserve's high level of ecological health and intactness. Although there is plenty of room for improvement in the condition of the preserve, the conditions now prevailing are as good or better than those found in most, if not all, comparable landscapes throughout the West. More significant is the fact that ecological systems are always changing—the rate of change may be fast or slow by human standards, but the fact of change is unavoidable. As a result, when we talk about how we hope the preserve will one day be, we need to be clear that we are not talking about a single, static set of conditions amounting to a kind of snapshot of the future. Rather, we are talking about a state of dynamism and renewal, something more like a long-running, continuous drama.

In general, the direction of ecological change within the preserve in recent decades has been positive, and beyond question, one of the most important responsibilities of the trust is to ensure that this process of ecological improvement continues.

The simplest and perhaps most useful way to understand improvement in this context is to define it as an increase in the capacity of natural systems to withstand natural and human disturbance. We call

Photograph courtesy of Museum of New Mexico



View of the Valle Grande by T. Harmon Parkhurst, ca. 1935.

Same view, 1997. Note many ponderosa pines have been cut.



Photograph courtesy USGS Jemez Mountains Field Station

this quality resilience. A ponderosa pine forest that withstands burning without succumbing to crown fire is resilient. So is a grassland that recovers quickly and fully from drought or a stream that passes flood flows without abnormal erosion of its banks. Applying this measure to the realm of human impacts can be tricky, but in general, a landscape that can bear substantial human activity without showing ill effects would also be considered resilient.

A second concept is sometimes paired with resilience, although it is somewhat harder to define with precision. This is the idea of ecological integrity. An ecological system with a high level of integrity would have all of its native components and a minimal number of exotics present, and the keystone processes native to the ecosystem would be functioning properly.

Bearing these ideas in mind, it follows that a central goal of management at the VCNP should be to increase the resilience and, to the extent possible, the integrity of its ecological systems. A second central goal is entirely consistent with this. It is to ensure a high level of watershed stability throughout the lands of the preserve. This, in turn, means conserving the soils of the preserve and attaining proper functioning of its streams and watercourses.

These are management goals that the trust enthusiastically embraces. Even so, a qualifying word about the idea of management may be in order. Many people think of management as the exercise of conscious and thorough control over the thing being managed. A farmer manages his fields, for instance, by plowing, seeding, cultivating, and harvesting. He cannot control the weather, but he certainly controls much of what happens on the ground. Such a high level of control, however, is impossible and undesirable where natural or wild systems are concerned. Time and again, land "managers" have learned that the behavior of complex systems cannot be made to conform to a preconceived model. Although many management activities are susceptible to full control–the number of cattle allowed to graze a pasture, for instance–many others are not. Elk populations, for example, are shaped by many factors, including habitat, a herd's learned behavior, weather, disease, events on adjacent lands, and the number, kind, and behavior of predators. When we talk about "elk management," we are talking about an array of matters that are subject to high levels of uncertainty. The only variable that is "easy" to control is the number and behavior of human predators–hunters. Only rarely can the manipulation of this single factor

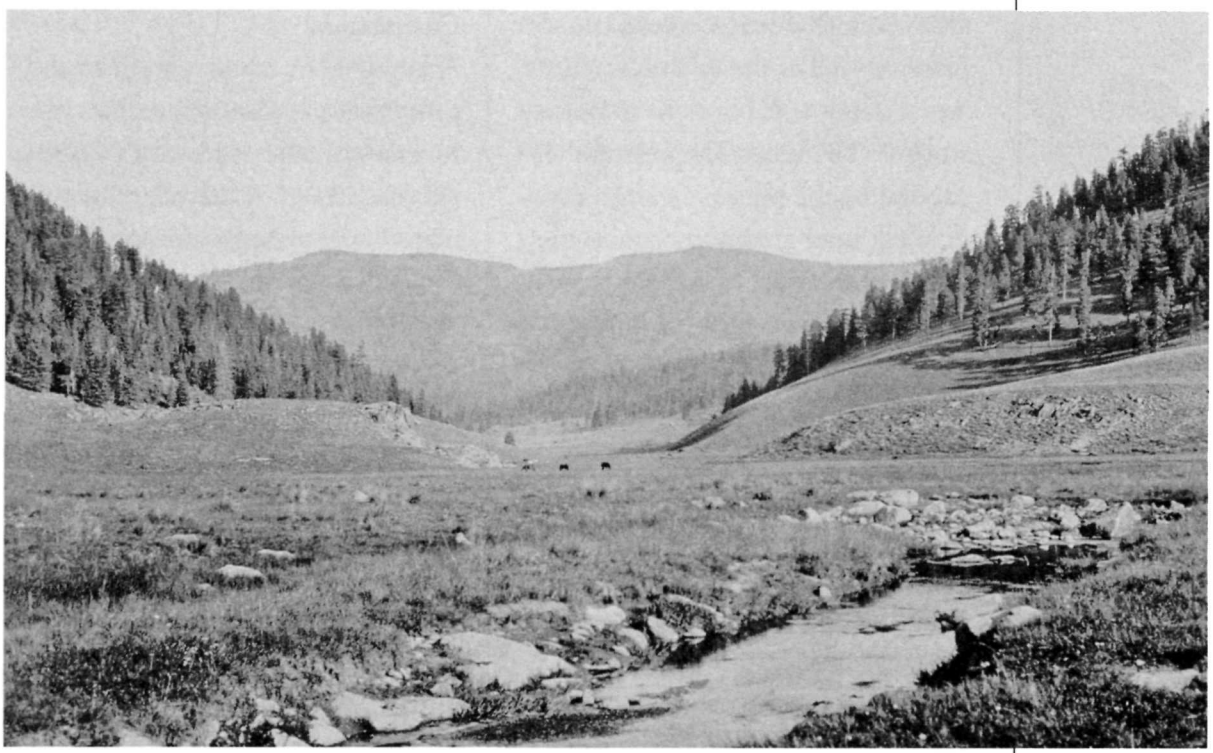
produce desired outcomes rapidly and with precision. Usually the attainment of wildlife management goals involves a protracted process of trial and error. The same is true in many other areas of land management: the things we control constitute only a subset of the many influences at work on the land. As a result, our management activities are often better conceived as efforts to nudge a system in a certain direction than as expressions of definitive control.

Whether a management action by the trust amounts to a weak nudge or a strong push, one theme should always be present, and that is our commitment to build into every activity and program opportunities to advance understanding of the systems in our care.

Streams and Fisheries

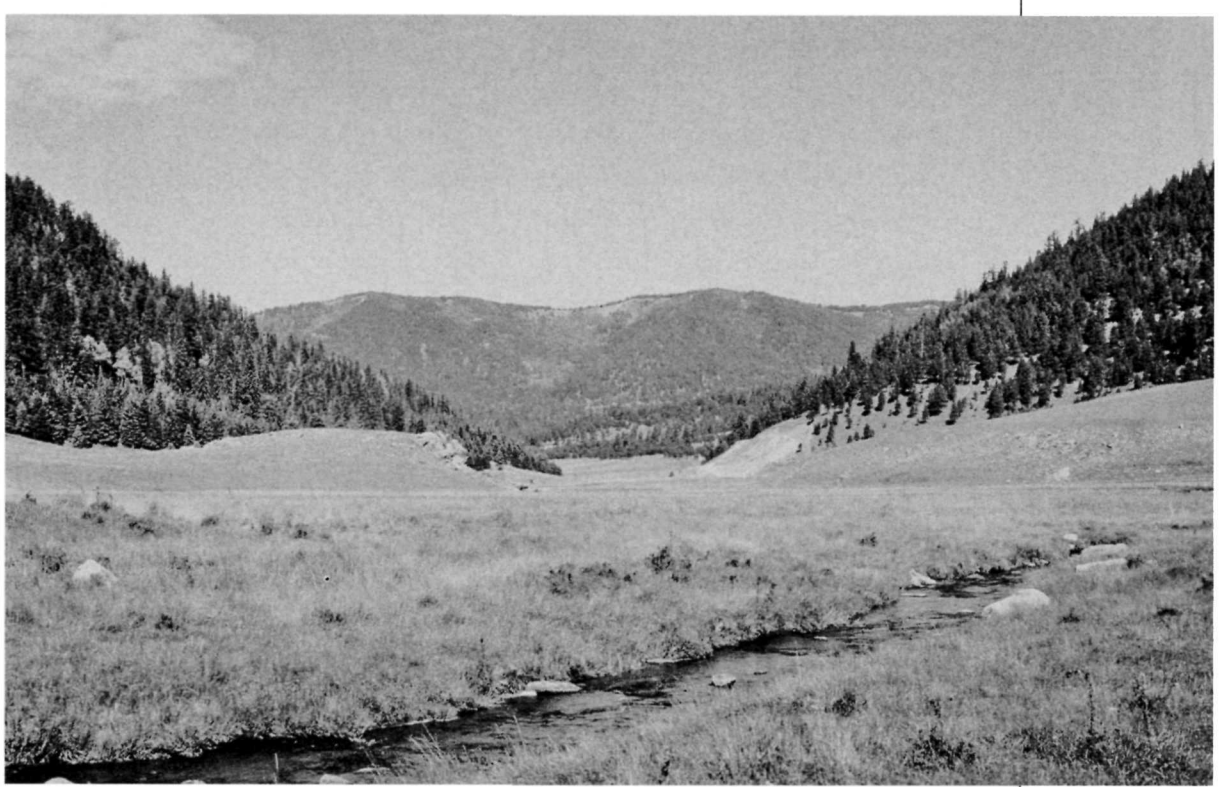
The vision for the streams and aquatic communities of the VCNP emphasizes the general restoration of stream function, including stabilization of banks and reduced sedimentation. As stream conditions improve, degraded channels will become deeper and narrower, and more pools will form. More problematic is the restoration of woody streamside vegetation (e.g., willows and alder), even where soils and stream gradient heavily favor such growth. This is a considerable challenge in an environment so rich in elk. The impact of elk on woody vegetation is probably greatest in late winter and spring, the leanest time of the year, when grasses remain dormant and shrubs and deciduous trees (including young aspen), having initiated twig growth and bud formation, offer the best nutrition available to grazing and browsing animals. The long-term exclosure experiment launched by the trust in 2003 (and briefly mentioned in chapter 2) promises to enrich our understanding about what is possible and appropriate in the restoration of woody riparian vegetation along the streams of the preserve. (The experiment uses large, fenced exclosures to collect data on the response of riparian areas to three levels of use: no grazing by elk or cattle, grazing only by elk, and grazing by both elk and cattle. Complete sets of exclosures have been constructed at six locations within the preserve.)

The trust's vision for the streams and fisheries of the preserve also contemplates possible reestablishment of healthy populations of Rio Grande cutthroat trout and beaver within the preserve. Both of these restoration prospects, however, remain problematic. Reintroduction of beaver will remain impractical until the present paucity of suitable habitat is remedied. This would require reestablishment of woody riparian vegetation along the streams



Rio San Antonio in 1906 by Vernon Bailey.

Same view, 1997. Note improved condition of stream and increased density of trees.



Photographs courtesy USGS Jemez Mountains Field Station

where reintroduction would take place, as well as the establishment of aspen stands suitably close to those streams. The browsing pressure exerted by the preserve's large, resident elk herd greatly constrains the ability of the trust to achieve these necessary conditions.

The potential restoration of cutthroat trout poses different questions and challenges. For reintroduction to be successful, non-native trout must be entirely removed from the stream in question. Even if anglers fish out the majority of such fish, a poison or piscicide (restoration biologists currently recommend an antibiotic that disables a fish's respiratory system) or systematic electrocution is usually necessary to strip the stream of non-natives. Before such a program can be pursued, the effects on other stream life, including invertebrates and native non-trout such as minnows and darters, need to be fully understood, and if a piscicide is involved, the potential downstream effects past the area of reintroduction must be fully evaluated. The effects on other species, such as bald eagles, that may depend on fish for food also deserve consideration. Leading up to and throughout a reintroduction effort, public understanding and support is also vital, particularly the understanding and support of people living downstream from the waters to be treated.

Grasslands

A key goal in management of the preserve's grasslands is to halt or reverse the recent history of tree encroachment at the edges of the major valle systems. Accomplishing this will undoubtedly require the use of prescribed fire on a substantial scale. Another goal is to increase the relative abundance of native species in comparison to non-natives, such as Kentucky bluegrass, which currently constitute a large part of the grassland complex. It should be noted, however, that bluegrass, dandelion, and other non-natives have become "naturalized" components of the ecosystem and have remained so for at least a century and that areas with a high percentage of Kentucky bluegrass can contribute optimally in terms of watershed function. Nevertheless, bluegrass tends to increase as native bunchgrasses decrease, and the desired future condition for the preserve contemplates the gradual reestablishment of bunchgrasses in areas where they have declined. An additional goal should be to control invasive weeds, particularly Canada thistle. A very significant goal and challenge in the operation of an ecologically sustainable and economically viable ranching operation is balancing that program with the needs of wildlife, such as elk.

Forests

The trust will seek to restore the resilience, and particularly the fire hardiness, of the preserve's pine and mixed-conifer forests. These forests, under improved conditions, would be able to tolerate low-intensity ground fires without great risk that those burns might become stand-replacing crown fires. A likely and highly desirable outgrowth of increased fire hardiness would be greater diversity and abundance of the herbaceous forest understory (i.e., the grasses, forbs, and shrubs growing on the forest floor). The trust also hopes to maintain existing old-growth stands and recruit new stands of large, old trees. It would seek in general to achieve a naturalistic mosaic of forest communities and in particular to increase the extensiveness and age diversity of aspen stands.

Wildlife

The vision for the preserve contemplates restoration of the attainable complement of native species and maintenance of an appropriate balance among them. The current population of deer, for instance, is far below historic norms and needs to increase. The current population of elk, meanwhile, is far greater than has previously been the case in the long-term natural history of the caldera, and the trust, together with



Many forest stands within the VCNP are overcrowded and feature unnaturally high fuel loads.

the New Mexico Department of Game and Fish and other partners, will strive to develop a working model for sustainable elk numbers in the caldera and the Jemez Mountains generally. Cutthroat trout and beaver have already been mentioned. Unfortunately, not every native species can be accommodated in the preserve. The VCNP is too small to provide adequate habitat for top predators such as wolf and grizzly bear, and given the constraints imposed by nearby human populations and activities, it is extremely unlikely that sufficient adjacent lands can be combined with the VCNP to make reintroduction of these species feasible. An additional and important component of the vision is to ensure continued wildlife viewing opportunities for the visiting public.

Wildlife and Livestock Interactions

The trust will seek to operate the preserve's working ranch in a manner that sustains range resources in balance with use by native herbivores and that also protects and supports the habitat needs of other wildlife. The specific intent will be to assess quantitatively the interactions of livestock and elk on the grazing lands of the caldera and determine their impacts on rangelands, forests, riparian vegetation, and stream ecosystems. The trust will then develop appropriate management strategies that will permit a range of carrying capacities for elk and livestock, all the while ensuring that the natural resources of the caldera are not negatively influenced.

Aesthetics

It will be the goal of the trust to maintain and improve the aesthetic integrity of the preserve. The sweeping vistas of the preserve please and inspire everyone who beholds them. This must not change. As one contributor to a public meeting put it, "The valle is the vision." Protecting the aesthetic integrity of the VCNP will include preserving the natural soundscape, with its impressive silences, and avoiding light pollution that would impair the existing high quality of the night sky. It also will include maintaining the natural air quality.

PUBLIC USES AND SUPPORTING INFRASTRUCTURE

From the first days of the preserve's establishment, people have wanted to know when the VCNP will open for public access and use. They ask, when will its programs be in place and the gates swing wide to let the public in?

The expectation of a sudden and dramatic inauguration of visitor operations is understandable, but the actual development of the preserve



The trust initiated a program for unguided hiking in 2003.

is following a different, subtler pattern. The opening of the preserve actually began in the summer and fall of 2002 with the commencement of interim programs for elk hunting, grazing, and guided hiking. Opportunities for cross-country skiing and snowshoeing became available the following winter. Through the course of 2003 other activities, including unguided hiking, fishing, horse-drawn wagon rides, and van tours, were added to this list, and the recreational components of the preserve's offerings are expected to expand steadily.

Three important factors have shaped the trust's incremental approach to the opening of the preserve. The first involves its administrative and management capacity. No program runs or develops by itself; every meaningful effort requires the energies of qualified and dedicated people. Even when ample numbers of energetic volunteers are available to assist with implementation, staff personnel must be in place to direct and coordinate their efforts. The trust has built its staff as rapidly as possible, but the process of defining positions and then recruiting and selecting individuals to fill them has demanded considerable time. By the early summer of 2003 the roster of its full-time employees had reached 13, and its capacity for program



Parry oatgrass is a bunchgrass common to the slopes and benches of the VCNP.

management—magnified by the capacity to train and supervise volunteers in key roles—was many times greater than had been the case a year or even six months earlier.

A lack of infrastructure for visitor services imposes a second limitation on the trust's ability to "open" the preserve. Without suitable parking lots and other staging areas and without reliable water and wastewater systems, it is difficult to accommodate significant numbers of people in a safe and sanitary manner.

The third factor, however, is as important as either of the preceding two. The trust has committed itself to the practice of science-based adaptive management. That is to say, the trust has resolved to approach programs experimentally, launch them at a small scale, monitor their impacts, and adjust them periodically on the basis of accumulated learning. A gradual "dialing up" of programs, rather than a sudden launching of large undertakings, is entirely consistent with this approach.

Nevertheless, with a capable staff now assembled and so long as adequate funds for the development of infrastructure remain available, the trust anticipates that substantial operations will commence in most if not all of the preserve's anticipated program areas over the next several years. How might those programs look? What might be included?

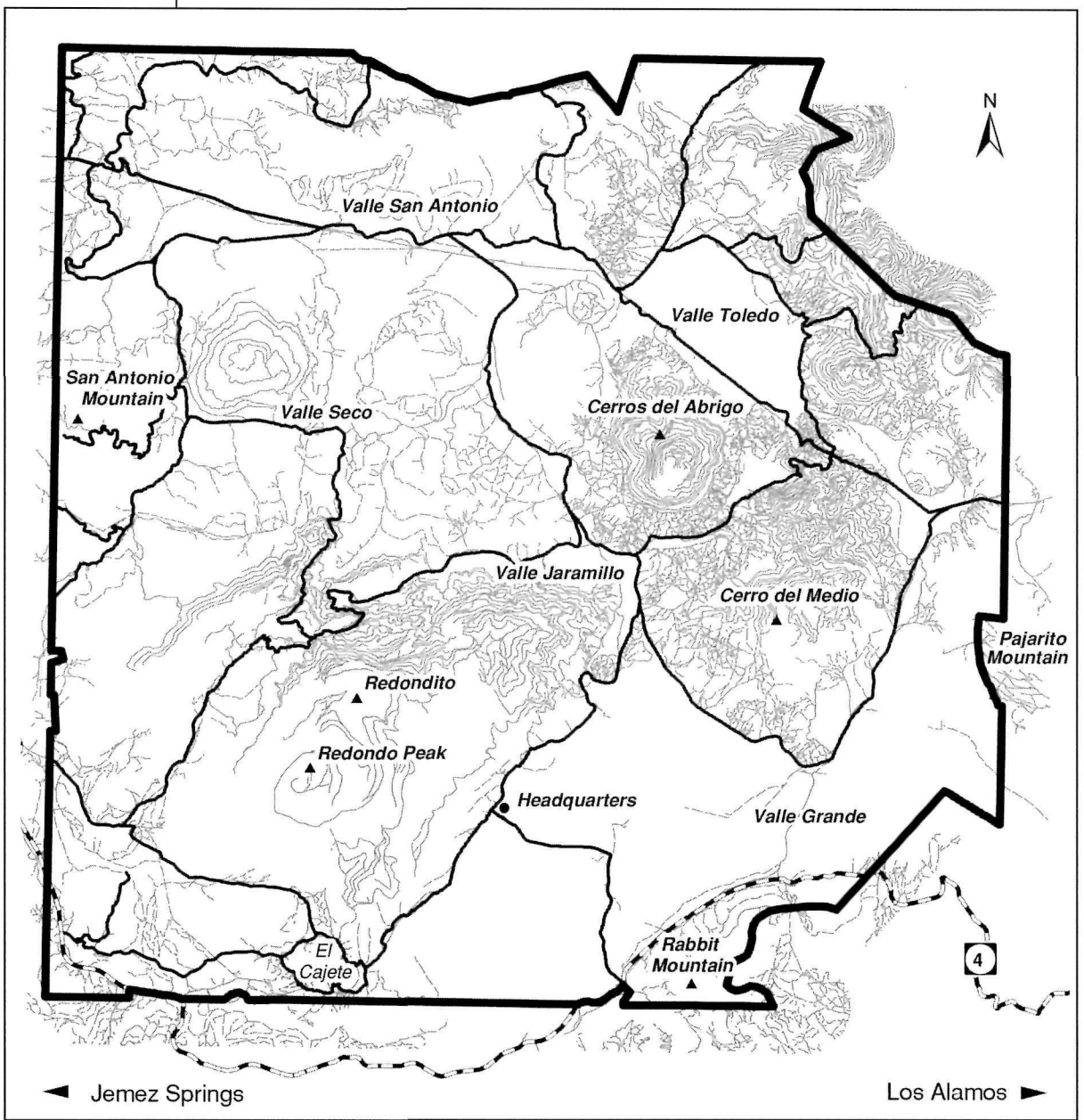
The specific outlines of the trust's programs will be determined in the course of appropriate planning under its StARS and NEPA procedures (see chapter 6), but for the present we can at least suggest an idea—or vision—of the activities that may eventually be offered. As with many other matters pertaining to the VCNP, the outline of those suggestions may be found in the Valles Caldera Preservation Act: "The Baca ranch's natural beauty and abundant resources, and its proximity to large municipal populations, could provide numerous recreational opportunities for hiking, fishing, camping, cross-country skiing, and hunting" (sec. 102[a]6).

Imagine the VCNP in the winter of 2009–10. Blessed (we hope) with abundant snow, the preserve attracts scores of cross-country skiers and snowshoers every weekend and on many weekdays. A plowed, all-weather parking lot and staging area, close to Highway 4, provides a safe and convenient starting point for day trips into the Valle Grande, where a limited system of groomed trails is available. Not all the visitors, however, confine themselves to the trails. Many branch off into untracked snow, and some, burdened with bulky packs and having reserved space in one of the preserve's overnight huts or yurts, set off for the frozen backcountry of the caldera. The short days of winter yield to crystalline, starry nights, and those who elect to camp at this time of year are treated to moonlit snowscapes, perfect solitude, and one of the brightest and most spectacular showings of the Milky Way to be experienced anywhere. They also reap the benefit of all the piercing cold they can stand.

Uses of the preserve naturally change with the onset of spring. As snowdrifts melt and roads reopen, vehicle tours and other recreational activities gradually recommence, but the trust takes great care to coordinate these activities with the needs of wildlife. Elk calving season in late May and early June, for example, may require temporary suspension of certain activities or closure of certain areas. Once this and possibly other milestones in the ecological year have passed, however, fishing, hiking, and camping programs will swing into high gear, featuring outstanding opportunities to experience the vastness and variety of the preserve. Vehicle tours also will grow in number and diversity. Certain outings might emphasize specific interpretive themes or activities: the geology of the preserve, cultural history, birding, or photography, to name only a few possibilities.

Program coordination will continue to command high priority as livestock come onto the preserve and grazing operations resume in June. Throughout the summer, the diversity of the preserve's programs and operations will be one of its distinguishing features. High-quality fishing, hiking, and camping will likely continue from week to week, together with livestock grazing and (probably) localized forest-thinning projects. And all of this will take place against a background of continuing scientific monitoring, archaeological inventory, and research.

As summer ends and fall advances, hunting will take center stage at the preserve, but not to the exclusion of all other programs, many of which will continue in parts of the preserve that are



Road Network

Miles

0 5

Preserve Boundary

State Road 4

Open Roads

Dirt Roads

Primitive Roads

excluded from hunting. Cattle will typically be removed by October 1. Throughout the year, the general level of visitor activity will be geared to a number of variables. Demand will vary from month to month, with early spring and early winter (both typified by broken snow cover) probably attracting the least public interest. The trust will also have to be mindful of the need to give the land and its wildlife adequate rest from visitor disturbance, and so "quiet days" characterized by reduced activity schedules or days of periodic closure every week or month may become regular features of preserve routine. The third constraint on visitor activity, however, may be the most important. It involves the challenge of maintaining the high quality of visitor experience by avoiding overcrowding. Determining visitor capacities that preserve opportunities for solitude and silence while also avoiding unwanted impacts on the ground represents a major challenge for the trust.

Roads and Transportation Infrastructure

Perhaps no set of decisions will shape the future of the preserve more profoundly than those that determine its transportation infrastructure. Most of the existing roads of the preserve are rough and primitive, and as has already been mentioned, they heavily influence the ecological health of the landscape. Poor drainage and other problems produce localized erosion, which in some cases contributes to the sediment load of the preserve's streams. One estimate of the cost of improving drainage and stemming erosion from existing roads approaches $5 million. A plan for the future transportation infrastructure of the preserve will have to take into account the need to correct existing problems.

The board's vision for the roads system of the preserve is that it should be safe; it should be organized and managed to avoid congestion; it should not intrude unduly on the aesthetics of the landscape; and it should avoid negative impacts on the lands, waters, cultural resources, and wildlife of the preserve. And finally and obviously, it should fully support use and administration of the preserve in conformance with the trust's goals, values, and vision.

A further word about these goals. Most of the preserve's existing roads are too rough to accommodate low-clearance highway vehicles, even in dry weather. Moreover, frequent blind curves and steep grades make safety a serious concern, especially for drivers without back-road driving experience. If roads are to be improved to a level fully accommodating the general public, including drivers with only urban driving experience and visitors



from foreign countries, then the most heavily used stretches will need to be paved and widened to two full lanes. Besides entailing great cost, such an enlargement of the footprint of the preserve's road system will have a substantial effect on the quality of the existing scenery, not least because amid the preserve's famously open spaces, viewing distances are quite long, and roads are typically situated at the critical forest-grassland edge. Enlarging the footprint of the preserve's road system will also impact cultural resources because many heavily used roads pass through important archaeological sites. Mitigating the impact of road widening on these sites will involve significant expense.

Even if considerations in regard to safety, aesthetics, and archaeology can be successfully addressed, bringing substantial numbers of private vehicles into the interior of the preserve will likely have major impacts on general noise levels, wildlife viewing opportunities, the kinds of patrol and visitor services that will be needed, and many other aspects of life within the preserve, especially the quality of visitor experience. Certainly the challenge of avoiding congestion will be significant.

As the board weighs options for development of the VCNP's transportation infrastructure, it will

need to bear in mind that while the preserve feels large and spacious, in a functional sense, it is not. The nature of its topography—steep-sided volcanic domes separated by open valles or narrow valley corridors—requires that virtually all traffic bound in a given direction pass through one or more constricted corridors. Road B north from the Valle Grande through the valles Jaramillo and Santa Rosa to the San Antonio valle is a prime example. Often these corridors, by virtue of the access they provide to multiple areas, are areas of great archaeological importance, and they are also natural avenues for the movement of wildlife, especially elk. In the same way that a chain is only as strong as its weakest link, the effectiveness of the VCNP's efforts to resist congestion will be most severely tested along these naturally constricted corridors.

Management of people and cars is one of the most important issues in the administration of parks and public lands today. Grand Canyon National Park, for example, has 2,000 parking spaces but contends with an average influx of 6,000 vehicles a day. As a more local example, Bandelier National Monument, which receives approximately 350,000 visitors per year, sometimes exceeds its limit of vehicles and has to hold cars at the entrance until space is available after other visitors leave. At both Grand Canyon and Bandelier, as well as at such other well-known destinations as Yellowstone, Yosemite, and Zion, reducing the congestion of people and vehicles has emerged as a management challenge of paramount importance.

A growing number of parks have endeavored to ease congestion by limiting or excluding the use of private vehicles, providing access to their interiors instead through



Many miles of roads within the VCNP need extensive maintenance or reconstruction.

various forms of public transportation—systems of buses, shuttles, or similar vehicles. Zion National Park has recently taken this approach, and its new shuttle system appears to have met with a high level of visitor satisfaction. As the VCT analyzes alternatives for its transportation infrastructure, it will need to give serious consideration to development of a similar system. In doing so, it will bear in mind that one of the attractions of the VCNP is the wildlife viewing opportunities it affords. Prospects for preserving these opportunities would likely be higher with a fleet of visitor vehicles operated by trained drivers than with a larger number of private vehicles operated independently.

Visitor Center and Related Infrastructure

Another way the national parks address the challenge of congestion is by moving the visitor services they provide away from core areas and toward a park's periphery. These services include parking and staging areas, visitor centers, hotels, campgrounds, restaurants, and other food outlets. Clearly if Grand Canyon National Park were being freshly established today, its planners would not crowd the South Rim with the infrastructure of an overpopulated small city, which is what one finds there now. The VCT can learn from this experience by resolving to situate the greater part of its visitor infrastructure not at its core—near the present ranch headquarters, for instance—but at a location closer to the boundary of the preserve. The process of site selection will be conducted in accordance with the trust's StARS process (which inludes its NEPA procedures) and will no doubt identify a range of characteristics that an ideal site might possess, possibly including the following: easy access to and from Highway 4, topographical features that allow its buildings to be shielded from intruding on the vistas of the Valle Grande, an adequate water supply, access to trailheads, and so forth.

The trust will also need to develop an administrative site where it would situate workshops, laboratories, storage facilities for equipment and supplies, offices, classrooms, and employee housing. The facility may be situated with (or incorporated into) the visitor center area or sited separately. It would host educational activities, visiting researchers, educators, and student groups.

In general, the trust intends to proceed slowly and carefully in the development of new infrastructure and to exercise equal care in the commitment of existing buildings, particularly those that are historically significant, to new program uses.

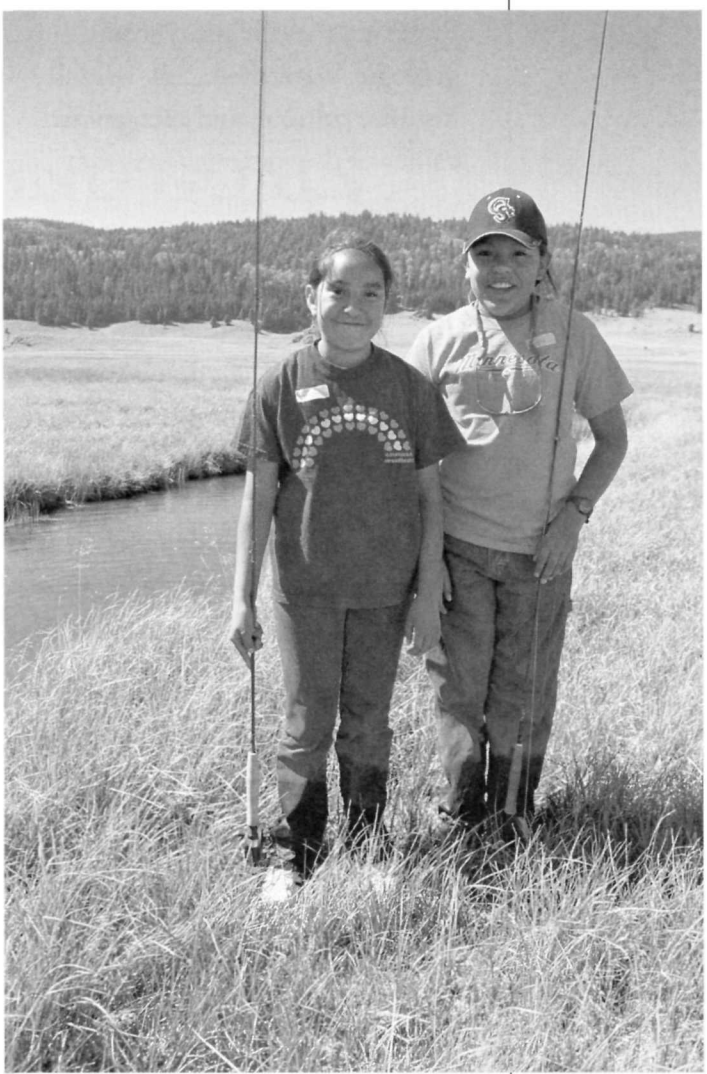
Volunteers, Friends, and Advisers

By mid-2003, volunteers were already contributing enormously to the activities of the preserve. Volunteers staffed the skiing and snowshoeing programs of the previous winter and were guiding hikes and van tours through the summer.

The trust expects to continue relying heavily on volunteers in many areas of operation. It also will consider working with interested members of the public to form a support organization, chartered as a 501(c)3 nonprofit corporation. Such a group, possibly called the Valles Caldera Conservancy, might assist the trust with marshaling volunteer participation in preserve programs, general fund-raising, special events, and a range of other functions. At present, however, the trust has no specific timetable for initiating or inviting the formation of a friends' group. The same can be said of the prospective formation of groups that might serve the trust in an advisory role. Readers should note that any entity filling a formal advisory function would be subject to regulation under the Federal Advisory Committee Act.

Fee Structure

Congress instructed the trust to strive to attain financial self-sufficiency. Congress's intention was to make the preserve as independent as possible from reliance on annual appropriations by encouraging the realization of revenues through the collection of appropriate and reasonable fees for preserve programs. The trust's vision in regard to financial self-sufficiency is to do *exactly what Congress has asked*—to generate revenue from preserve programs and to do so in a manner consistent with the other, equally important goals Congress assigned it, one of which is to protect and



Twenty children, including these two girls, enjoyed a free fly-fishing clinic in September 2003.

preserve "the scientific, scenic, geologic, watershed, fish, wildlife, historic, cultural, and recreational values of the preserve," another to provide for "public use of and access to the preserve for recreation." As has been stated elsewhere in this framework (but it bears repeating), the trust draws two important conclusions from the interrelation of these goals. First, that the pursuit of revenue must never compromise the integrity of the preserve, and second, that the phrase "public use and access" invokes the entire public, not just those possessing the economic means to pay high fees. As the trust states in its management principles, it commits itself "to providing fair and affordable access for all permitted activities." The trust also recognizes, however, that the preserve is different from other public land, and not least in the quality and value of the outdoor experiences it can provide. These will be experiences worth paying for–but not more than is fair.

9

PROGRAMS AND GOALS

Potential uses of the preserve and things we might do

In this chapter we do not intend to present a blueprint for future management of the preserve. Rather, we suggest the range of activities the trust will consider undertaking in the next five or so years and identify key questions and issues that the trust will need to analyze as it develops specific programs. No program will be implemented except in conformity with the trust's StARS process, which is discussed in chapter 6. The list of questions and issues to be addressed in relation to each program area is by no means intended to be exhaustive. The trust explicitly invites readers of this draft to engage with this chapter and to forward to us their suggestions for additional questions and issues as well as their comments on the appropriateness of the range of programs we have identified. For ease of presentation and analysis, we divide our discussion of programs into three areas: landscape stewardship, public uses, and supporting infrastructure. Even so, we acknowledge that every system of division is imperfect and that strong relationships may exist between subjects that are presented under separate categories.

The programs and goals of the trust will be directed toward achieving realization of the vision described in chapter 8. In general, the implementation of programs will be staggered, with no more than a few programs initiated in a given season. Two benefits will accrue from this sequential phasing in of activities: the trust hopes to avoid stretching its management capability too thin and thus compromising the quality of its work, and the trust also wishes to afford the public sufficient time to review and comment on each program or activity individually.

Landscape Stewardship

This program area encompasses all efforts to tend the vegetation, habitats, wildlife, waterways, and cultural

LANDSCAPE STEWARDSHIP GUIDELINES

- All significant management activities will be monitored and will proceed adaptively, utilizing the learning produced through monitoring and experimentation to adjust management toward better achievement of explicit goals.
- The learning generated through inventory, monitoring, and adaptive management should be widely and freely shared.
- A central goal of all management efforts shall be the achievement of the landscape vision.
- Another central goal shall be to contribute to soil and water conservation.
- Landscape stewardship at the VCNP should not be bound by existing approaches but where necessary should pursue goals based on fresh thinking and innovation.
- Landscape stewardship activities will be fiscally prudent and financially accountable and shall where possible generate income for the trust—but not at the risk of impairing ecological systems.
- Where landscape stewardship involves transboundary issues or dynamics, the trust will work in partnership with its neighbors.
- Managers will acknowledge that they "nudge" natural systems more than they "manage" them. Accordingly, management efforts will encourage the operation of natural processes to achieve the landscape vision.

resources of the preserve. In order to guide its activities in this area, the VCT has articulated a set of guidelines for the development of landscape stewardship activities. These guidelines are consistent with the trust's management principles, and they will serve as criteria for evaluating proposals for landscape stewardship using the StARS process described in chapter 6. The landscape stewardship guidelines are set forth in the accompanying sidebar.

Forests

Key goals in the management of forests include reducing vulnerability to stand-replacing fires in many ponderosa pine and some mixed-conifer stands, restoration of natural fire regimes, aspen regeneration, and protection and restoration of old-growth stands. Eventually the trust hopes to harvest reasonable amounts of sawtimber on a sustainable basis and thereby to generate income.

Sample questions and issues:

- Appropriate prescriptions for thinning and other restoration treatments tend to be highly site-specific, and implementing them tends to be costly. What criteria should drive priorities for restoration work?
- How can the high costs of forest restoration be paid for? Are markets available for the output of restoration projects? Can the sale of thinned material help finance the projects?
- What combination of prescribed fire and mechanical thinning of forests will be ecologically, economically, and socially appropriate?
- At present the trust is aware of no reliably successful and affordable strategy for ensuring aspen regeneration in an environment subject to heavy browsing by elk. What strategies might the trust develop?

Grasslands

The grasslands of the Valles Caldera are a valuable renewable resource that must be managed to maintain the health of the grasses to feed both cattle and wildlife populations on the preserve. Control and elimination of invasive weeds is also essential. Consideration must be given to loss of native bunchgrasses to sod-forming bluegrass. Careful management that balances the requirements of both cattle and wildlife populations should result in an ecologically sustainable and economically viable grazing program.

Sample questions and issues:

- The trust has initiated field experiments to help it tease apart the respective contributions of elk and cattle to a range of grazing impacts. What additional research, if any, should be initiated?
- What factors besides ungulate grazing influence the outcome of competition between bunchgrasses and bluegrass?
- What are the impacts of tree encroachment on the preserve's grasslands?
- What types of livestock grazing systems should be initiated on the preserve?

Aquatic and Riparian Communities

Key goals for aquatic and riparian communities include attainment of high levels of water quality and restoration of stream health, including restoration of woody riparian vegetation where appropriate and improved stream channel morphology (i.e., deeper, narrower channels with more pools). These kinds of changes will result in improved trout habitat and enhance opportunities for fishing.

Sample questions and issues:

- Should the trust pursue reintroduction of native Rio Grande cutthroat trout? If so, what stream or streams should be the focus of a



reintroduction effort, and what techniques should be employed?
- The obstacles to restoring woody riparian species, chiefly willow and alder, are similar to those preventing aspen regeneration. What alternatives should the trust pursue?

Wildlife

A key wildlife management goal is to determine and then attain population levels of elk that do not impair the natural communities of the preserve. Additional goals include maintaining and enhancing the natural biodiversity of the preserve and improving the vigor of wildlife populations, such as mule deer, that have declined below long-term historical levels.

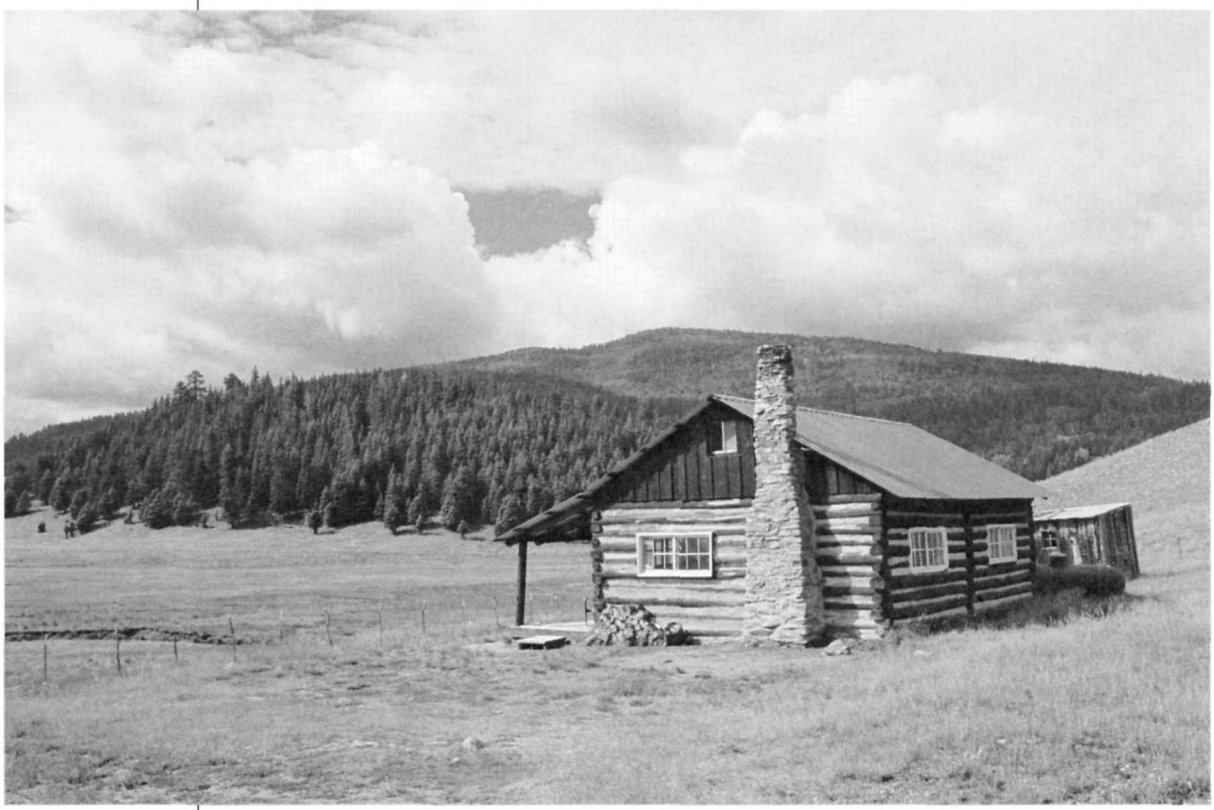
Sample questions and issues:
- The trust needs to work closely with the New Mexico Department of Game and Fish to improve its understanding of the population dynamics of elk in the Jemez Mountains. What other partners should be involved in this effort? When is understanding sufficient for the development of new management initiatives? What would be an optimal size for the herds using the preserve? What would be acceptable?
- The trust intends to monitor key wildlife populations as indices of the health of the larger ecosystem.

What species should be considered key? Should the trust undertake active management with respect to any of them? How can the trust influence the environment to tip the odds of survival more in favor of mule deer?

Cultural Resources

Key goals for the management of cultural resources include maintaining constructive consultation with tribes that are culturally affiliated with the preserve in order to ensure protection of culturally significant sites and to provide the tribes with appropriate access to them. The trust will also strive to protect the preserve's archaeology in compliance with the National Historic Preservation Act; to launch, in partnership with appropriate research institutions, a vigorous program of archaeological research; and to channel the understandings thus attained into the preserve's interpretive and educational programs. Additional goals in this area include protective maintenance and, in some cases, the renovation of historic structures and the development of a strong interpretive program in the cultural history of the caldera. This program should trace the historical contributions of the region's Hispanic and Pueblo people, as well as such industries as ranching, logging, and tourism.





The San Antonio cabin, built in 1948, overlooks San Antonio Creek.

Sample questions and issues:

- How can the trust provide extensive public access to the preserve while also safeguarding the integrity of archaeological sites that have yet to be evaluated and that might be damaged by casual surface collection?

PUBLIC USES

In 2001, when the trust held a series of "listening sessions" in communities surrounding the preserve, many people spoke of having looked over the fence of the Baca Ranch for years, wishing they could enter the Valle Grande to hunt, camp, hike, and engage in the range of activities that this extraordinary place can offer. They also spoke of the importance of protecting its special qualities through careful planning and achieving moderation in the level of activity that occurs at any one time. The trust heard these views loud and clear and shares them fully. It is committed to developing programs that provide a range of visitor activities in as timely a manner as possible. It is equally committed, however, to developing its programs incrementally, expanding them gradually, so that the quality of experience remains high and so that the capacity of the preserve to sustain the impacts of increasing numbers of people is not compromised.

VISITOR PROGRAM GUIDELINES

- The quality of the visitor experience is more important than the quantity. It may be important to limit the number of people so participants can experience the sense of expansiveness and quiet that the preserve can offer. Programs are to be initiated in a conservative fashion and phased in incrementally.
- Visitor activities must not result in serious or lasting impairment of natural systems.
- Individual activities should be planned with the entire range of preserve programs and responsibilities in mind in order to minimize conflict with landscape stewardship programs or other visitor activities.
- Visitor programs must provide income to the VCNP while including options that ensure cost accessibility to all.
- Activities must not conflict with religious and cultural priorities or uses.
- The trust will consider entering into partnerships to provide visitor opportunities, including cross-boundary activities and joint undertakings with private sector entities.
- The VCNP does not have to accommodate all possible uses of public lands, particularly when activities that might conflict with the trust's management principles may be pursued on adjacent or nearby public lands.
- The trust will offer flexible programs that can be adjusted in time and space. Restrictions may be applied to avoid conflict with episodic wildlife needs (e.g., elk calving, foraging of certain migrating raptors), weather conditions (e.g., presence or absence of winter snow), or preserve programs (e.g., elk hunts, livestock management, fishing).
- The trust will consider "quiet times"—respites from all or most visitor disturbances.
- Impacts of visitor activities will be monitored and subsequently modified if needed. Monitoring will include both visitor satisfaction and landscape impacts.



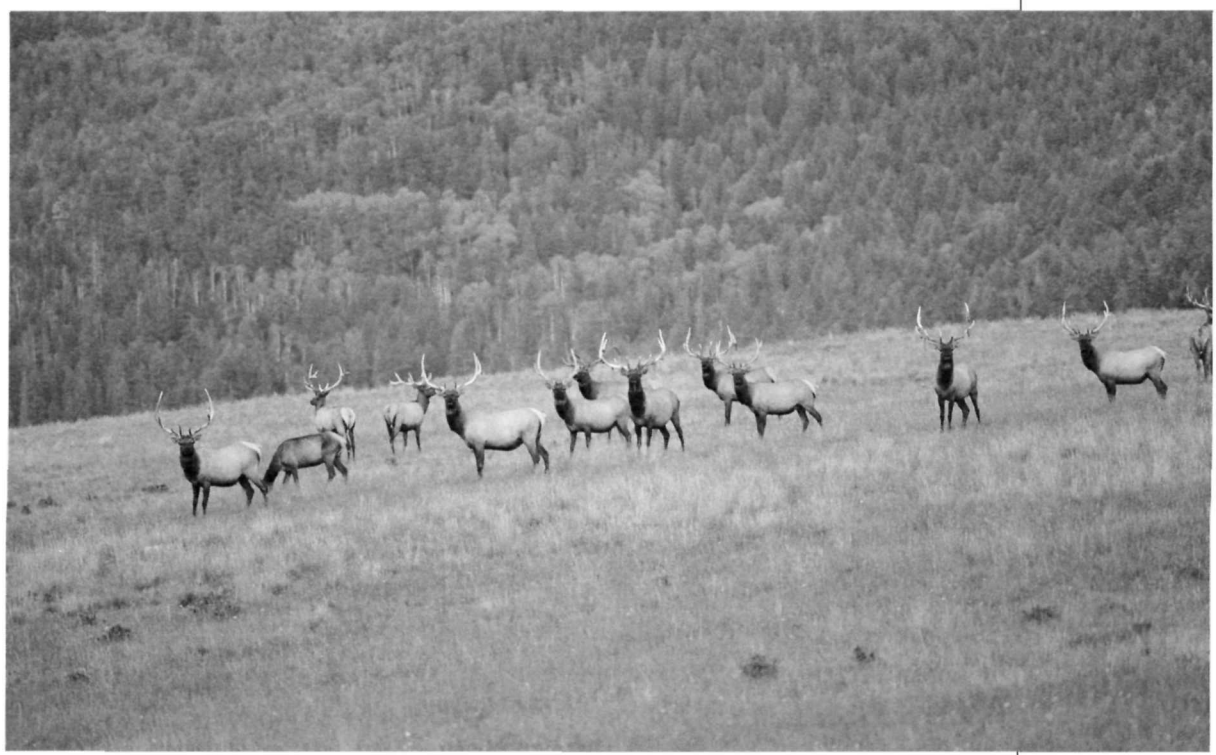
2003 Elk Hunting Units

Miles

0 5

Hunting Unit Boundaries

- Closed Road
- Drainage
- Range Fence
- Road
- Closed Areas
- State Road 4
- Open Roads (nonhunt boundary)
- Preserve Boundary
- Stream, Intermittent
- Stream, Perennial



With these imperatives in mind, the VCT has articulated a set of guidelines (see page 107) for the development of visitor activities, as it also did with respect to landscape stewardship. Once again, these guidelines are consistent with the trust's management principles, and they will serve as criteria for evaluating proposals for visitor activities using the StARS and NEPA procedures described in chapter 6.

The visitor activities the trust considers will include the program areas listed below. This list is not intended to be exhaustive, but it does include the visitor activities to which the highest priority attaches. Moreover, the trust acknowledges, as has been stated elsewhere in this framework, that it need not and ought not attempt to accommodate all possible uses and activities within the VCNP. Rather, it should concentrate on accommodating those activities and uses that best harmonize with the special qualities of the preserve and with one another. Virtually without exception, the enthusiasts of activities the preserve does not accommodate will find that their pastime is permitted nearby on other public land. For this reason, as well as others, the preserve need not try to be all things to all people.

Elk Hunting and Viewing

A large elk population spends much of the year on the VCNP,

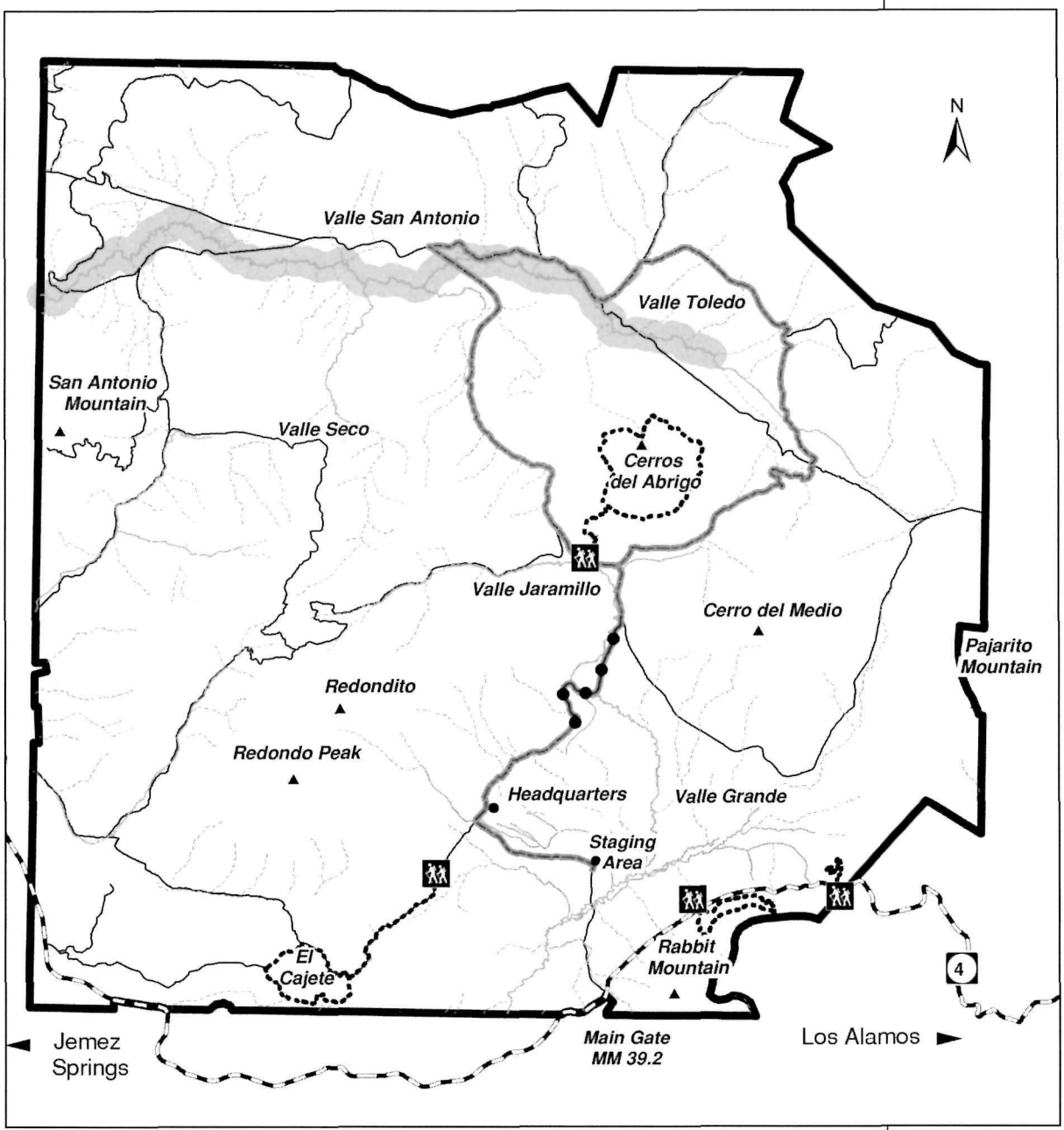
attracting visitors both for wildlife viewing and for hunting. Management of elk within the VCNP will strongly influence the abundance, vigor, distribution, and impacts of elk throughout the Jemez Mountains. The preserve's summer elk population has been estimated at approximately 2,500-3,500 animals, but actual numbers may vary substantially. Many animals that summer on the preserve move into the lower canyons and valleys when snow falls, sometimes congregating on private lands and damaging fences and consuming substantial amounts of forage. Hunting is an important source of income for the preserve, and in the absence of heavy natural predation in the Jemez Mountains, hunting is also an important tool for managing the size of the Jemez elk herd. The preserve's 2002 interim hunting program netted the trust approximately $300,000 and yielded a high level of hunter success and satisfaction.

Sample questions and issues:

- How can elk be managed on the VCNP to maintain a healthy herd while minimizing adverse effects on the preserve's landscapes and those of its neighbors?
- How can a hunting program serve both local populations and a wider public while being at once profitable, affordable, and fair?
- What hunting strategies at the VCNP will best contribute to the desired dispersal and distribution of elk through the winter months in the Jemez Mountains?
- What other autumn and winter activities can take place concurrently with elk hunting?
- What areas should be left unhunted? (In 2002 and 2003 no hunting took place in the Valle Grande or in the Rabbit Mountain area.)
- What measures will best enhance opportunities for viewing wildlife (especially elk) within the preserve?
- How should wildlife viewing activities be organized and managed?

Hiking and Camping

Hiking opportunities within the VCNP are in high demand, and the preserve has the potential to offer many possibilities for rewarding and enjoyable excursions. In developing the preserve's hiking program, the trust will need to consider the interests of the full range of likely visitors, from the very old to the very young, and all levels of physical ability. The design of the program should take into account the infrastructure (e.g., facilities serving recreational vehicles and other developed campgrounds) available on nearby lands, as well as the present lack of infrastructure within the preserve. A major concern associated with the trust's interim hiking programs has involved costs, either to the participants or the trust.

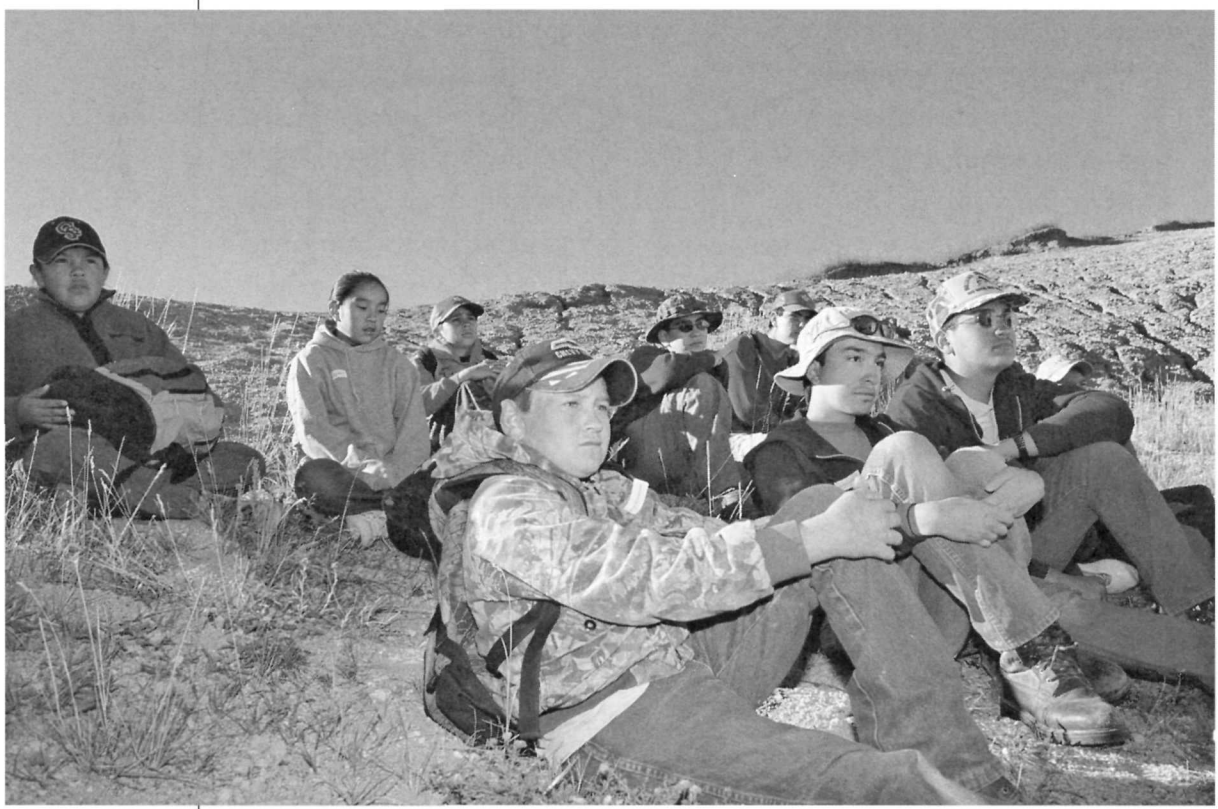


2003 Recreation Opportunities

Miles

0 5

- Fishing Area
- Hiking Trails
- Trailhead
- Van Tour
- Wagon Ride
- Preserve Boundary
- State Road 4
- Open Preserve Roads
- Stream, Perennial
- Stream, Intermittent



Fishing clinic participants, September 2003.

Future programs should, at a minimum,

- Develop an array of activities and a permitting system that will accommodate the public's desire to access the preserve for hiking, touring, and other day uses;
- Develop a permitting system and use guidelines for short-term backpacking activities;
- Develop additional infrastructure that will accommodate additional capacity;
- Provide educational opportunities and offer interpretation to visitors.

Sample questions and issues:

- What is the correct balance between guided and unguided hikes?
- What infrastructure improvements–staging areas, trailheads, trails–are needed?
- How can protection be ensured for backcountry archaeological sites if lands are open for unguided hiking?
- How will the sites selected serve to enhance the visitor experience by offering good opportunities for interpretation of the preserve?
- How will hiking be approached in an interpretive master plan?
- What is a fair and appropriate fee schedule for hiking and camping activities?
- Should specific zones be designated for overnight camping? If so, where?

- What is the proper fit of mountain biking or of horseback riding in the mix of permitted activities?
- How should interest in use of nonmotorized trails (hiking, horseback riding, mountain biking) be integrated, separated, or cooperatively managed?
- Should the trust seek to develop a "rim trail" around the Valles Caldera in cooperation with managers of adjacent public lands?

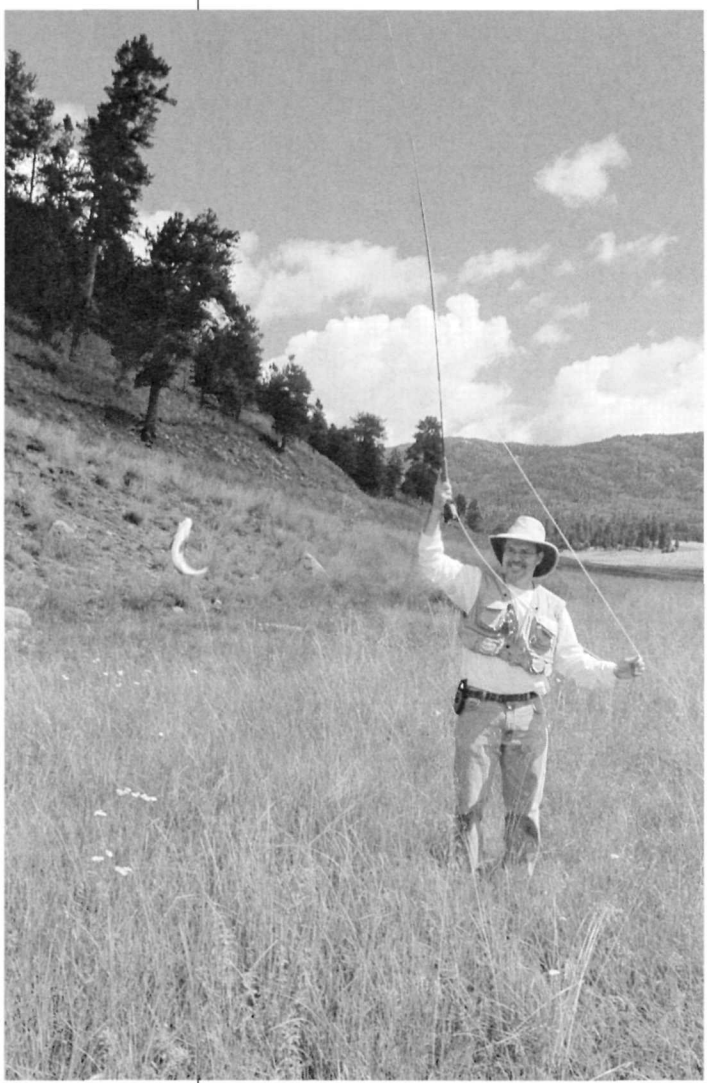
Touring and Education

The VCNP is rich in possibilities for educational activities, including opportunities for "hands-on" learning in ecology, archaeology, geology, astronomy, livestock and ranch management, and other fields. To the extent its operational capacity permits, the trust will explore collaborations with schools, universities, and other prospective partners in developing educational programs. In addition, the trust's interpretive programs might include subject-specific excursions focusing on wildlife observation, learning ranching skills, landscape photography, or archaeological site preservation, to name only a few possibilities. Dark-night astronomy excursions are another activity that seems to have considerable appeal. VCNP educational programs might ultimately include summer resource camps for youth. The VCNP visitor facility, when it is developed, will offer a range of educational and interpretive programs as well. The VCT's ongoing research, inventory, and monitoring program will greatly enrich all of these programs with a steady harvest of new learning as well as field opportunities for participation in data collection and other functions.

Many people will likely first experience the preserve through guided tours. Tours may range from trips around a standard sightseeing loop in multipassenger vehicles to natural and cultural history excursions following routes tailored to specific subject matter. Given the preserve's potential for learning and inspiration, all programs and tours should take advantage of opportunities for research, reflection, and education.

Sample questions and issues:

- What assumptions might fairly be made about visitors who will be primarily interested in experiencing the preserve via guided tours? Via exhibits at a visitor facility? Via field schools? And so on.
- How can the trust best work with educational institutions, private contractors, and volunteers to develop a range of affordable educational programs?
- How can the preserve's educational programming be integrated with ongoing inventory and monitoring efforts?



Fishing

The VCNP features over 27 miles of stream habitat suitable for trout. While part of this habitat is in degraded condition, many of the reaches are in excellent shape, with the potential to support healthy trout populations and offer exciting fishing opportunities. People interested in fishing the streams of the VCNP will likely range from beginners seeking their first high-country experience to veteran fly casters familiar with premier streams from around the world. Fishing opportunities on the VCNP will probably include both guided and unguided excursions, with the number of anglers at any given time limited in order to preserve the quality of the fishing experience and to avoid adverse impacts on fish populations and the streamside environment. Fishing membership groups, which conspicuously and enthusiastically participated in the trust's listening sessions, are expected to play an important role in stream rehabilitation efforts and in the enhancement of fishing opportunities within the preserve.

One of the trust's central goals will be to provide quality outdoor angling experiences that include the enjoyment of scenery, solitude, wildlife viewing, and the challenge of fishing.

Sample questions and issues:

- What regulations for creel and size would best embody the trust's management principles, contribute to progress in aquatic and riparian restoration, and maintain consistent high quality in the angling experience available at the VCNP?
- How can fishing operations best be integrated with other ongoing programs?
- How much traffic from anglers can preserve streams bear without

showing unwanted signs of wear and tear?
- What other fishing opportunities besides stream fishing should the VCT provide?
- To what degree should the preserve's fishing program emphasize guided fishing opportunities?

Winter Activities

Winter snowfall is highly variable in northern New Mexico. In some years several feet of snow accumulate in the preserve's valles, while in others conditions remain dry. The trust's programs will need to be responsive to this variability. When snow fills the landscape and winter quiet falls, the caldera is a truly magical place. Most winter sports produce only light environmental impacts, and the trust hopes to develop excellent programs of cross-country skiing, snowshoeing, sleigh rides, and possibly sledding. An interim program, started in February 2003, included unguided cross-country skiing opportunities as well as horse-drawn sleigh rides. Two warm-up huts were sited to provide skiers with places for orientation, shelter, and refreshment. The lack of infrastructure for parking and access to trailheads may constrain program development for some time.

Sample questions and issues:
- Should the trust develop a system of "huts" to support overnight backcountry ski touring? Can partners be found to assist in the establishment and maintenance of such a system?
- How can the trust satisfy the interest in unguided skiing and snowshoeing while managing transportation on and off the preserve?
- Are there effective ways to mitigate the liability issues associated with sledding?

Horseback Riding

Horses have long been part of the life of the caldera, and they continue to be essential to the ranching operations of the VCNP. The wide-open vistas and gently sloping mountains offer experiences that riders of every level of skill and experience can enjoy. As a first step toward providing horseback riding opportunities, it may prove best for the trust simply to accommodate those who would bring their own horses to the preserve. Once again, the availability of sufficient, safe infrastructure may temporarily constrain full program development. In order to avoid damage to trails and high-use areas, the size and number of horseback riding groups will likely be limited.

Sample questions and issues:
- Horseback riding involves risks, and the high cost of liability insurance for commercial horseback riding discourages the development of riding programs. Should



Movie set for *The Missing*. The barn has since been removed.

the trust nevertheless seek a concessionaire to operate a horseback riding service?
- Should horseback riders be restricted to certain trails?
- Should overnight horse packing be permitted, and if so, should camps be restricted to certain areas (which might change from year to year)?

Quiet Days

The expansive quiet that pervades the caldera is an important part of the special character of the VCNP. This stillness is important both to wildlife and to human visitors, but it is easily shattered. Within the preserve's self-contained topography, loud disturbances can seem amplified. Even as it strives to accommodate a wide range of activities, the trust anticipates that it may be desirable to build some "quieting" elements into its programs. These may include reserving certain areas from certain kinds of disturbances or designating specific "quiet days" or "no vehicle days" to give a rest to the landscape and the creatures living there. Such special times might also be linked to retreats of various kinds or to programs for painting, photography, or writing.

Sample questions and issues:
- What would be an acceptable frequency of "rest days" for the preserve?

- Should certain areas be reserved from most or all motorized activity?

Hunting (Other Than Elk)

In cooperation with the New Mexico Department of Game and Fish, the trust may explore development of programs for hunting animals other than elk. Turkey or grouse might be the first game animal so considered. It is unlikely, however, that mule deer will be considered unless or until the preserve's population of deer rebounds significantly from its present low level. For the foreseeable future, the business of managing the elk herd will be the most consuming wildlife matter before the trust, closely followed by a suite of issues associated with fishing and stream management, and so the timetable for addressing other hunting opportunities remains unknown.

Sample questions and issues:

- What priority should the trust place on developing a hunting program for turkey or grouse?

Special Uses

As part of a flexible management program, as well as to generate income, the preserve will likely accommodate a range of special uses. These activities would be authorized and managed on a case-by-case basis. They might include commercial film and video production, advertising photo shoots, chartered chuck wagon outings, corporate retreats, or weddings, to name only a few possibilities. Special permits might be issued for artistic or photographic endeavors. It is also possible that the public would be invited to participate in special no-fee or low-fee days.

Sample questions and issues:

- What kinds of special uses should the trust consider?

SUPPORTING INFRASTRUCTURE

Long-term planning for facilities development at the VCNP needs to take fully into account the infrastructure already present on nearby lands. The map on page 124 depicts the developed recreation areas within a 10-mile radius of the preserve, and the accompanying table on pages 126–27 lists their capacities. In addition, the development and use of facilities within the preserve should avoid attracting the congestion of vehicles and people that afflicts similar parks and outdoor recreation areas elsewhere in the country.

Within approximately 10 miles of the preserve, the U.S. Forest Service administers the Jemez National Recreation Area and provides 21 campgrounds and recreational access sites with a total capacity of 259 overnight camping spots, including space for RVs and trailers at eight of the locations; the National Park Service provides additional

facilities. In addition, the Jemez Mountains include the following special areas and features: the Bandelier/Dome Wilderness Areas, the Jemez Wild and Scenic River, and the Jemez Mountain Trail National Scenic Byway. In general, the National Forest lands adjacent to the preserve are characterized by a high density of publicly accessible roads, including primitive forest roads.

As the trust plans and develops visitor facilities for the preserve, we will want to consider those in the surrounding area and determine to what extent these facilities are adequate to meet the needs of visitors to the region and in what ways they are inadequate.

Highway 4 Corridor

The existing corridor of New Mexico Highway 4, an all-weather, hard-surface, fully maintained two-lane highway through the southeast corner of the VCNP, offers outstanding views of the Valle Grande and provides an initial point of contact with the preserve for those traveling from Los Alamos to Jemez Springs. It offers superb opportunities for wildlife observation, visitor orientation, and landscape interpretation. In cooperation with the New Mexico Department of Transportation, the trust expects to design and construct preserve entry and exit signage and to explore the possible expansion

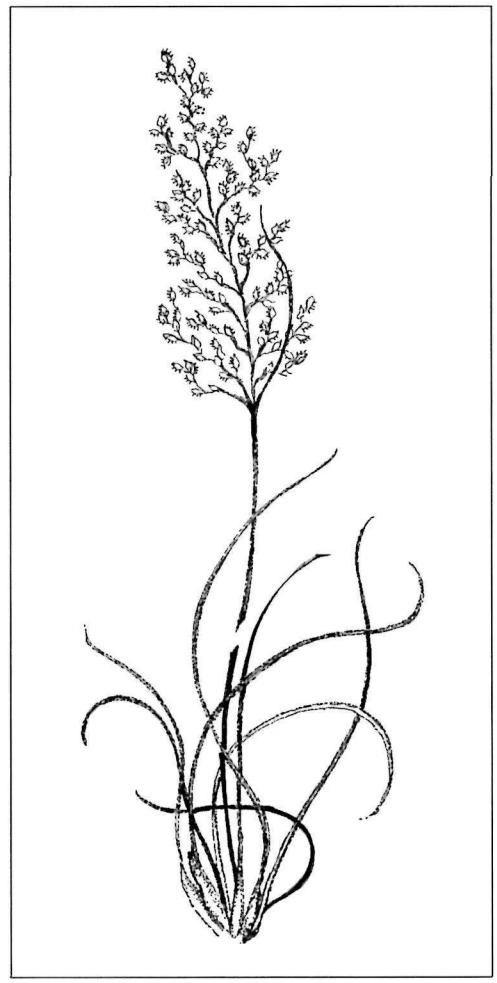
Junction of Valle Santa Rosa and Valle San Antonio.



and enhancement of existing roadside pullouts, improvement of vehicle and pedestrian safety, and installation of improved interpretive displays. In the context of utilizing the Highway 4 corridor, the trust will consider offering a range of outdoor opportunities in the Rabbit Mountain area (south and east of the Highway 4 corridor). In addition to the area adjacent to the Valle Grande, the trust intends to examine opportunities that would allow for public use and interpretation and the development of administrative facilities along Highway 4 as it traverses the southwest corner of the preserve in the Banco Bonito area.

Sample questions and issues:

- Would such improvements as picnic tables, shade structures, toilets, and observation platforms be welcome additions to the Highway 4 corridor?
- What kind of signage would be appropriate for marking the boundaries and features of the preserve along Highway 4?
- What kinds of activities should the Rabbit Mountain area accommodate?
- What kinds of activities should the Banco Bonito area accommodate?



Pine dropseed is found in many savannah communities within the preserve.

Internal Roads and Transportation

At present the VCT uses a network of administrative roads totaling about 90 miles. These roads are suitable for use only by high-clearance vehicles, and especially in inclement weather, four-wheel drive is frequently necessary. If the singular qualities of the VCNP, which the public so clearly values, are to be preserved, the trust must develop a comprehensive transportation network that will meet public, emergency, administrative, and other access requirements while remaining true to core principles of the trust and providing coordination to enhance interpretation of the

preserve. This will require not only planning for improvement of the existing road system, but also thorough consideration of future public recreation and interpretive programs, including the siting of trailheads, staging areas, targeted visitor experiences, and areas that should remain relatively undisturbed.

The cost of upgrading roads to accommodate typical passenger cars may be prohibitively high. U.S. Forest Service engineers estimate that reconstructing preserve roads at their present one-lane width to federal safety standards, improving drainage capabilities, and resurfacing with appropriate native materials could cost as much as $100,000 per mile. The cost would rise as the roads traverse mountainous terrain or penetrate farther to the interior of the preserve, increasing the cost of hauling materials. Costs could double where roads are widened to two lanes. This estimate does not include the cost of archaeological assessment and mitigation. Many of the roads of the preserve pass through areas of extreme archaeological complexity. Any widening may involve the disturbance of important sites, the mitigation of which may require large amounts of both time and money.

As the trust and the interested public consider the kind of transportation infrastructure the preserve should develop, considerations relating to public safety, cost of construction or reconstruction, and performance requirements dealing with archaeology, wildlife, watershed, and visitor management will be important. Even more important, however, will be the impact of roads and vehicles on the resources of the preserve and the quality of experience its visitors enjoy. As mentioned in chapter 8, it is instructive to review the experience of similar parks and preserves around the West and to note that vehicle congestion is a serious problem for many of them.

If the VCT ultimately develops a transportation system to provide all or most visitor access to the interior of the preserve, the necessity of widening and paving existing roads will be much reduced. This in turn will reduce the potential for negative impacts of roads on landscape aesthetics as well as physical resources. Whether the transportation infrastructure of the VCNP ultimately accommodates private vehicles, relies on a system of shuttles, or becomes a hybrid of these two approaches, the total number of people allowed to access the interior of the preserve on a given day will probably have to be limited in order to sustain the natural and cultural values so treasured by the public. With respect to off-



road vehicles (ATVs, motorcycles, snowmobiles, etc.), the VCT will consider these potential uses in the course of its transportation planning. Determining the future of the preserve's transportation infrastructure will be one of the first major planning efforts the trust undertakes.

Sample questions and issues:

- How many miles of what kinds of roads should the preserve have?
- What types of vehicles should use them?
- Should the trust develop a transportation system, restricting or even barring the use of private vehicles?
- If the trust develops a transportation system, how should it be equipped, organized, and funded?

VCNP Visitor and Interpretive Facilities

Ultimately, the trust expects to develop visitor contact and science, interpretive, and educational facilities for the preserve and will seek partners to assist in funding and carrying out this goal. Great opportunities exist to integrate the interpretive program of the VCNP with those of other nearby visitor destinations, such as Bandelier National Monument, the Walatowa Center at Jemez Pueblo, and the Los Alamos Science Museum. In its

relation to the external world, the VCNP's visitor facility might be seen as an important stop along an integrated interpretive trail through the Jemez Mountains. In its relation to the internal world of the preserve, the visitor center will need to function as a primary staging area, providing links to trailheads, transportation infrastructure, and (probably) a range of outdoor opportunities in the immediate vicinity of the facility. Location and design of the center should protect the quality of views from the interior of the preserve looking back toward the facility itself. As mentioned in chapter 8, the trust will also need to develop an administrative site where it would locate workshops, laboratories, storage facilities for equipment and supplies, offices, classrooms, and employee housing. The facility may be situated with (or incorporated into) the visitor facility area or sited separately. It would host educational activities, visiting researchers, educators, and student groups.

Sample questions and issues:

- Is it right to think in terms of a VCNP visitor facility, or should there be several facilities for different types of visitor contacts?
- Where should it (they) be situated? Do satisfactory sites exist within the present boundaries of the preserve?
- What kinds of services should be contemplated for inclusion in the visitor facilities? Should planning include opportunities for visitor lodging, administrative offices, meeting and conference facilities, etc., in addition to interpretive and other opportunities for trust interaction with visitors?

Lodging and Rentals

Many of the buildings constructed on the preserve have been used historically for lodging of guests. As a result, the preserve now contains at least seven buildings, some termed historic, which are suitable for use as housing for the public. The goals of the trust include creating revenue-generating lodging and rentals from existing preserve buildings that can be made available to a wide spectrum of public users. Buildings may be developed to accommodate a range of the public from backpackers to corporate employees seeking retreats. Upgrade of existing facilities will be needed in the near term, and possibly construction of new facilities in the long term, to optimize the use of these buildings.

Sample questions and issues:

- Should the development of existing buildings focus on creating high-revenue opportunities or expanded access to the general public?
- Should new facilities be developed,

and if so, which activities will they support?
- How should the price of lodging be set to ensure affordability while contributing to the trust's goal of financial self-sustainability?
- What level of the "rustic" experience should be maintained as part of the lodging on the preserve?

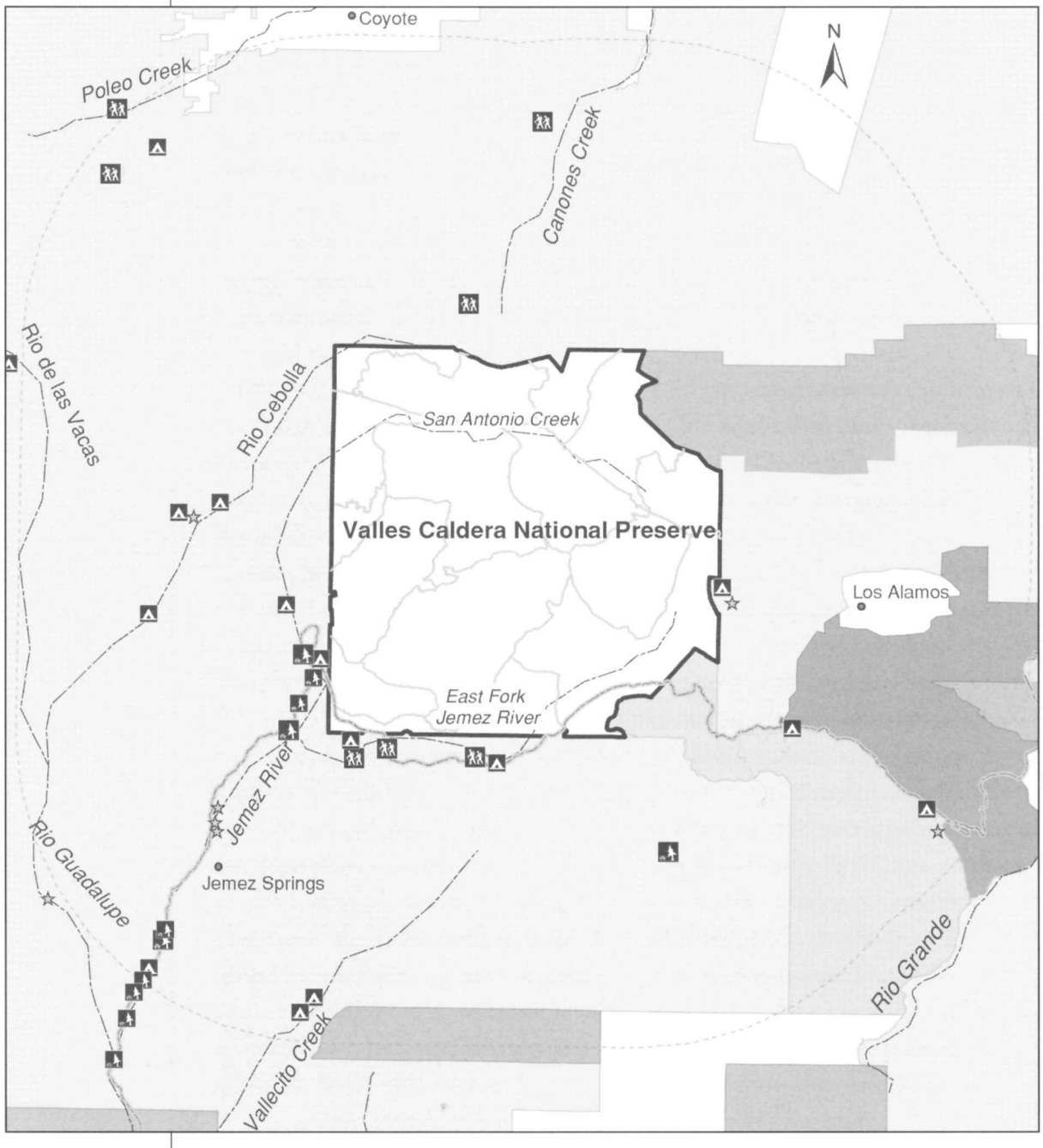
Administrative Facilities

For the immediate future, the current headquarters area will have to serve the needs of the trust for administrative facilities on the preserve. Due to its location on the edge of the Valle Grande and seven miles from NM Highway 4, it is often difficult and will continue to be costly to maintain year-round access to this area. The trust will need to develop plans for facilities to serve the growing administrative functions on the preserve that will have a minimal impact on visitor experiences, wildlife habitat, and other resources. In addition, the development of any new facilities should be situated in an area that is easily accessible year-round. The functions of a typical administrative site would include parking and maintenance of trust vehicles, storage of equipment and supplies, barns and pasture for trust horses and other stock, shops, offices for preserve operations, and housing for selected employees. Other functions the trust may wish to facilitate at an administrative site removed from areas of high visitor interactions might include laboratory facilities to accommodate natural and cultural resources research, housing for seasonal employees and guest workers, classrooms and other educational facilities, storage for natural and cultural resources collections, and other functions to meet the long-term goals of the trust for management of the preserve.

Sample questions and issues:
- Should the development of administrative facilities be relocated to a new site away from the current headquarters area?
- What functions should be accommodated at the administrative site?

Other Infrastructure

Besides obvious facilities needs for accommodating visitors, the trust will need to maintain or develop a range of other infrastructure. Among these tasks are the maintenance of existing buildings and utility systems, including the water and wastewater systems in the headquarters area; maintenance of roads and bridges; trail system development and maintenance; construction, maintenance, and in some cases removal of livestock fencing; and maintenance of scientific monitoring infrastructure (e.g., rain gauges, exclosures). The trust will also need to develop and maintain appropriate signage throughout the



Surrounding Recreational Opportunities

Miles
0 10

Developed Recreation Areas
- Campground
- Day Use
- Trailhead
- Interest Point

- Preserve Boundary
- 10-Mile Radius
- Major Streams
- Preserve Roads
- State Road 4

- Department of Energy
- Indian Reservation
- National Park Service
- U.S. Forest Service

preserve, and it will need to develop systems for providing emergency services and communications as well as for handling reservations for visitor activities. The latter will likely rely substantially on Internet technologies.

Sample questions and issues:

- If the trust's reservation system is primarily Web based, what arrangements will be necessary to accommodate the needs of people who do not have ready access to the Internet?

NATIONAL FOREST RECREATION SITES
Within 10 Miles of VCNP

Name of Recreation Site	*Location* (Miles and direction from reference town)	*Elevation (ft)*	No. of Units: *Camping*	No. of Units: *Picnicking*
CLEAR CREEK	12 E of Cuba, NM 126	8,500	12	5
RIO DE LAS VACAS	13 E of Cuba, NM 126	8,200	15	
PALIZA	5 NE of Ponderosa, FR 10	7,500	20	
PALIZA GROUP	5 NE of Ponderosa, FR 10	7,500	50	
RINCON	6 N of Jemez Springs, NM 4	7,100		
BATTLESHIP ROCK	6 N of Jemez Springs, NM 4	7,500		21
DARK CANYON	8 N of Jemez Springs, NM 4	7,500		
SAN ANTONIO	9 N of Jemez Springs, NM 4, then 2 W on NM 126	7,800	36	
SEVEN SPRINGS	9 N of Jemez Springs, NM 4, then 14 W on NM 126	8,000	7	7
LA CUEVA	9 NE of Jemez Springs, NM 4	7,700		9
REDONDO	11 NE of Jemez Springs, NM 4	8,100	59	
JEMEZ FALLS	15 NE of Jemez Springs, NM 4, then 1 S on FR 133	7,900	47	5
LAS CONCHAS	25 NE of Jemez Springs, NM 4	8,400		9
EAST FORT TRAILHEAD	17 NE of Jemez Springs, NM 4	8,000		
LA JUNTA FISHING ACC.	5 S of Jemez Springs on SH 4	5,700		
SAN DIEGO FISHING ACC.	5 S of Jemez Springs on SH 4	5,750		
LAS CASITAS FISHING ACC.	5 S of Jemez Springs on SH 4	5,750		
RIVER'S BEND FISHING ACC.	5 S of Jemez Springs on SH 4	5,800		
VISTA LINDA	5 S of Jemez Springs on SH 4	5,800	13	
SPANISH QUEEN	5 S of Jemez Springs on SH 4	5,850		12
THE BLUFFS FISHING ACC.	5 S of Jemez Springs on SH 4	5,900		

Fee Area	Water			Trailers Under	Managed Season	Stay Limit (days)	Special
	Drinking	Fishing	Boating				
X		X		16′	May–Oct.	14	SH, BF
		X		16′	May–Oct.	14	SH, G
X		X		16′	May–Oct.	14	PR, C
X		X		16′	May–Oct.	14	G, PR, C
		X		NO	May–Oct.		SH
X	X	X		NO	Apr.–Nov.		SH, C
		X		NO	May–Oct.		SH
X		X		22′	May–Oct.	14	BF, SH, NT, C
		X		NO	May–Oct.	14	PR
		X		NO	May–Oct.		BF, SH
X	X			22′	May–Oct.		NT, SH, BF, C, amphitheater
X	X	X		22′	May–Oct.	14	PR, SH, FR, BF, G, C
		X		NO	May–Oct.		SH
				NO	Jan.–Dec.		SH, TH
		X		NO	Mar.–Oct.		BF
		X		NO	Mar.–Oct.	14	BF
		X		NO	Mar.–Oct.		BF
		X		NO	Mar.–Oct.		
X	X	X		16′	Mar.–Oct.	14	BF, C
X	X	X		NO	Mar.–Oct.		BF, C
		X		NO	Mar.–Oct.		BF

Key:
C – Concessionaire
BF – Barrier-free access
FR – Forest Road
G – Group picnicking and camping, reservations only
NT – Nature trail
PR – Primitive roadway
SH – State Highway
TH – Trailhead
NO – Trailers not accommodated

10

ADDING THINGS UP

Cumulative effects and why we need to monitor and assess them

A Commitment to Monitoring and Experimentation

Monitoring, learning, and adaptive management are fundamental elements of the trust's approach to stewardship of the VCNP. As each new management program or activity develops, the trust will put in place a monitoring program to assess the effects, positive or negative, that the program produces. The trust intends to reevaluate all of its programs regularly, and whenever it does so, it will draw on the learning that results from its monitoring and experimental efforts as a basis for decisions about the continuation or revision of the program being considered. Moreover, both the monitoring data and the learning it generates will be shared freely with the public. This is the essence of adaptive management.

Tracking the impacts of individual management programs and activities, however, is not enough. The trust will also seek and evaluate information about general changes in the ecosystems of the preserve. By their nature, ecosystems are interconnected and interacting communities of plants and animals. Human activities in one geographic area, or modifications of a single component of an ecosystem, can have cascading and cumulative effects on other areas and components of the ecosystem. These "components" can include plant or animal species or physical elements such as water and air. At a larger scale, they can also include the social and economic life of human communities, a subject that is addressed below. "Cumulative effects" are the changes in ecosystem components that occur over time throughout a given territory and that are attributable to management actions. Cumulative effects can even include future impacts—at least those that are "reasonably foreseeable." (For a more precise definition of cumulative effects, see the glossary on page 141.)

Although it is not possible to measure all impacts on all areas or components of ecosystems, it is possible to monitor particular locations and components that are broadly reflective of the dynamics of the overall system. An example is water quality and quantity. Monitoring these variables over a large landscape is analogous to taking periodic readings of a human being's blood pressure and blood chemistry. In either case, sustained monitoring of a few variables effectively profiles the health of the larger system. If the effects of multiple management programs are "accumulating" in the landscape, evidence of this is likely to appear in variables, such as water quality, that are broadly indicative of ecological condition.

A daunting challenge in cumulative effects measurement and assessment is to identify with certainty the causes of observed changes in the ecosystem. Distinguishing changes that arise as a result of natural variability (e.g., caused by weather and climate variations) from changes that are caused by humans can be extremely difficult. Ultimately, the goal of monitoring and cumulative effects analysis is to obtain sufficient information from multiple lines of evidence and, based on a synthesis of these sources, to make reasonable interpretations that guide the adjustment of management actions.

The trust's StARS process requires individual management projects and programs to be monitored. In addition, the trust is establishing comprehensive monitoring and assessment procedures to meet the goal of assessing cumulative effects of management activities. Assessment of cumulative effects is a requirement of NEPA, and the integrated monitoring and assessment procedures for the VCNP will meet this requirement.

The trust has initiated development of these procedures by convening a workshop in July 2004. The workshop was attended by invited scientists and land managers with expertise in cumulative effects analyses. The goal of this workshop was to identify key variables the trust will monitor to assess cumulative effects. Other goals were to identify the most economical means for obtaining high-quality information about key variables and to outline methods for deriving the greatest-possible learning from them.

VARIABLES TO BE MONITORED

Monitoring of key ecosystem components has already begun on the preserve. Four weather stations were established across the preserve in 2003–4, along with a National Oceanic and Atmospheric Administrations (NOAA) Climate Reference Network station in the Valle Grande. An extensive network

ASSESSING CUMULATIVE EFFECTS

The VCT's procedures for assessing cumulative effects will be guided by eight principles identified in the 1997 handbook of the Council on Environmental Quality (CEQ): *Considering Cumulative Effects under the National Environmental Policy Act* (available at http://ceq.eh.doe.gov/nepa/ccenepa/ccenepa.htm):

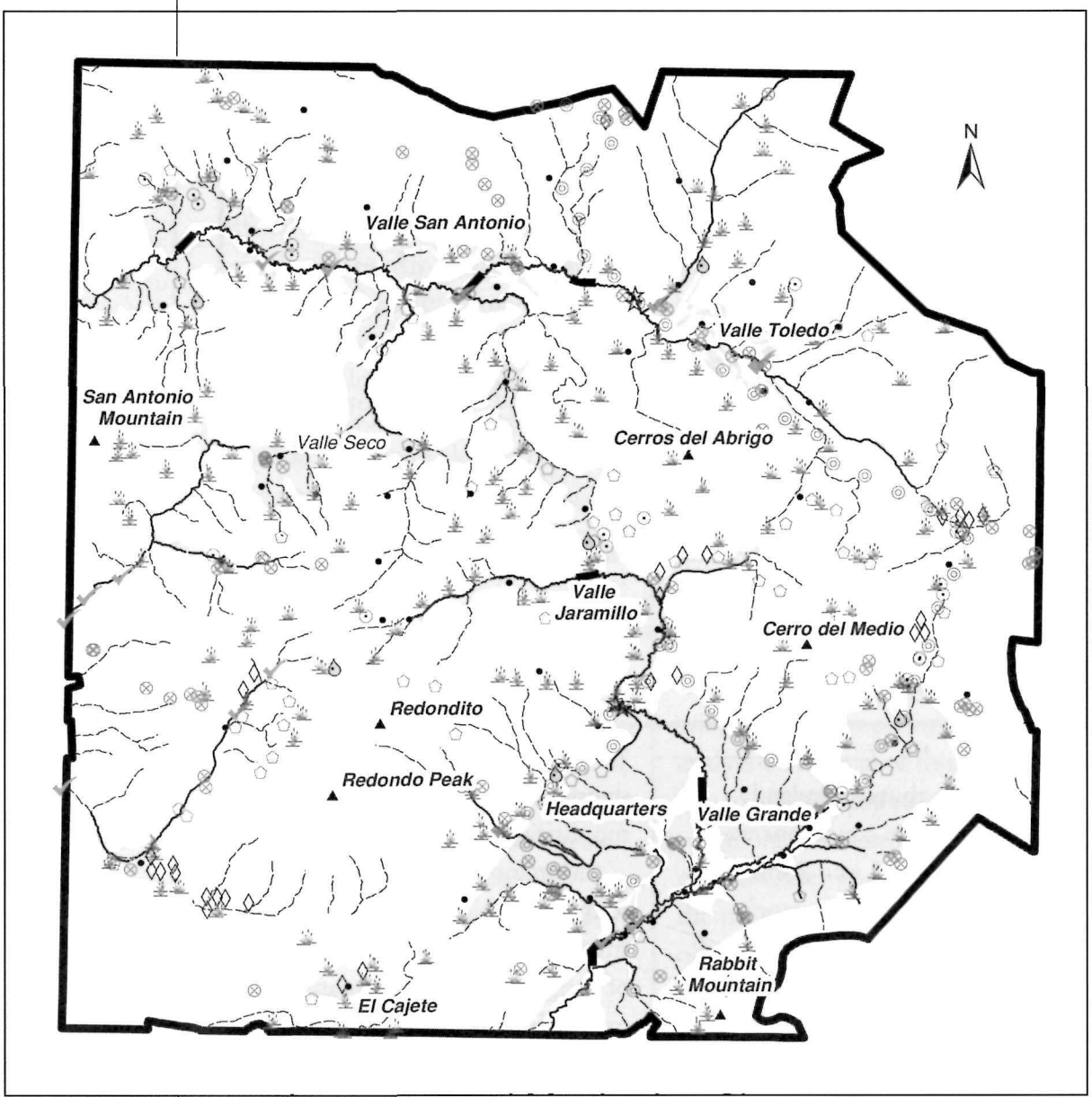
- Include past, present, and future actions;
- Include all federal, nonfederal, and private actions;
- Focus on each affected resource, ecosystem, and human community;
- Focus on truly meaningful effects;
- Use natural boundaries [i.e., appropriate temporal and spatial boundaries];
- Address additive, countervailing, and synergistic effects;
- Look beyond the life of the action;
- Address the sustainability of resources, ecosystems, and human communities.

of transects to monitor upland and riparian range conditions was established in 2001 and 2002. In 2004 construction of livestock and elk exclosures was completed. These structures will support a long-term experiment to assess the respective impacts of elk and domestic cattle on the principal creeks and riparian areas of the preserve. In 2001and 2002 the New Mexico Environment Department assisted the trust by establishing numerous testing sites along the preserve's streams and rivers and by collecting extensive baseline information on water quality. In consultation with the department, the preserve will deploy two permanent instrument stations for continued water quality monitoring in future years.

Monitoring is by no means restricted to biological variables. The trust is also monitoring the reaction of participants to the programs of the trust to learn what level of satisfaction the visitor experience produced and to solicit recommendations for improvement. These kinds of assessments will continue to be a regular feature of the trust's recreation, hunting, and fishing programs.

Examples of existing and potential components and social variables to be measured include (but are by no means limited to) the following:

- Precipitation, temperature, and other meteorological variables;



Inventory and Monitoring Sites

Miles

0 5

- Preserve Boundary
- Stream, Intermittent
- Stream, Perennial
- Water Quality Monitoring
- Rain Gauge Locations
- Whirling Disease Survey
- Amphibian and Reptile Survey
- Breeding Bird Survey
- Butterfly Survey
- Elk Browse Survey (shrubs)
- Range Monitoring
- Vegetation Sample Plots
- Canada Thistle
- Exclosure
- Prairie Dog Survey

- Water quality and quantity;
- Sedimentation and erosion rates;
- Upland and riparian plant growth and diversity;
- Forest growth, diversity, and fragmentation;
- Selected indicator or key animal populations (e.g., elk, fish, aquatic invertebrates, raptors, prairie dogs, butterflies);
- Air quality, sound, and light pollution;
- Visitor satisfaction and perceptions;
- Elk hunting (e.g., economic returns, hunter satisfaction);
- Trends in traffic flow;
- Local economic impacts of visitor programs.

MEASURING AND ASSESSING CUMULATIVE EFFECTS

Numerous tools and strategies are available for measuring and assessing cumulative effects. The 1997 CEQ handbook (cited earlier) describes many of these approaches (see box on page 137). The trust has already committed itself heavily to the core strategy of recording baseline data for ecosystem components and tracking subsequent trends through continued monitoring. Experimental approaches (e.g., livestock/elk exclosures and treatment replicates) will be used when feasible. New technologies, such as remote sensing, may also prove to be key tools for identifying spatial and temporal conditions and changes. For example, in 2003 the trust contracted with remote sensing and GIS specialists to inventory plant communities and conditions across the VCNP. These spatial data sets will provide baselines for assessing future changes in plant communities. Real-time (or near real-time) imagery from satellites is increasingly available for assessing ecosystem conditions (e.g., plant biomass, vigor and moisture content) at spatial resolutions of tens of meters. These kinds of technologies might be used to track certain kinds of ecosystem changes (e.g., the effects of drought) encompassing the VCNP and surrounding landscapes.

In the design and adoption of its StARS process and NEPA procedures, the trust institutionalized to the greatest extent practical its commitment to adaptive management. This commitment is also evident in the administrative structure the trust has built. A key to this structure is the inclusion of a preserve scientist on the executive staff of the trust. The duties of the preserve scientist include the design and oversight of the inventory, monitoring, and research programs. Cumulative effects analysis will be a chief responsibility of this individual. Many aspects of the trust's science program, however, remain a work in progress. The final composition of the suite of monitoring

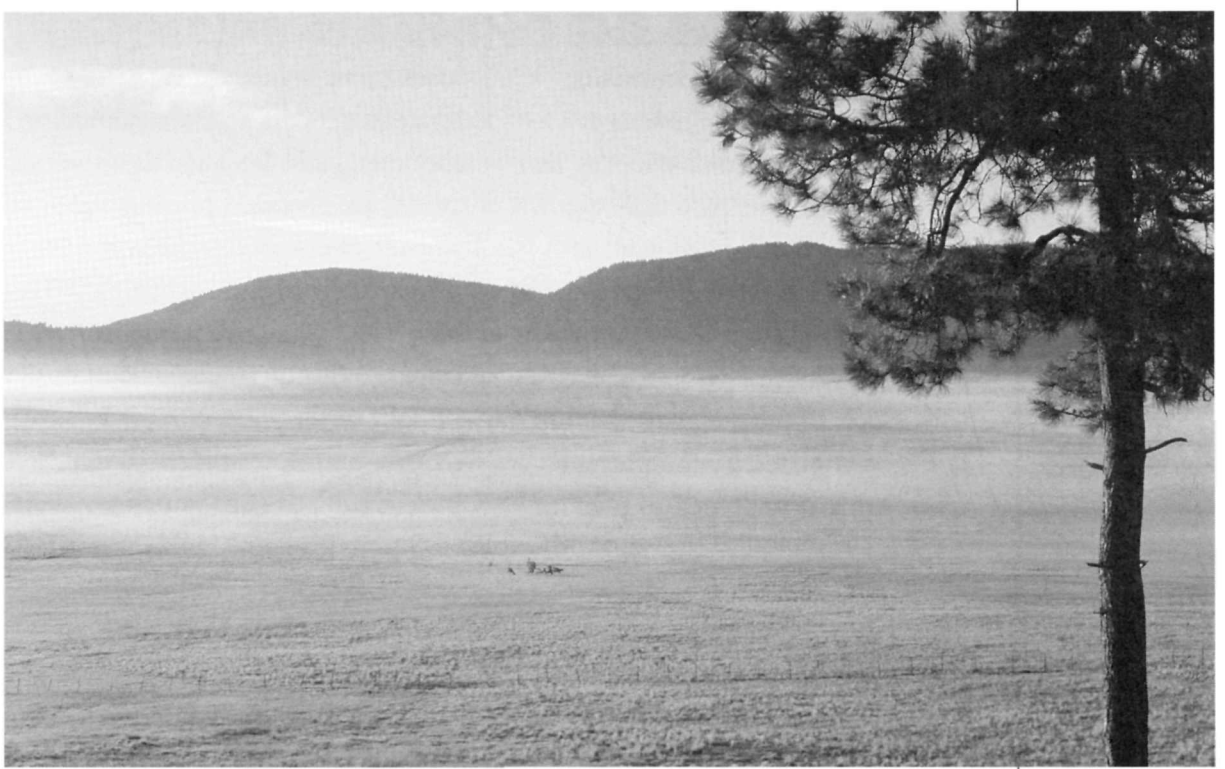
EXAMPLES OF PRIMARY METHODS FOR ASSESSING CUMULATIVE EFFECTS (FROM THE CEQ HANDBOOK)

- Trends analysis to assess the status of resources, ecosystems, and human communities over time and identify cumulative effects problems, establish appropriate environmental baselines, or project future cumulative effects;
- Overlay mapping and GIS to incorporate locational information into cumulative effects analysis and help set the boundaries of the analysis, analyze landscape parameters, and identify areas where effects will be the greatest;
- Modeling to quantify the cause-and-effect relationships leading to cumulative effects;
- Questionnaires, interviews, and panels to gather information about the wide range of actions and effects needed for a cumulative effects analysis;
- Checklists to identify potential cumulative effects by reviewing important human activities and potentially affected resources;
- Matrices to determine the cumulative effects on resources, ecosystems, and human communities by combining individual effects from different actions;
- Networks and system diagrams to trace the multiple, subsidiary effects of various actions that accumulate upon resources, ecosystems, and human communities.

programs the trust will support, the way these programs are integrated, and the utilization of the data they generate for the VCNP cumulative effects assessments are yet to be determined.

CUMULATIVE EFFECTS OF THE VCNP'S IMPACT ON THE JEMEZ REGION

The presence of the VCNP as a visitor destination will undoubtedly have a series of impacts on the surrounding cities, towns, and pueblos of northern New Mexico. For example, anticipated increases in tourism will provide for increased economic opportunities for small businesses directed at tourists, while real estate development on nearby private lands may accelerate. Vehicle traffic will increase, perhaps resulting in localized increases in highway noise and pollution.



The Valle Grande.

Overall increases in community development may require additional police and emergency medical resources. The trust, in collaboration with local, state, and federal agencies and private organizations, will continue to assess such accumulated impacts on the region so as to provide planning to avoid or mitigate negative impacts.

CUMULATIVE EFFECTS ANALYSIS AND THE STATE OF THE PRESERVE

Learning from past management is the keystone of the trust's science-informed adaptive management approach. Through our planning and decision-making process, we will utilize scientific assessments of ecological conditions to enable us to adjust our management actions to achieve desired resource conditions. To better understand how our management is affecting the preserve as a whole, the trust will prepare an assessment of the "state of the preserve," consisting of a concise account of the systematic review of monitored outcomes and other interpretive information. The trust will update this assessment of cumulative effects at least every five years. These analyses will also form the basis on which the trust will assess cumulative effects in its environmental documents.

Although the state of the preserve assessment will set the stage for evaluating cumulative

effects in the analyses associated with environmental documents, it is also required as a means to inform the board in developing its strategic guidance. Any time the board elects to alter the goals it has provided as strategic guidance, it must first reassess the state of the preserve. For example, if the trust elects to pursue goals that are not contemplated by the present framework, it will need to prepare an up-to-date state of the preserve assessment before altering its strategic guidance to accommodate the new goals. Because these assessments are required prior to the pursuit of a new direction, the program goals outlined by the board in its strategic guidance will undergo thorough consideration in light of the most current information on the condition of the preserve.

POSTSCRIPT: PLANNING THE PATH AHEAD

Congress gave the Valles Caldera Trust an extraordinary opportunity, unique in public land management, to create new approaches in both its programs and planning. In 2003, the trust published procedures that govern how it complies with the National Environmental Policy Act (NEPA). Just seven pages in length, the procedures are written with the aim of adapting the compliance process to the particular challenges and opportunities of the preserve while ensuring that the public has ample opportunity to participate in the preserve's ongoing management. Now, with the completion of the *Framework and Strategic Guidance for Comprehensive Management,* the trust has established guidance for further planning and decision making, clearly stating the values the trust will uphold in its stewardship of the preserve.

In 2004, the board and staff tackled another key component of managing the preserve by beginning work on a plan that details the themes and subthemes for interpretation of the preserve. This developing master plan for interpretation identifies the stories the trust wants to share about the preserve—its history, ecology, geology, and cultural significance. The public will have a role in helping the trust develop this plan and will be invited later in 2005 to share their reflections about the caldera and their ties to it. This exploration of interpretative issues will help the trust further identify where and how to develop facilities and programs to support visitation. The trust will learn not only what stories to tell, but also at what locations on the preserve to tell them.

By first developing an understanding of the visitor experience, the trust intends to ensure that it makes careful and judicious use of all resources—financial, human, and natural—as it further evaluates what facilities the preserve and its programs will require. At the time of federal purchase in July 2000, this formerly private ranch offered no public facilities; the trust has since developed interim programs and some facilities. The time has now come to develop additional facilities that fully support the trust's mission and values. These facilities will need to be appropriately scaled to the preserve's landscape, its neighboring agencies, and its visitors.

In 2003, the trust took initial steps toward developing needed facilities by publishing five Stewardship Action Proposals, which presented the purpose and need for a range of projects and solicited the public's feedback. In 2005, the trust will continue work on the following projects defined in the 2003 Stewardship Action Proposals:

- Upgrade of existing facilities;
- Siting and design of additional visitor facilities;
- Development of a Master Transportation Plan for the preserve;
- Enhancement of the State Highway 4 corridor through the preserve for interpretation, safety, and visitor enjoyment; and
- Siting and design of a facility to house administration, research, and education activities.

Each project will follow its own path for public participation, planning development, scheduling, project milestones, and delivery. Environmental analyses including documentation in an environmental impact statement or an environmental assessment will be completed as required, and the public will be invited at various points to provide feedback and comment.

Upcoming Projects

Over the next several years the trust will also undertake a number of other projects that will help contribute to the trust's stewardship of the preserve. These include a science-based monitoring program to understand the cumulative effects of the various programs on the preserve. This project will look at a range of measurable socioeconomic effects of the preserve's operations, develop data on climate/meteorology and air quality, and deepen the understanding of the preserve's aquatic ecosystems. The project will also study grasslands, rangelands, and riparian systems on the preserve, the management of elk populations and the forest ecosystem, and deepen understanding of the biodiversity of the preserve's key species.

Over the next year, the trust will develop a comprehensive grazing plan for livestock operations to better define the use of the preserve's extensive and productive rangelands. While presently limited to pastures in the major valles during an initial grazing program (2002-5), the comprehensive long-term livestock management program will address the preserve as a whole. It will also examine the contribution of the livestock grazing to the preserve as an economically and ecologically sustainable working ranch.

Within this same time frame the trust will continue evaluation and analysis toward implementing stewardship actions to restore and/or maintain the structure composition and function of the preserve's ecosystems with the use of fire and thinning.

Environmental analyses will be completed for both the comprehensive management of livestock and the use of fire. These analyses will be documented in an environmental assessment or impact statement. These periods of analysis will provide continued opportunity for public feedback.

The trust's new Web site, scheduled for initial release beginning in January 2005, will contain a more interactive, feedback-oriented StARs section that will better facilitate the public participation process essential to the trust's planning. In addition, the trust will offer useful public meetings to share information and gather feedback, all in an effort to better shape the preserve's future.

In its early years, the trust focused on creating a planning and decision-making process. This new process will undoubtedly be polished and refined in the next few years to better serve the public and the preserve. With major planning components in place, the task of building for the preserve's future can begin.

GLOSSARY

Adaptive management or science-based adaptive management: Stewardship actions or strategic guidance are adjusted based on knowledge gained from new information, experience, experimentation, and monitoring results. Adaptive management is the preferred method for managing complex natural systems. Science-based research, inventory, and monitoring includes not only the natural sciences but also social sciences such as economics, political science or sociology.

Cumulative effects: The summation or integration of changes in ecosystem components at multiple places and times that are attributable to management actions. The Council on Environmental Quality (CEQ) further defines cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR ~1508.7)."

Environmental documents: The documents prepared to disclose the anticipated environmental effects of an action, such as an environmental impact statement, an environmental assessment, or a finding of no significant impact.

Exclosure: A fenced area used to compare the environmental impact of animals such as elk on areas outside the fence, which are grazed, and areas inside the fence, which are not.

Forb: An herbaceous plant other than a grass, especially one growing in a field or meadow.

Goal: A desirable condition of the preserve sought by the trust. A goal may be outlined or described in the Valles Caldera Preservation Act or adopted by the trust to further the purposes of the Valles Caldera Preservation Act.

Grassbank: Grass on one ranch is made available to another rancher's cattle in order to accomplish one or more mutual goals such as landscape restoration, drought relief, or prevention of subdivision.

Monitored outcome: A short-, mid-, or long-term outcome selected by the trust for systematic evaluation.

NEPA: The National Environmental Policy Act.

NEPA procedures: The process governing compliance with the National Environmental Policy Act and specifically addressing analysis, disclosure, and public participation in management decisions that significantly affect the environment.

Riparian: Of, on, or pertaining to the bank of a river or of a pond or small lake. Riparian vegetation is streamside vegetation.

StARS (Stewardship Action Registry System): The process the VCT will follow to make and document management decisions.

State of the preserve: A concise account of the systematic review of monitored outcomes and interpretive information from observations, studies, public comment, research investigations, and other sources to provide the technical and scientific basis for considering the cumulative effects on the preserve.

Stewardship action: An activity or group of activities proposed or implemented by the trust that will guide or prescribe alternative uses of the preserve or authorize utilization or management of the preserve resources.

Stewardship register: A concise document, including applicable environmental documents, available to the public, depicting the location, development, implementation, and monitoring of a stewardship action.

Strategic guidance: Direction from the board consisting of one or more goals for all or part of the preserve or direction from the board to the staff to consider one or more stewardship actions or an administrative matter related to the operation of the preserve.

Working ranch: The VCT defines a "working ranch" as an operation that places its primary emphasis on stewardship of the resource as the foundation for both ecological and economic sustainability. A working ranch
- Runs a sustainable level of livestock;
- Uses resources for other revenue-generating activities such as bird watching, hunting, fishing, and other low-impact recreational activities;
- Applies adaptive management on a day-to-day basis to ensure that the resource is being protected; and
- Monitors the impact of its activities.

FOR FURTHER READING

Aquatic and Riparian Communities

McWilliams, Steve. *Watershed Conditions Summer 2000, Baca Location 1 Purchase, Valles Caldera National Preserve.* Unpublished report on file at Valles Caldera National Preserve, 2001.

National Riparian Service Team. Valles Caldera Trip Report, 2002. Unpublished report on file at Valles Caldera National Preserve.

Simino, James (U.S. Forest Service). *Stream Inventory Report on East Fork Jemez River, March 2002.* Unpublished report on file at Valles Caldera National Preserve.

——. *Stream Inventory Report on San Antonio River, 2003.* Unpublished report on file at Valles Caldera National Preserve.

Cultural History

Anschuetz, Kurt F., and Thomas Merlan. Working Title: *Valles Caldera National Preserve Land-Use History.* Landscape Contribution XII. Rio Grande Foundation for Communities and Cultural Landscapes. In preparation for the Valles Caldera Trust.

Martin, Craig. *History of the Baca Location No. 1.* Los Alamos: All Seasons Publishing, 2003.

Sando, Joe S. Nee Hemish: *A History of Jemez Pueblo.* Albuquerque: UNM Press, 1982.

Forests

Allen, Craig D. "Changes in the Landscape of the Jemez Mountains, New Mexico." Ph.D. diss., University of California, Berkeley, 1989.

Geology

Gardner, Jamie, and Fraser Goff. *Geology of the Northern Valles Caldera and Toledo Embayment, New Mexico.* In *New Mexico Geological Society Guidebook,* 47th Field Conference, Jemez Mountains Region, 1996, edited by Fraser Goff, et al., pp. 225–30.

Grasslands

Barnes, Will. *Valles Caldera National Preserve, Rangeland Monitoring Baseline Report.* Unpublished report on file at Valles Caldera National Preserve, 2002.

——. *Valles Caldera National Preserve, 2002 Riparian Vegetation Baseline Monitoring Report.* Unpublished report on file at Valles Caldera National Preserve, 2003.

Muldavin, Estevan, and Phil Tonne (New Mexico Natural Heritage Program). *A Vegetation Survey and Preliminary Ecological Assessment of Valles Caldera National Preserve, New Mexico.* Unpublished report on file at Valles Caldera National Preserve, 2003.

Vegetation and Floristic Diversity

Brunner-Jass, Renata. "Fire Occurrence and Paleoecology at Alamo Bog and Chihuahuenos Bog, Jemez Mountains, New Mexico, USA." Master's thesis, Northern Arizona University, 1999.

Hartman, Ronald L. *General Floristic Survey of the Valles Caldera National Preserve, New Mexico: Report on Field Seasons of 2001, 2002, 2003.* Unpublished report on file at Valles Caldera National Preserve.

Muldavin, Estevan, and Phil Tonne (New Mexico Natural Heritage Program). *A Vegetation Survey and Preliminary Ecological Assessment of Valles Caldera National Preserve, New Mexico.* Unpublished report on file at Valles Caldera National Preserve, 2003.

Wildlife

Allen, Craig. *Elk Population Response to the La Mesa Fire and Current Status in the Jemez Mountains.* In *Fire Effects in Southwestern Forests: Proceedings of the Second La Mesa Fire Symposium*, edited by C. D. Allen. USDA Forest Service General Technical Report RM-286, Fort Collins, CO, 1996, pp. 179–95.

Cummer, Michelle, Bruce Christman, and Marjorie Wright. *Investigations of the Status and Distribution of Amphibians and Reptiles on the Valles Caldera National Preserve, Sandoval County, New Mexico, 2002.* Unpublished report on file at Valles Caldera National Preserve, 2003.

Fettig, Stephen, Christopher Rustay, and David Henderson. *Initial Breeding Bird Survey of the Valles Caldera National Preserve.* Unpublished report on file at Valles Caldera National Preserve, 2002.

Fettig, Stephen (based on observations by many cooperators). *New Mexico Breeding Bird Atlas Work on the Valles Caldera National Preserve (VCNP): Summary of 2002 Observations.* Unpublished report on file at Valles Caldera National Preserve, 2003.

Johnson, Terrell. 2001 *Raptor Surveys in the Valles Caldera National Preserve.* Unpublished report on file at Valles Caldera National Preserve, 2002.

Kleintjes, Paula. *Valles Caldera National Preserve Butterfly Monitoring Report 2001.* Unpublished report on file at Valles Caldera National Preserve, 2001.

New Mexico Endemic Salamander Team. *Cooperative Management Plan for the Jemez Mountains Salamander (Plethodon neomexicanus).* U.S. Fish and Wildlife Service, Albuquerque, 2000.

Simino, James (U.S. Forest Service). *Stream Inventory Report on East Fork Jemez River.* Unpublished report on file at Valles Caldera National Preserve, 2002.

—. *Stream Inventory Report on San Antonio River.* Unpublished report on file at Valles Caldera National Preserve, 2003.

APPENDIX A:
VALLES CALDERA NATIONAL PRESERVE AND TRUST

PUBLIC LAW 106-248–JULY 25, 2000

114 STAT. 598
106th Congress

An Act

To authorize the acquisition of the Valles Caldera, to provide for an effective land and wildlife management program for this resource within the Department of Agriculture, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE I–VALLES CALDERA NATIONAL PRESERVE AND TRUST

SEC. 101. SHORT TITLE.

This title may be cited as the "Valles Caldera Preservation Act."

SEC. 102. FINDINGS AND PURPOSES.

(a) FINDINGS.–Congress finds that–

(1) the Baca ranch comprises most of the Valles Caldera in central New Mexico, and constitutes a unique land mass, with significant scientific, cultural, historic, recreational, ecological, wildlife, fisheries, and productive values;

(2) the Valles Caldera is a large resurgent lava dome with potential geothermal activity;

(3) the land comprising the Baca ranch was originally granted to the heirs of Don Luís María Cabeza de Vaca in 1860;

(4) historical evidence, in the form of old logging camps and other artifacts, and the history of territorial New Mexico indicate the importance of this land over many generations for domesticated livestock production and timber supply;

(5) the careful husbandry of the Baca ranch by the current owners, including selective timbering, limited grazing and hunting, and the use of prescribed fire, have preserved a mix of healthy range and timber land with significant species diversity, thereby serving as a model for sustainable land development and use;

(6) the Baca ranch's natural beauty and abundant resources, and its proximity to large municipal populations, could provide numerous recreational opportunities for hiking, fishing, camping, cross-country skiing, and hunting;

(7) the Forest Service documented the scenic and natural values of the Baca ranch in its 1993 study entitled "Report on the Study of the Baca Location No. 1, Santa Fe National Forest, New Mexico," as directed by Public Law 101-556;

(8) the Baca ranch can be protected for current and future generations by continued operation as a working ranch under a unique management regime which would protect the land and resource values of the

property and surrounding ecosystem while allowing and providing for the ranch to eventually become financially self-sustaining;

(9) the current owners have indicated that they wish to sell the Baca ranch, creating an opportunity for Federal acquisition and public access and enjoyment of these lands;

(10) certain features on the Baca ranch have historical and religious significance to Native Americans which can be preserved and protected through Federal acquisition of the property;

(11) the unique nature of the Valles Caldera and the potential uses of its resources with different resulting impacts warrants a management regime uniquely capable of developing an operational program for appropriate preservation and development of the land and resources of the Baca ranch in the interest of the public;

(12) an experimental management regime should be provided by the establishment of a Trust capable of using new methods of public land management that may prove to be cost-effective and environmentally sensitive; and

(13) the Secretary may promote more efficient management of the Valles Caldera and the watershed of the Santa Clara Creek through the assignment of purchase rights of such watershed to the Pueblo of Santa Clara.

(b) PURPOSES.–The purposes of this title are–

(1) to authorize Federal acquisition of the Baca ranch;

(2) to protect and preserve for future generations the scientific, scenic, historic, and natural values of the Baca ranch, including rivers and ecosystems and archaeological, geological, and cultural resources;

(3) to provide opportunities for public recreation;

(4) to establish a demonstration area for an experimental management regime adapted to this unique property which incorporates elements of public and private administration in order to promote long term financial sustainability consistent with the other purposes enumerated in this subsection; and

(5) to provide for sustained yield management of the Baca ranch for timber production and domesticated livestock grazing insofar as is consistent with the other purposes stated herein.

SEC. 103. DEFINITIONS.

In this title:

(1) BACA RANCH.–The term "Baca ranch" means the lands and facilities described in section 104(a).

(2) BOARD OF TRUSTEES.–The terms "Board of Trustees" and "Board" mean the Board of Trustees as described in section 107.

(3) COMMITTEES OF CONGRESS.–The term "Committees of Congress" means the Committee on Energy and Natural Resources of the Senate and the Committee on Resources of the House of Representatives.

(4) FINANCIALLY SELF-SUSTAINING.–The term "financially self-sustaining" means management and operating expenditures equal to or less than proceeds derived from fees and other receipts for resource use and development and interest on invested funds. Management and operating expenditures shall include Trustee expenses, salaries and benefits of staff, administrative and

operating expenses, improvements to and maintenance of lands and facilities of the Preserve, and other similar expenses. Funds appropriated to the Trust by Congress, either directly or through the Secretary, for the purposes of this title shall not be considered.

(5) MULTIPLE USE AND SUSTAINED YIELD.–The term "multiple use and sustained yield" has the combined meaning of the terms "multiple use" and "sustained yield of the several products and services," as defined under the Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. 531).

(6) PRESERVE.–The term "Preserve" means the Valles Caldera National Preserve established under section 105.

(7) SECRETARY.–Except where otherwise provided, the term "Secretary" means the Secretary of Agriculture.

(8) TRUST.–The term "Trust" means the Valles Caldera Trust established under section 106.

SEC. 104. ACQUISITION OF LANDS.

(a) ACQUISITION OF BACA RANCH.–

(1) IN GENERAL.–In compliance with the Act of June 15, 1926 (16 U.S.C. 471a), the Secretary is authorized to acquire all or part of the rights, title, and interests in and to approximately 94,761 acres of the Baca ranch, comprising the lands, facilities, and structures referred to as the Baca Location No. 1, and generally depicted on a plat entitled "Independent Resurvey of the Baca Location No. 1," made by L.A. Osterhoudt, W.V. Hall, and Charles W. Devendorf, U.S. Cadastral Engineers, June 30, 1920–August 24, 1921, under special instructions for Group No. 107 dated February 12, 1920, in New Mexico.

(2) SOURCE OF FUNDS.–The acquisition under paragraph (1) may be made by purchase through appropriated or donated funds, by exchange, by contribution, or by donation of land. Funds appropriated to the Secretary from the Land and Water Conservation Fund shall be available for this purpose.

(3) BASIS OF SALE.–The acquisition under paragraph (1) shall be based on an appraisal done in conformity with the Uniform Appraisal Standards for Federal Land Acquisitions and–

(A) in the case of purchase, such purchase shall be on a willing seller basis for no more than the fair market value of the land or interests therein acquired; and

(B) in the case of exchange, such exchange shall be for lands, or interests therein, of equal value, in conformity with the existing exchange authorities of the Secretary.

(4) DEED.–The conveyance of the offered lands to the United States under this subsection shall be by general warranty or other deed acceptable to the Secretary and in conformity with applicable title standards of the Attorney General.

(b) ADDITION OF LAND TO BANDELIER NATIONAL MONUMENT.–Upon acquisition of the Baca ranch under subsection (a), the Secretary of the Interior shall assume administrative jurisdiction over those lands within the boundaries of the Bandelier National Monument as modified under section 3 of Public Law 105–376 (112 Stat. 3389).

(c) PLAT AND MAPS.–

(1) PLAT AND MAPS PREVAIL.–In case of any conflict between a plat or a map and acreages, the plat or map shall prevail.

(2) MINOR CORRECTIONS.–The Secretary and the Secretary of the Interior may make minor corrections in the boundaries of the Upper Alamo watershed as depicted on the map referred to in section 3 of Public Law 105–376 (112 Stat. 3389).

(3) BOUNDARY MODIFICATION.–Upon the conveyance of any lands to any entity other than the Secretary, the boundary of the Preserve shall be modified to exclude such lands.

(4) FINAL MAPS.–Within 180 days of the date of acquisition of the Baca ranch under subsection (a), the Secretary and the Secretary of the Interior shall submit to the Committees of Congress a final map of the Preserve and a final map of Bandelier National Monument, respectively.

(5) PUBLIC AVAILABILITY.–The plat and maps referred to in the subsection shall be kept and made available for public inspection in the offices of the Chief, Forest Service, and Director, National Park Service, in Washington, D.C., and Supervisor, Santa Fe National Forest, and Superintendent, Bandelier National Monument, in the State of New Mexico.

(d) WATERSHED MANAGEMENT REPORT.–The Secretary, acting through the Forest Service, in cooperation with the Secretary of the Interior, acting through the National Park Service, shall–

(1) prepare a report of management alternatives which may–

(A) provide more coordinated land management within the area known as the upper watersheds of Alamo, Capulin, Medio, and Sanchez Canyons, including the areas known as the Dome Diversity Unit and the Dome Wilderness;

(B) allow for improved management of elk and other wildlife populations ranging between the Santa Fe National Forest and the Bandelier National Monument; and

(C) include proposed boundary adjustments between the Santa Fe National Forest and the Bandelier National Monument to facilitate the objectives under subparagraphs (A) and (B); and

(2) submit the report to the Committees of Congress within 120 days of the date of enactment of this title.

(e) OUTSTANDING MINERAL INTERESTS.–The acquisition of the Baca ranch by the Secretary shall be subject to all outstanding valid existing mineral interests. The Secretary is authorized and directed to negotiate with the owners of any fractional interest in the subsurface estate for the acquisition of such fractional interest on a willing seller basis for not to exceed its fair market value, as determined by appraisal done in conformity with the Uniform Appraisal Standards for Federal Land Acquisitions. Any such interests acquired within the boundaries of the Upper Alamo watershed, as referred to in subsection (b), shall be administered by the Secretary of the Interior as part of Bandelier National Monument.

(f) BOUNDARIES OF THE BACA RANCH.–For purposes of section 7 of the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 460l–9), the boundaries of the Baca ranch shall be treated as if they were National Forest boundaries existing as of January 1, 1965.

(g) PUEBLO OF SANTA CLARA.–

(1) IN GENERAL.–The Secretary may assign to the Pueblo of Santa Clara rights to acquire for fair market value portions of the Baca ranch. The portion that may be assigned shall be determined by mutual agreement between the Pueblo and the Secretary based on optimal management considerations for the Preserve including manageable land line locations, public access, and retention of scenic and natural values. All

appraisals shall be done in conformity with the Uniform Appraisal Standards for Federal Land Acquisition.

(2) STATUS OF LAND ACQUIRED.–As of the date of acquisition, the fee title lands, and any mineral estate underlying such lands, acquired under this subsection by the Pueblo of Santa Clara are deemed transferred into trust in the name of the United States for the benefit of the Pueblo of Santa Clara and such lands and mineral estate are declared to be part of the existing Santa Clara Indian Reservation.

(3) MINERAL ESTATE.–Any mineral estate acquired by the United States pursuant to section 104(e) underlying fee title lands acquired by the Pueblo of Santa Clara shall not be developed without the consent of the Secretary of the Interior and the Pueblo of Santa Clara.

(4) SAVINGS.–Any reservations, easements, and covenants contained in an assignment agreement entered into under paragraph (1) shall not be affected by the acquisition of the Baca ranch by the United States, the assumption of management by the Valles Caldera Trust, or the lands acquired by the Pueblo being taken into trust.

SEC. 105. THE VALLES CALDERA NATIONAL PRESERVE.

(a) ESTABLISHMENT.–Upon the date of acquisition of the Baca ranch under section 104(a), there is hereby established the Valles Caldera National Preserve as a unit of the National Forest System which shall include all Federal lands and interests in land acquired under sections 104(a) and 104(e), except those lands and interests in land administered or held in trust by the Secretary of the Interior under sections 104(b) and 104(g), and shall be managed in accordance with the purposes and requirements of this title.

(b) PURPOSES.–The purposes for which the Preserve is established are to protect and preserve the scientific, scenic, geologic, watershed, fish, wildlife, historic, cultural, and recreational values of the Preserve, and to provide for multiple use and sustained yield of renewable resources within the Preserve, consistent with this title.

(c) MANAGEMENT AUTHORITY.–Except for the powers of the Secretary enumerated in this title, the Preserve shall be managed by the Valles Caldera Trust established by section 106.

(d) ELIGIBILITY FOR PAYMENT IN LIEU OF TAXES.–Lands acquired by the United States under section 104(a) shall constitute entitlement lands for purposes of the Payment in Lieu of Taxes Act (31 U.S.C. 6901–6904).

(e) WITHDRAWALS.–

(1) IN GENERAL.–Upon acquisition of all interests in minerals within the boundaries of the Baca ranch under section 104(e), subject to valid existing rights, the lands comprising the Preserve are thereby withdrawn from disposition under all laws pertaining to mineral leasing, including geothermal leasing.

(2) MATERIALS FOR ROADS AND FACILITIES.–Nothing in this title shall preclude the Secretary, prior to assumption of management of the Preserve by the Trust, and the Trust thereafter, from allowing the utilization of common varieties of mineral materials such as sand, stone, and gravel as necessary for construction and maintenance of roads and facilities within the Preserve.

(f) FISH AND GAME.–Nothing in this title shall be construed as affecting the responsibilities of the State of New Mexico with respect to fish and wildlife, including the regulation of hunting, fishing, and trapping within the Preserve, except that the Trust may, in consultation with the Secretary and the State of New Mexico,

designate zones where and establish periods when no hunting, fishing, or trapping shall be permitted for reasons of public safety, administration, the protection of nongame species and their habitats, or public use and enjoyment.

(g) REDONDO PEAK.–

(1) IN GENERAL.–For the purposes of preserving the natural, cultural, religious, and historic resources on Redondo Peak upon acquisition of the Baca ranch under section 104(a), except as provided in paragraph (2), within the area of Redondo Peak above 10,000 feet in elevation–

(A) no roads, structures, or facilities shall be constructed; and

(B) no motorized access shall be allowed.

(2) EXCEPTIONS.–Nothing in this subsection shall preclude–

(A) the use and maintenance of roads and trails existing as of the date of enactment of this Act;

(B) the construction, use and maintenance of new trails, and the relocation of existing roads, if located to avoid Native American religious and cultural sites; and

(C) motorized access necessary to administer the area by the Trust (including measures required in emergencies involving the health or safety of persons within the area).

SEC. 106. THE VALLES CALDERA TRUST.

(a) ESTABLISHMENT.–There is hereby established a wholly owned government corporation known as the Valles Caldera Trust which is empowered to conduct business in the State of New Mexico and elsewhere in the United States in furtherance of its corporate purposes.

(b) CORPORATE PURPOSES.–The purposes of the Trust are–

(1) to provide management and administrative services for the Preserve;

(2) to establish and implement management policies which will best achieve the purposes and requirements of this title;

(3) to receive and collect funds from private and public sources and to make dispositions in support of the management and administration of the Preserve; and

(4) to cooperate with Federal, State, and local governmental units, and with Indian tribes and Pueblos, to further the purposes for which the Preserve was established.

(c) NECESSARY POWERS.–The Trust shall have all necessary and proper powers for the exercise of the authorities vested in it.

(d) STAFF.–

(1) IN GENERAL.–The Trust is authorized to appoint and fix the compensation and duties of an executive director and such other officers and employees as it deems necessary without regard to the provisions of title 5, United States Code, governing appointments in the competitive service, and may pay them without regard to the provisions of chapter 51, and subchapter III of chapter 53, title 5, United States Code, relating to classification and General Schedule pay rates. No employee of the Trust shall be paid at a rate in excess of that payable to the Supervisor of the Santa Fe National Forest or the Superintendent of the Bandelier National Monument, whichever is greater.

(2) FEDERAL EMPLOYEES.–

(A) IN GENERAL.–Except as provided in this title, employees of the Trust shall be Federal employees as defined by title 5, United States Code, and shall be subject to all rights and

obligations applicable thereto.

(B) USE OF FEDERAL EMPLOYEES.–At the request of the Trust, the employees of any Federal agency may be provided for implementation of this title. Such employees detailed to the Trust for more than 30 days shall be provided on a reimbursable basis.

(e) GOVERNMENT CORPORATION.–

(1) IN GENERAL.–The Trust shall be a Government Corporation subject to chapter 91 of title 31, United States Code (commonly referred to as the Government Corporation Control Act). Financial statements of the Trust shall be audited annually in accordance with section 9105 of title 31 of the United States Code.

(2) REPORTS.–Not later than January 15 of each year, the Trust shall submit to the Secretary and the Committees of Congress a comprehensive and detailed report of its operations, activities, and accomplishments for the prior year including information on the status of ecological, cultural, and financial resources being managed by the Trust, and benefits provided by the Preserve to local communities. The report shall also include a section that describes the Trust's goals for the current year.

(3) ANNUAL BUDGET.–

(A) IN GENERAL.–The Trust shall prepare an annual budget with the goal of achieving a financially self-sustaining operation within 15 full fiscal years after the date of acquisition of the Baca ranch under section 104(a).

(B) BUDGET REQUEST.–The Secretary shall provide necessary assistance (including detailees as necessary) to the Trust for the timely formulation and submission of the annual budget request for appropriations, as authorized under section 111(a), to support the administration, operation, and maintenance of the Preserve.

(f) TAXES.–The Trust and all properties administered by the Trust shall be exempt from all taxes and special assessments of every kind by the State of New Mexico, and its political subdivisions including the counties of Sandoval and Rio Arriba.

(g) DONATIONS.–The Trust may solicit and accept donations of funds, property, supplies, or services from individuals, foundations, corporations, and other private or public entities for the purposes of carrying out its duties. The Secretary, prior to assumption of management of the Preserve by the Trust, and the Trust thereafter, may accept donations from such entities notwithstanding that such donors may conduct business with the Department of Agriculture or any other department or agency of the United States.

(h) PROCEEDS.–

(1) IN GENERAL.–Notwithstanding sections 1341 and 3302 of title 31 of the United States Code, all monies received from donations under subsection (g) or from the management of the Preserve shall be retained and shall be available, without further appropriation, for the administration, preservation, restoration, operation and maintenance, improvement, repair, and related expenses incurred with respect to properties under its management jurisdiction.

(2) FUND.–There is hereby established in the Treasury of the United States a special interest bearing fund entitled "Valles Caldera Fund" which shall be available, without further appropriation for any purpose consistent with the purposes of this title. At the option of the Trust, or the Secretary in accordance with section 110, the Secretary of the Treasury shall invest excess monies of the Trust in such account, which shall bear

interest at rates determined by the Secretary of the Treasury taking into consideration the current average market yield on outstanding marketable obligations of the United States of comparable maturity.

(i) RESTRICTIONS ON DISPOSITION OF RECEIPTS.–Any funds received by the Trust, or the Secretary in accordance with section 109(b), from the management of the Preserve shall not be subject to partial distribution to the State under–

(1) the Act of May 23, 1908, entitled "an Act making appropriations for the Department of Agriculture for the fiscal year ending June thirtieth, nineteen hundred and nine" (35 Stat. 260, chapter 192; 16 U.S.C. 500);

(2) section 13 of the Act of March 1, 1911 (36 Stat. 963, chapter 186; 16 U.S.C. 500); or

(3) any other law.

(j) SUITS.–The Trust may sue and be sued in its own name to the same extent as the Federal Government. For purposes of such suits, the residence of the Trust shall be the State of New Mexico. The Trust shall be represented by the Attorney General in any litigation arising out of the activities of the Trust, except that the Trust may retain private attorneys to provide advice and counsel.

(k) BYLAWS.–The Trust shall adopt necessary bylaws to govern its activities.

(l) INSURANCE AND BOND.–The Trust shall require that all holders of leases from, or parties in contract with, the Trust that are authorized to occupy, use, or develop properties under the management jurisdiction of the Trust, procure proper insurance against any loss in connection with such properties, or activities authorized in such lease or contract, as is reasonable and customary.

(m) NAME AND INSIGNIA.–The Trust shall have the sole and exclusive right to use the words "Valles Caldera Trust," and any seal, emblem, or other insignia adopted by the Board of Trustees. Without express written authority of the Trust, no person may use the words "Valles Caldera Trust" as the name under which that person shall do or purport to do business, for the purpose of trade, or by way of advertisement, or in any manner that may falsely suggest any connection with the Trust.

SEC. 107. BOARD OF TRUSTEES.

(a) IN GENERAL.–The Trust shall be governed by a 9-member Board of Trustees consisting of the following:

(1) VOTING TRUSTEES.–The voting Trustees shall be–

(A) the Supervisor of the Santa Fe National Forest, United States Forest Service;

(B) the Superintendent of the Bandelier National Monument, National Park Service; and

(C) seven individuals, appointed by the President, in consultation with the congressional delegation from the State of New Mexico. The seven individuals shall have specific expertise or represent an organization or government entity as follows–

(i) one trustee shall have expertise in aspects of domesticated livestock management, production, and marketing, including range management and livestock business management;

(ii) one trustee shall have expertise in the management of game and nongame wildlife and fish populations, including hunting, fishing, and other recreational activities;

(iii) one trustee shall have expertise in the sustainable management of forest lands for commodity and non-commodity purposes;

(iv) one trustee shall be active in a nonprofit conservation organization concerned with the activities of the Forest Service;

(v) one trustee shall have expertise in financial management, budget and program analysis, and small business operations;

(vi) one trustee shall have expertise in the cultural and natural history of the region; and

(vii) one trustee shall be active in State or local government in New Mexico, with expertise in the customs of the local area.

(2) QUALIFICATIONS.–Of the trustees appointed by the President–

(A) none shall be employees of the Federal Government; and

(B) at least five shall be residents of the State of New Mexico.

(b) INITIAL APPOINTMENTS.–The President shall make the initial appointments to the Board of Trustees within 90 days after acquisition of the Baca ranch under section 104(a).

(c) TERMS.–

(1) IN GENERAL.–Appointed trustees shall each serve a term of 4 years, except that of the trustees first appointed, four shall serve for a term of 4 years, and three shall serve for a term of 2 years.

(2) VACANCIES.–Any vacancy among the appointed trustees shall be filled in the same manner in which the original appointment was made, and any trustee appointed to fill a vacancy shall serve for the remainder of that term for which his or her predecessor was appointed.

(3) LIMITATIONS.–No appointed trustee may serve more than 8 years in consecutive terms.

(d) QUORUM.–A majority of trustees shall constitute a quorum of the Board for the conduct of business.

(e) ORGANIZATION AND COMPENSATION.–

(1) IN GENERAL.–The Board shall organize itself in such a manner as it deems most appropriate to effectively carry out the activities of the Trust.

(2) COMPENSATION OF TRUSTEES.–Trustees shall serve without pay, but may be reimbursed from the funds of the Trust for the actual and necessary travel and subsistence expenses incurred by them in the performance of their duties.

(3) CHAIR.–Trustees shall select a chair from the membership of the Board.

(f) LIABILITY OF TRUSTEES.–Appointed trustees shall not be considered Federal employees by virtue of their membership on the Board, except for purposes of the Federal Tort Claims Act, the Ethics in Government Act, and the provisions of chapter 11 of title 18, United States Code.

(g) MEETINGS.–

(1) LOCATION AND TIMING OF MEETINGS.–The Board shall meet in sessions open to the public at least three times per year in New Mexico. Upon a majority vote made in open session, and a public statement of the reasons therefore, the Board may close any other meetings to the public: Provided, That any final decision of the Board to adopt or

amend the comprehensive management program under section 108(d) or to approve any activity related to the management of the land or resources of the Preserve shall be made in open public session.

(2) PUBLIC INFORMATION.–In addition to other requirements of applicable law, the Board shall establish procedures for providing appropriate public information and periodic opportunities for public comment regarding the management of the Preserve.

SEC. 108. RESOURCE MANAGEMENT.

(a) ASSUMPTION OF MANAGEMENT.–The Trust shall assume all authority provided by this title to manage the Preserve upon a determination by the Secretary, which to the maximum extent practicable shall be made within 60 days after the appointment of the Board, that–

(1) the Board is duly appointed, and able to conduct business; and

(2) provision has been made for essential management services.

(b) MANAGEMENT RESPONSIBILITIES.–Upon assumption of management of the Preserve under subsection (a), the Trust shall manage the land and resources of the Preserve and the use thereof including, but not limited to such activities as–

(1) administration of the operations of the Preserve;

(2) preservation and development of the land and resources of the Preserve;

(3) interpretation of the Preserve and its history for the public;

(4) management of public use and occupancy of the Preserve; and

(5) maintenance, rehabilitation, repair, and improvement of property within the Preserve.

(c) AUTHORITIES.–

(1) IN GENERAL.–The Trust shall develop programs and activities at the Preserve, and shall have the authority to negotiate directly and enter into such agreements, leases, contracts and other arrangements with any person, firm, association, organization, corporation or governmental entity, including without limitation, entities of Federal, State, and local governments, and consultation with Indian tribes and Pueblos, as are necessary and appropriate to carry out its authorized activities or fulfill the purposes of this title. Any such agreements may be entered into without regard to section 321 of the Act of June 30, 1932 (40 U.S.C. 303b).

(2) PROCEDURES.–The Trust shall establish procedures for entering into lease agreements and other agreements for the use and occupancy of facilities of the Preserve. The procedures shall ensure reasonable competition, and set guidelines for determining reasonable fees, terms, and conditions for such agreements.

(3) LIMITATIONS.–The Trust may not dispose of any real property in, or convey any water rights appurtenant to the Preserve. The Trust may not convey any easement, or enter into any contract, lease, or other agreement related to use and occupancy of property within the Preserve for a period greater than 10 years. Any such easement, contract, lease, or other agreement shall provide that, upon termination of the Trust, such easement, contract, lease or agreement is terminated.

(4) APPLICATION OF PROCUREMENT LAWS.–

(A) IN GENERAL.–Notwithstanding any other provision of law, Federal laws and regulations governing procurement by Federal agencies shall not apply to the Trust, with the exception of

laws and regulations related to Federal Government contracts governing health and safety requirements, wage rates, and civil rights.

(B) PROCEDURES.—The Trust, in consultation with the Administrator of Federal Procurement Policy, Office of Management and Budget, shall establish and adopt procedures applicable to the Trust's procurement of goods and services, including the award of contracts on the basis of contractor qualifications, price, commercially reasonable buying practices, and reasonable competition.

(d) MANAGEMENT PROGRAM.—Within two years after assumption of management responsibilities for the Preserve, the Trust shall, in accordance with subsection (f), develop a comprehensive program for the management of lands, resources, and facilities within the Preserve to carry out the purposes under section 105(b). To the extent consistent with such purposes, such program shall provide for—

(1) operation of the Preserve as a working ranch, consistent with paragraphs (2) through (4);

(2) the protection and preservation of the scientific, scenic, geologic, watershed, fish, wildlife, historic, cultural and recreational values of the Preserve;

(3) multiple use and sustained yield of renewable resources within the Preserve;

(4) public use of and access to the Preserve for recreation;

(5) renewable resource utilization and management alternatives that, to the extent practicable—

(A) benefit local communities and small businesses;

(B) enhance coordination of management objectives with those on surrounding National Forest System land; and

(C) provide cost savings to the Trust through the exchange of services, including but not limited to labor and maintenance of facilities, for resources or services provided by the Trust; and

(6) optimizing the generation of income based on existing market conditions, to the extent that it does not unreasonably diminish the long-term scenic and natural values of the area, or the multiple use and sustained yield capability of the land.

(e) PUBLIC USE AND RECREATION.—

(1) IN GENERAL.—The Trust shall give thorough consideration to the provision of appropriate opportunities for public use and recreation that are consistent with the other purposes under section 105(b). The Trust is expressly authorized to construct and upgrade roads and bridges, and provide other facilities for activities including, but not limited to camping and picnicking, hiking, and cross country skiing. Roads, trails, bridges, and recreational facilities constructed within the Preserve shall meet public safety standards applicable to units of the National Forest System and the State of New Mexico.

(2) FEES.—Notwithstanding any other provision of law, the Trust is authorized to assess reasonable fees for admission to, and the use and occupancy of, the Preserve: Provided, That admission fees and any fees assessed for recreational activities shall be implemented only after public notice and a period of not less than 60 days for public comment.

(3) PUBLIC ACCESS.—Upon the acquisition of the Baca ranch under section 104(a), and after an interim planning period of no more than two years, the public shall have reasonable access to the Preserve for recreation purposes. The Secretary, prior to assumption of management of the Preserve by the Trust, and the Trust thereafter, may reasonably limit the number and types of recreational admissions to the Preserve, or any part thereof, based on

the capability of the land, resources, and facilities. The use of reservation or lottery systems is expressly authorized to implement this paragraph.

(f) APPLICABLE LAWS.–

(1) IN GENERAL.–The Trust, and the Secretary in accordance with section 109(b), shall administer the Preserve in conformity with this title and all laws pertaining to the National Forest System, except the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended (16 U.S.C. 1600 et seq.).

(2) ENVIRONMENTAL LAWS.–The Trust shall be deemed a Federal agency for the purposes of compliance with Federal environmental laws.

(3) CRIMINAL LAWS.–All criminal laws relating to Federal property shall apply to the same extent as on adjacent units of the National Forest System.

(4) REPORTS ON APPLICABLE RULES AND REGULATIONS.–The Trust may submit to the Secretary and the Committees of Congress a compilation of applicable rules and regulations which in the view of the Trust are inappropriate, incompatible with this title, or unduly burdensome.

(5) CONSULTATION WITH TRIBES AND PUEBLOS.–The Trust is authorized and directed to cooperate and consult with Indian tribes and Pueblos on management policies and practices for the Preserve which may affect them. The Trust is authorized to allow the use of lands within the Preserve for religious and cultural uses by Native Americans and, in so doing, may set aside places and times of exclusive use consistent with the American Indian Religious Freedom Act (42 U.S.C. 1996 (note)) and other applicable statutes.

(6) NO ADMINISTRATIVE APPEAL.–The administrative appeals regulations of the Secretary shall not apply to activities of the Trust and decisions of the Board.

(g) LAW ENFORCEMENT AND FIRE MANAGEMENT.–The Secretary shall provide law enforcement services under a cooperative agreement with the Trust to the extent generally authorized in other units of the National Forest System. The Trust shall be deemed a Federal agency for purposes of the law enforcement authorities of the Secretary (within the meaning of section 15008 of the National Forest System Drug Control Act of 1986 (16 U.S.C. 559g)). At the request of the Trust, the Secretary may provide fire presuppression, fire suppression, and rehabilitation services: Provided, That the Trust shall reimburse the Secretary for salaries and expenses of fire management personnel, commensurate with services provided.

SEC. 109. AUTHORITIES OF THE SECRETARY.

(a) IN GENERAL.–Notwithstanding the assumption of management of the Preserve by the Trust, the Secretary is authorized to–

(1) issue any rights-of-way, as defined in the Federal Land Policy and Management Act of 1976, of over 10 years duration, in cooperation with the Trust, including, but not limited to, road and utility rights-of-way, and communication sites;

(2) issue orders under and enforce prohibitions generally applicable on other units of the National Forest System, in cooperation with the Trust;

(3) exercise the authorities of the Secretary under the Wild and Scenic Rivers Act (16 U.S.C. 1278, et seq.) and the Federal Power Act (16 U.S.C. 797, et seq.), in cooperation with the Trust;

(4) acquire the mineral rights referred to in section 104(e);

(5) provide law enforcement and fire management services under section 108(g);

(6) at the request of the Trust, exchange land or interests in land within the Preserve under laws generally applicable to other units of the National Forest System, or otherwise dispose of land or interests in land within the Preserve under Public Law 97–465 (16 U.S.C. 521c through 521i);

(7) in consultation with the Trust, refer civil and criminal cases pertaining to the Preserve to the Department of Justice for prosecution;

(8) retain title to and control over fossils and archaeological artifacts found within the Preserve;

(9) at the request of the Trust, construct and operate a visitors' center in or near the Preserve, subject to the availability of appropriated funds;

(10) conduct the assessment of the Trust's performance, and, if the Secretary determines it necessary, recommend to Congress the termination of the Trust, under section 110(b)(2); and

(11) conduct such other activities for which express authorization is provided to the Secretary by this title.

(b) INTERIM MANAGEMENT.–

(1) IN GENERAL.–The Secretary shall manage the Preserve in accordance with this title during the interim period from the date of acquisition of the Baca ranch under section 104(a) to the date of assumption of management of the Preserve by the Trust under section 108. The Secretary may enter into any agreement, lease, contract, or other arrangement on the same basis as the Trust under section 108(c)(1): Provided, That any agreement, lease, contract, or other arrangement entered into by the Secretary shall not exceed two years in duration unless expressly extended by the Trust upon its assumption of management of the Preserve.

(2) USE OF THE FUND.–All monies received by the Secretary from the management of the Preserve during the interim period under paragraph (1) shall be deposited into the "Valles Caldera Fund" established under section 106(h)(2), and such monies in the fund shall be available to the Secretary, without further appropriation, for the purpose of managing the Preserve in accordance with the responsibilities and authorities provided to the Trust under section 108.

(c) SECRETARIAL AUTHORITY.–The Secretary retains the authority to suspend any decision of the Board with respect to the management of the Preserve if he finds that the decision is clearly inconsistent with this title. Such authority shall only be exercised personally by the Secretary, and may not be delegated. Any exercise of this authority shall be in writing to the Board, and notification of the decision shall be given to the Committees of Congress. Any suspended decision shall be referred back to the Board for reconsideration.

(d) ACCESS.–The Secretary shall at all times have access to the Preserve for administrative purposes.

SEC. 110. TERMINATION OF THE TRUST.

(a) IN GENERAL.–The Valles Caldera Trust shall terminate at the end of the twentieth full fiscal year following acquisition of the Baca ranch under section 104(a).

(b) RECOMMENDATIONS.–

(1) BOARD.–

(A) If after the fourteenth full fiscal years from the date of acquisition of the Baca ranch under section 104(a), the Board

believes the Trust has met the goals and objectives of the comprehensive management program under section 108(d), but has not become financially self-sustaining, the Board may submit to the Committees of Congress, a recommendation for authorization of appropriations beyond that provided under this title.

(B) During the eighteenth full fiscal year from the date of acquisition of the Baca ranch under section 104(a), the Board shall submit to the Secretary its recommendation that the Trust be either extended or terminated including the reasons for such recommendation.

(2) SECRETARY.–Within 120 days after receipt of the recommendation of the Board under paragraph (1)(B), the Secretary shall submit to the Committees of Congress the Board's recommendation on extension or termination along with the recommendation of the Secretary with respect to the same and stating the reasons for such recommendation.

(c) EFFECT OF TERMINATION.–In the event of termination of the Trust, the Secretary shall assume all management and administrative functions over the Preserve, and it shall thereafter be managed as a part of the Santa Fe National Forest, subject to all laws applicable to the National Forest System.

(d) ASSETS.–In the event of termination of the Trust, all assets of the Trust shall be used to satisfy any outstanding liabilities, and any funds remaining shall be transferred to the Secretary for use, without further appropriation, for the management of the Preserve.

(e) VALLES CALDERA FUND.–In the event of termination, the Secretary shall assume the powers of the Trust over funds under section 106(h), and the Valles Caldera Fund shall not terminate. Any balances remaining in the fund shall be available to the Secretary, without further appropriation, for any purpose consistent with the purposes of this title.

SEC. 111. LIMITATIONS ON FUNDING.

(a) AUTHORIZATION OF APPROPRIATIONS.–There is hereby authorized to be appropriated to the Secretary and the Trust such funds as are necessary for them to carry out the purposes of this title for each of the 15 full fiscal years after the date of acquisition of the Baca ranch under section 104(a).

(b) SCHEDULE OF APPROPRIATIONS.–Within two years after the first meeting of the Board, the Trust shall submit to Congress a plan which includes a schedule of annual decreasing appropriated funds that will achieve, at a minimum, the financially self-sustained operation of the Trust within 15 full fiscal years after the date of acquisition of the Baca ranch under section 104(a).

SEC. 112. GENERAL ACCOUNTING OFFICE STUDY.

(a) INITIAL STUDY.–Three years after the assumption of management by the Trust, the General Accounting Office shall conduct an interim study of the activities of the Trust and shall report the results of the study to the Committees of Congress. The study shall include, but shall not be limited to, details of programs and activities operated by the Trust and whether it met its obligations under this title.

(b) SECOND STUDY.–Seven years after the assumption of management by the Trust, the General Accounting Office shall conduct a study of the activities of the Trust and shall report the results of the study to the Committees of Congress. The study shall provide an assessment of any failure to meet obligations that may be identified under subsection (a), and further evaluation on the ability of the Trust to meet its obligations under this title.

APPENDIX B:
2000–15
PLAN FOR DECREASING APPROPRIATIONS

I. Introduction

The United States purchased the former Baca Ranch with the signing of Public Law 106-248, the Valles Caldera Preservation Act, on July 25, 2000 (the act). This action created the Valles Caldera National Preserve (the preserve) as a public land and the Valles Caldera Trust (the trust) as a wholly owned government corporation to manage the preserve. Since the purchase, much has been accomplished in both understanding the preserve and structuring the operations of the trust to meet its mandate of

- Protecting and preserving for future generations the scientific, scenic, historic, and natural values of the Baca Ranch, including rivers and ecosystems and archaeological, geological, and cultural resources;
- Providing opportunities for public recreation;
- Establishing a demonstration area for an experimental management regime adapted to this unique property that incorporates elements of public and private administration in order to promote long-term financial sustainability consistent with the other purposes enumerated in the act; and
- Providing for sustained yield management of the Baca Ranch for timber production and domesticated livestock grazing insofar as is consistent with the other stated purposes.

II.The Valles Caldera National Preserve

A. Description

About 1.6 million years ago, a volcanic eruption rocked the Jemez Mountains in northern New Mexico. Less than 400,000 years later another eruption spewed out 200 to 300 times more ash and rock than Mount St. Helens. These successive volcanic explosions created a 12- to 15-mile-wide crater with green valleys, quiet streams, and majestic mountains rimmed by peaks. This ancient volcano also provides panoramic views and a home to a variety of wildlife.

For over 40 years, the American people tried to acquire the privately owned Baca Ranch, a working ranch with cattle grazing, hunting, limited logging, and fishing. On July 25, 2000, attempts to purchase the Baca Ranch were successful and approximately 89,000 acres of this dormant volcanic field became the Valles Caldera National Preserve, a unit of the National Forest System.

B. Legislative Requirements

In addition to various requirements to protect the preserve and allow for various uses, the act mandates that the trust will promote long-term financial sustainability consistent with the other purposes.

The act defines financial sustainability as

> Management and operating expenditures equal to or less than proceeds derived from fees and other receipts for resource use and development and interest on invested funds. Management and operating expenditures shall include trustee expenses, salaries and benefits of staff, administrative and

> operating expenses, improvements to and maintenance of lands and facilities of the preserve, and other similar expenses. Funds appropriated to the trust by Congress, either directly or through the secretary, for the purposes of this title shall not be considered.

In addition, the act states that

> The trust shall prepare an annual budget with the goal of achieving a financially self-sustaining operation within 15 full fiscal years after the date of acquisition of the Baca Ranch.

And

> Within two years after the first meeting of the board, the trust shall submit to Congress a plan that includes a schedule of annual decreasing appropriated funds that will achieve, at a minimum, the financially self-sustained operation of the trust within 15 full fiscal years after the date of acquisition of the Baca Ranch.

The trust effectively began operations with the seating of the first board of trustees on January 10, 2001, triggering the requirement for this financial plan.

III. Decreasing Appropriations and Financial Self-Sufficiency

The trust is fully committed to the goal of financial self-sufficiency. Attaining this goal requires a careful evaluation of the requirements placed on the trust as well as the opportunities afforded it through the unique trust organization created by Congress. Establishing a balance between the costs associated with being a federal entity, the fee tolerance of the public in supporting public lands, and the opportunity provided through being able to operate in a near-commercial mode creates a challenge that the trust gladly accepts.

Streamlining both required federal overhead–those costs established through compliance with federal laws and statutes–and trust administrative costs will be a key component to successfully reaching the goal. It is clear at the outset that these costs must be controlled, and efforts are under way to create a compact staff, as free of redundancy and bureaucratic process as possible, and to mitigate compliance costs by developing innovative approaches to federal compliance laws such as the National Environmental Policy Act.

As programs are developed, a cost-benefit approach to program design will facilitate the trust's strong commitment to financial prudence. A mixture of high-return and low-return programs will be developed, recognizing the public's interest in making access to public lands easily available and the trust's responsibility and obligation to the community. The trust has explicitly committed to a high level of social equity in the operation of its public programs. This commitment means affording to all members of the public from all social and economic strata a reasonable opportunity to participate in preserve programs. The trust is already establishing an array of interim programs to experiment with program and fee mixes. The lessons learned from these experiments will help the trust continually adapt the overall program mix as the organization grows.

Generating funds over the long term to allow decreasing appropriations depends on a combination of receipt-generating programs and external fund-raising. Both will take significant planning to successfully attain the goal of financial self-sufficiency,

and the board of trustees has seated a development committee to begin this planning. The trust will require substantial appropriations above the cost of operation early on in its first 15 years to support infrastructure development necessary for creating receipt-generating programs. Increasing early appropriations will facilitate infrastructure development, allowing implementation of programs and resulting in receipts necessary to decrease future appropriations. The timing of appropriations at the beginning of the trust's life will significantly impact its ability to meet the goal of financial self-sufficiency at the end of the 15-year period.

IV. Development Strategy for the Preserve

In creating a strategy to attain financial self-sufficiency, the trust must balance the various requirements and goals outlined in legislation with its ability to generate funds externally. A 15-year phased approach that satisfies this balance is being developed.

Phase 1: Institution Building—Approximately 2001–5

The first phase of reaching the goal of financial self-sufficiency is institution building. The trust, as a wholly owned government corporation, is an experiment to examine land management techniques in a new light, trying new management regimes and developing and capitalizing on revenue-generating activities. To accomplish this task, the trust itself must be organized to accommodate these new methods. In this first phase, the trust is developing the appropriate staff and tools to manage the preserve.

During this period the staff will be hired and organized, management control will be transferred to the trust from the interim management of the Forest Service, and a financial system controlled by the trust will be established. Mechanisms to support flexible and effective science-based adaptive management will be developed along with real-time accounting controls instituted to ensure prudent financial management consistent with the trust's land stewardship goals.

Appendix A on page 163 summarizes trust accomplishments through fiscal year 2002. Interim projects have begun to allow public access and generate revenues. Revenues in fiscal year 2002 covered 16 percent of the actual expense of operating the trust. At this early stage, the trust is already moving toward its goal of financial self-sufficiency. A fund-raising strategy and mechanism, perhaps including formation of a 501(c)3 organization, will be created and implemented during phase 1. Business plans for infrastructure development and long-term public programs will be produced with input from the public and assistance from subject matter experts.

Phase 2: Infrastructure Development—Approximately 2005–10

As trust staff, processes, and plans are put in place, the infrastructure needed to support effective land stewardship, public access, and receipts generation will be developed. *The Framework for Comprehensive Management* created by the board of trustees provides strategic guidance to the staff on developing specific activities on the preserve consistent with the long-range vision of the trust. Implementing these specific activities will depend on receiving increased appropriations or other sources of funds beyond those needed for trust operations.

Major infrastructure development projects envisioned in phase 2 of the trust include developing

- An integrated road and trails system across the preserve to accommodate

various recreation and administrative needs;
- A visitor facility as a delivery vehicle for interpretive and educational messages to the public;
- An administrative/science facility to provide housing, offices, labs, educational facilities, and other administrative functions necessary for the operation and maintenance of the preserve; and
- An integrated interpretive plan for developing New Mexico State Highway 4, which runs through the preserve.

These and other potential infrastructure development efforts are necessary to fulfill the basic goals and mandates of the trust. In addition, permanent recreation and public access programs will be developed to replace the experimental interim programs created to allow initial public access to the preserve.

Phase 3: Program Refinement–Approximately 2010–15
Cultivating alternative sources of funds and streamlining preserve programs to permit decreasing appropriations will be the focus of phase 3 of the trust. This critical phase will concentrate on implementing business plans developed in the previous phases. Successes of the early phases will provide a springboard for phase 3. Streamlining business operations and developing infrastructure to support fund-generating programs will be vital to successfully reaching financial self-sufficiency.

The act provides for the trust to retain the funds it derives from activities and explicitly authorizes tax deductibility of donations to the trust and the use of lotteries for the trust's activities. This provides a near-commercial opportunity for generating receipts and meeting trust goals.

Sources of funds available for the trust to meet its goal of financial self-sufficiency include generating receipts from
- Fees for public access or activities,
- Federal and other public grants,
- Sustainable utilization of natural resources,
- Private fund-raising and partnerships,
- Retail and merchandising activities,
- Nonprogrammed special events, and
- Hospitality activities.

Each of these methods, and others not yet envisioned, for generating receipts to support trust operations must be weighed against both the needs of the trust in meeting its goals and the ability of the public to engage in activities at a reasonable cost.

V. Tracking Performance
Trust finances will be analyzed each year to create a variance analysis against projected budgets and goals. Significant changes in projected amounts will be used as a basis for reevaluating projections and adjusting both future appropriations requests and operational budgeting procedures.

An annual report to Congress will be prepared highlighting the accomplishments of the preceding year and outlining the goals for the year to come. These summary reports will be compared with the trust's *Framework for Comprehensive Management* and legislative goals to ensure programs remain consistent with the long-term vision of the board and the intent of Congress.

APPENDIX A
Fiscal Years 2001–2 Consolidated Reports
Executive Summary (Excerpts)

The United States purchased the former Baca Ranch with the signing of Public Law 106-248, the Valles Caldera Preservation Act, on July 25, 2000 (the act). This action created the Valles Caldera National Preserve (the preserve) as a public land and the Valles Caldera Trust (the trust) as a wholly owned government corporation to manage the preserve. Since the purchase, much has been accomplished in both understanding the preserve and structuring the operations of the trust to meet its legislative mandates.

Major Accomplishments to Date:

- The board of trustees developed a set of management principles to provide guiding values for decision making within the trust.
- The board of trustees is developing a framework for the development of the Comprehensive Management Program as required by the act.
- The board of trustees conducted seven listening sessions and 15 public board meetings through 2002 to understand public opinion and desires for developing public activities on the preserve.
- The board of trustees developed the initial staffing to provide daily operations for the preserve.
- The trust established permanent offices in Los Alamos, NM, to host day-to-day operations of the preserve.
- The trust fulfilled the required conditions to assume management authority for the preserve from the interim management of the Forest Service.
- The trust has developed final NEPA procedures, a personnel policy, and a procurement policy to guide trust operations. The trust has developed a draft tribal access and use policy for tribal access within the preserve for religious and cultural uses consistent with the American Indian Religious Freedom Act and other applicable statutes.
- The trust initiated a transition of trust accounts from the Forest Service into an accounting system that the trust will fully control.
- The trust prepared a financial statement for FY 2002 that reconciles with the official Forest Service accounting records in preparation for the transition to its own accounts in 2003.
- The trust developed a draft plan for decreasing federal appropriated funds over the first 15 years of the trust.
- The trust began upgrading 4.5 miles of main preserve roads and replacement of five key bridges to meet administrative, maintenance, emergency, recreation, ranching, and other needs.
- The trust initiated replacing the water collection system at the preserve in order to provide potable water for recreation and administrative activities.
- The trust initiated an aggressive research, inventory, and monitoring program to better understand the preserve.
- The trust completed an environmental assessment resulting in a finding of no significant impact and initiated an immediate drought relief livestock grazing program for a five-week period ending September 30, 2002.
- The trust partnered with Jemez Pueblo to thin trees and reduce fuel loads around the Highway 4 corridor and the preserve headquarters area to protect the headquarters buildings and old-growth forest from catastrophic fire.
- The trust provided the first public access to the preserve for several thousand

visitors through a series of bus tours.
- The trust conducted its first elk hunt, which was described as a great success by participants, grossing over $400,000 in access fees through a lottery-auction combination.
- The trust hired a contractor to provide guided hiking on the preserve during 2002. This allowed public access to the preserve prior to the development of infrastructure necessary for general public access.
- The trust engaged a contractor to establish a winter sports program.

APPENDIX C:
VALLES CALDERA TRUST BOARD AND STAFF

BOARD OF TRUSTEES: Past and Present

Bob Armstrong (Austin, Texas), 2001–3
Leonard Atencio (Santa Fe National Forest), 2001–3
Steve Bone (Bandelier National Monument), 2002–3
William deBuys (Santa Fe, New Mexico), 2001–5
Karen Durkovich (Santa Fe, New Mexico), 2001–3
Tracy Hephner (Wagon Mound, New Mexico), 2003–present
Larry Icerman (Santa Fe, New Mexico), 2003–present
Barbara Johnson (Santa Fe, New Mexico), 2003–present
Darlene Koontz (Bandelier National Monument), 2003–present
Palemon Martinez (Valdez, New Mexico), 2001–5
Stephen Stoddard (Los Alamos, New Mexico), 2001–3
Thomas Swetnam (Tucson, Arizona), 2001–present
Dennis Vasquez (Bandelier National Monument), 2001–2
David R. Yepa (Jemez Pueblo, New Mexico), 2001–5
Gilbert Zepeda (Santa Fe National Forest), 2003–present

VALLES CALDERA TRUST STAFF: Past and Present

Kimber Barber (Recreation Specialist), 2003–present
Steve Chomko (Cultural Resources Coordinator), 2003–present
Rob Dixon (Information Technology Manager), 2003–present
Rick Dustin (Outdoor Recreation Coordinator/Landscape Architect), 2003–present
Richard Engstrom (Business Manager), 2002–5
Ida Formea (Office Manager), 2002–3
Julie Grey (Communications Manager), 2003–present
Dana Kline (Office Manager), 2003–4
Karen Lee (Geospacial Information Systems Coordinator), 2002–present
Rourke McDermott (Landscape Architect), 2003–present
Randy McKee (Ranch Foreman), 2003–present
Chris Morris (Controller), 2002–present
Dusty Olson (Law Enforcement–Santa Fe National Forest), 2001–present
Martin Pacheco (Recreation Specialist), 2003–present
Robert Parmenter (Preserve Scientist), 2003–present
David Phillips (Detailed–Los Alamos National Laboratory), 2002–present
Ray B. Powell (Executive Director), 2004-present
Marie Rodriguez (Natural Resources Coordinator), 2003–present
Dennis Trujillo (Preserve Manager), 2002–present
Gary Ziehe (Executive Director), 2001–4

APPENDIX D: SUMMARY OF THE PUBLIC MEETINGS HELD REGARDING THIS DOCUMENT

The Valles Caldera Trust convened five public meetings in April 2004 as part of an effort to introduce the *Draft Framework and Strategic Guidance for Comprehensive Management* and to gather public input for the final document. Facilitated meetings were held in the Pueblo of Jemez, Los Alamos, Española, Santa Fe, and Albuquerque, New Mexico. In total, about 90 members of the public participated in the meetings.

This summary of 12 themes reflects the comments that were most often made by participants. Each recommendation below was made in some form at more than one of the meetings; some were made at all of the meetings. A summary table follows at the end of this report. See also the individual notes from each of the sessions posted on the trust's Web site at www.vallescaldera.gov.

Public Comments–12 Themes

1. Overall, the vision, values, and approach articulated in the draft are good. Strong public support exists for the "slowly but surely" development approach.
2. There is a need for more specific, substantive information about the Valles Caldera Trust's (VCT) objectives, commitments, priorities, and measurable outcomes. A next step (either written as "chapter 11," as an addendum, or as immediately subsequent work) should be more quantified planning. First, define "ecological health" and acceptable levels of change, then specific program goals.
3. Clarify the VCT's definition of financial self-sufficiency. This should not include the additional overhead that is required to run a federal agency.
4. Ecological health should be the basis on which other decisions are made.
5. Emphasize the working ranch as a cultural and educational value. Develop it in ways that are coexistent with recreation and other uses. This development can be economical and ecological.
6. Maintain controlled access and low-density programs (avoid becoming another Yosemite). It is okay to offer programs at different fee levels if some higher-revenue programs can balance and allow for other, low-cost programs.
7. Consider zoning of activities, both geographically and temporally.
8. Use volunteers more and better–as part of research, monitoring, education, and program services.

9. Improve public outreach (communication and collaboration). Use tools beyond the Web site to reach people.
10. Establish a nonprofit "friends group" for both fund-raising and volunteer recruitment.
11. Concern was expressed about the perception of exclusiveness. Find ways for more free/low-cost access and publicize existing access opportunities more effectively.
12. Prioritize educational programs.

PUBLIC RECOMMENDATIONS	JEMEZ	LOS ALAMOS	ESPAÑOLA	SANTA FE	ABQ
Vision, values good	•	•	•	•	•
Needs more specific outcomes and commitments	•	•	•	•	•
Clarify "self-sufficiency"	•	•	•	•	•
Ecological health as basis		•		•	•
Working ranch as cultural, educational value	•		•	•	•
Controlled access and low density		•	•	•	•
Zoning of activities	•	•		•	•
Use volunteers more		•	•		•
Improve public communication and collaboration	•	•	•	•	•
Establish nonprofit "friends group"	•	•		•	•
Concern about "exclusiveness"	•	•			
Prioritize educational programs	•		•	•	

APPENDIX E:
THE VALLES CALDERA TRUST *DRAFT FRAMEWORK AND STRATEGIC GUIDANCE FOR COMPREHENSIVE MANAGEMENT* WRITTEN PUBLIC FEEDBACK AND RESPONSES FROM THE TRUST

WRITTEN PUBLIC FEEDBACK	VALLES CALDERA TRUST RESPONSE
Public use for recreation:	
Endorses a limited, nonpaved road network on the model of Denali National Park and Reserve for shuttles, administrative use, emergency use, and special permit users. Paved roads and motorized private access are unnecessary to meet VCNP needs and inconsistent with goal of "quality over quantity." (Pajarito Group, Sierra Club, Mat Johansen)	A comprehensive transportation plan will be developed that will consider various models for transportation that have been developed in national parks. The first step of the planning process is a road inventory, being conducted the summers of 2004-5.
Commit soon to establishing a visitor center and administrative center on the periphery of the VCNP to provide revenue generation and minimize impacts to the interior. Endorses a reasonably broad range of services and revenue generation activities at the periphery, including an interpretive center, conference/meeting facilities, food services, and visitors shop. A hotel is opposed due to inherent visual, noise, and light impacts. Hotel services are best located at nearby communities. (Pajarito Group, MJ)	The trust is entering the early planning stages to develop new facilities. This effort will not be undertaken without ample opportunity for the public to provide feedback.
Requests a schedule for establishing general access to the public for non-motorized activities consistent with authorizing legislation and to meet public expectations. (Pajarito Group, MJ)	The interim programs have been developed and implemented that provide for public access are consistent with Section 108(e)(3) of the Valles Caldera National Preservation Act of 2000.
How can hikers be oriented so they can do unguided hikes? (Pajarito Group, Sierra Club, Carole Jacobson)	This issue is not addressed in this document but will be addressed by future long-term, site-specific planning efforts.

PUBLIC WRITTEN FEEDBACK	VALLES CALDERA TRUST RESPONSE
What kind of winter programs should be developed? (Pajarito Group, CJ)	This issue will be addressed in future long-term, site-specific plans to be developed by the trust.
Provide educational opportunities (with volunteer help) for children and adults, including clinics on low-impact backcountry use (leave no trace), packing clinics, positive interactions of different user groups on backcountry trails, interpretive tours with emphasis on historic aspects, ranching techniques, etc. (S. Shurter)	We recognize this as a value expressed in chapter 9 of the *Framework and Strategic Guidance for Comprehensive Management.* Opportunities to provide outdoor education including ethics abound. Such education should be part of a larger education effort and would be part of longer-term planning to be developed by the trust.
With the help of volunteers, provide an infrastructure that would help minimize impact and provide opportunities that would minimize impact especially for overnight use; provide water access, proper preparation and maintenance of trails that are susceptible to damage such as wet areas or areas prone to erosion. (S. Shurter)	This is addressed in chapter 8 of the *Framework and Strategic Guidance for Comprehensive Management.* Overnight use of the preserve will be considered by the future long-term, site specific planning. The use of volunteers will continue to be developed over time to assist with a variety of activities.
Consider keeping trails out of viewsheds or allow hiking at night to reduce visibility. (Pajarito Group, CJ)	The trust does not envision the widespread development of a trail network but rather the use of existing roads. From most vantage points, hikers are not visible to others on the preserve.
Site campgrounds out of viewsheds and so that campers carry their own water or are near existing water. (Pajarito Group, CJ)	The decision to develop campgrounds will be considered in future long-term, site specific planning and the public will have ample opportunities to provide feedback on it.
Mitigate interaction between groups of users –bikers, hikers, equestrians. (Pajarito Group, CJ)	The *Framework and Strategic Guidance for Comprehensive Management* details in chapter 9 how the use of nonmotorized trails will be integrated, separated, or cooperatively managed. This issue will be taken up in future long-term, site-specific planning.
Dogs should not be excluded. They are currently excluded from national parks and monuments. Dogs add an element of safety. Guns for shooting animals, four-wheelers, chain saws, and horses are more disruptive, dangerous and	Only assistance dogs are allowed on the preserve. The trust believes that dogs and owners who do not leash their dogs can create the potential for damage to wildlife. Other public lands nearby accommodate dogs.

PUBLIC WRITTEN FEEDBACK	VALLES CALDERA TRUST RESPONSE
environmentally damaging. Are hunting dogs allowed but no pets? (Carol Pava)	
Allow for natural selection for intelligence by allowing nonmotorized access with no hand-holding throughout the preserve. (Pajarito Group, CJ)	The decision to offer unlimited access will be considered in the future long-term, site-specific planning.
Keep the preserve open to hikers and make campsites available for backpackers. It should be open to day and overnight hiking trips led by group leaders. (Celeste Nossiter, NM Mountain Club)	Overnight backpacking will be considered in the future long-term, site-specific planning.
p. 106—"Public uses" may not be synonymous with "visitor activities." The ranching program as currently conceived serves a significant public constituency. It could ultimately serve visitors (as sort of summer camp for youths, cultivating the community and family values espoused by the ranching community, and imparting many skills). Accordingly, "working ranch" might well be discussed in this chapter on goals and relevant questions that the trust should ask itself. (Valles Caldera Coalition, p. 9)	We agree and will make text changes in the final version of the *Framework and Strategic Guidance for Comprehensive Management* to reflect this concept. An interpretive approach is currently under development that will help the trust define the visitor experience on the preserve. A comprehensive grazing plan will be undertaken as well, and the two plans can be linked to incorporate this suggested approach.
p. 111—This map does not illustrate all five trails that were available in 2003. (VCC)	Four trails were available throughout 2003. The Coyote Call Trail will be added to the map.
Protect and Preserve:	
p. 85—These ecosystem goals could be included in chapter 10 as possible measures of cumulative effects: "An ecological system with a high level of integrity would have all of its native components and a minimal number of exotics present, and the keystone processes native to the ecosystem would be functioning properly.... "Increase the resilience. Ensure a high level of watershed stability, conserving soils and attaining proper functioning of its streams and watercourses." (VCC), p. 8	This document is not intended to define the measures of cumulative effect. A separate cumulative effects monitoring plan is being developed through a collaborative effort to develop such measures. The first Cumulative Effects Workshop sponsored by the trust was held in July 2004 to begin this work. The group defined eight different categories for monitoring cumulative effects: socioeconomic measures, climate/meteorology/air quality, aquatic ecosystems, grassland/rangeland/riparian systems, elk population management/forest ecosystem

PUBLIC WRITTEN FEEDBACK	VALLES CALDERA TRUST RESPONSE
	management, biodiversity, and photo point surveys.
P. 130–Suggested addition to text– The goal of monitoring and cumulative effects analysis … is to gather info [and] to interpret, and to formulate increasingly more precise descriptions (hypotheses) to test our understanding of the system we're observing. (VCC, p. 9)	We have edited the text to reflect this suggestion.
Re cumulative effects, note that contemporary "problems" (and assets) on the preserve are actually the cumulative effects of earlier activities. Efforts to identify cause and effect in retrospect may help managers today to anticipate impacts on their decisions and their actions. (VCC, p. 9)	We believe that science-based adaptive management will provide us with practical, affordable methods with which to make management decisions. We use retrospective studies in combination with current monitoring and other scientific approaches.
p. 133–Add to the list of possible measures: condition and trend of key areas (for the respective species). (VCC)	The condition and trend of numerous areas are being monitored at present and will be in the future.
p. 102–In the discussion of "landscape stewardship," change "development of visitor activities" to "development of landscape-stewardship activities." (VCC)	We will incorporate this change.
Executive summary on page 9 should include a commitment to protect and preserve. (VCC)	A full discussion regarding the trust's commitment to preserving and protecting the preserve is found chapter 4 of the *Framework and Strategic Guidance for Comprehensive Management.* This concept will be incorporated with a bullet into the executive summary as suggested.
Allow members of the public to participate in research and monitoring projects, ranch activities under the guidance of "experts" in order to provide a learning experience, a sense of ownership and accountability among the public, diminish the lingering notion that the preserve is accessible for a few chosen ones, and increase the willingness of public to support similar projects elsewhere in the country. This should be an opportunity for public	More comprehensive planning for the preserve, including planning for interpretation, a comprehensive grazing plan, the cumulative effects monitoring program and other plans will more fully incorporate opportunities for the public to participate and experience a richer learning experience while providing a service to the preserve. In some areas this has already begun but admittedly is but an initial phase.

PUBLIC WRITTEN FEEDBACK	VALLES CALDERA TRUST RESPONSE
involvement and participation and part of the comprehensive and adaptive management process. (Sabine Shurter)	
Do the activities meet the science-based management objectives of bringing forest health back to pre-European settlement standards? Return at least one watershed to the pre-European state. Select different areas for different levels of impact, e.g., Toledo as pre-European, San Antonio with more access, etc. (Pajarito Group, CJ)	The trust's overarching goal is ecosystem restoration, and it has not stated an objective of restoring the forest condition back to pre-European settlement standards. Rather, beginning in chapter 8, the trust states it will pursue objectives to create a state of dynamism, displaying qualities of resilience, and ecological integrity and to ensure a high level of watershed stability throughout the preserve.
Has a Research, Inventory and Monitoring (RIM) StAR matrix been developed to show all the disciplines and where they intersect in order to prove the cumulative effects of the activities are consistent with the goal? (Pajarito Group, CJ)	Not at this time (fall 2004). The initial Cumulative Effects Workshop in July 2004 created a budget and schedules to fully develop a cumulative effects monitoring program and matrix.
We support RIM/StAR programs and encourage their expansion by continuing to work with LANL and other scientific/educational entities and encourage volunteers to help with activities in order to ensure public passion for the VCNP. (Pajarito Group, CJ)	The trust will continue to encourage collaboration with various partners.
We would like this plan to reflect Sierra Club environmental and recreational values: restoration of water quality, accessibility for hiking; protection of watershed and soundscapes; restricted motor vehicle use; species protection and restoration; protection of riparian areas along most of their reaches from ungulates. (Pajarito Group, CJ)	The *Draft Framework and Strategic Guidance for Comprehensive Management* shares similar values in its philosophy but may be different in its ultimate execution on the ground. The public will have ample opportunities to provide feedback on all substantial activities on the preserve.
Re streamside communities (p. 20)—it's hard to believe stream banks were always as denuded as now. Early photos show no willows because livestock and possibly elk got there first. Even with fencing, restoring woody riparian vegetation should have very high priority. Also, wolves are what elk need. (Peterson)	There is conflicting evidence on the presence of woody riparian vegetation, and the issue bears more research. See chapter 8 of the *Framework and Strategic Guidance for Comprehensive Management* under "Streams and Fisheries" for the trust's approach to this issue. The U.S. Fish and Wildlife Service is responsible for any reintroduction (see chapter 8,

PUBLIC WRITTEN FEEDBACK	VALLES CALDERA TRUST RESPONSE
	the section titled "Wildlife," for our discussion on this topic). The idea of reintroduction of the wolf is not currently under consideration by the trust.
With beaver in mind, riparian restoration should include transplanting aspen. Encouraging oak for the sake of bear and deer should have high priority. Use planned rotation of burning to control overstory pines. (Peterson)	A program to restore the beaver to the preserve may be considered. Re the use of fire, the trust is developing a forest health plan that will address the use of fire as a management tool.
Where "adaptive management" occurs, spell out "science-based adaptive management" to invoke the trust's commitment to base decisions on scientific approach. (VCC)	Chapter 5 of the *Framework and Strategic Guidance for Comprehensive Management* states that "inherent in adaptive management is a commitment to apply the scientific method to the experimental problems." We suggest that adaptive management is a shorthand phrase for the longer phrase, "science-based adaptive management."
Water quality and invertebrate populations as indicators of watershed health and associated cumulative impact could have been a management principle. Aquatic and riparian communities are discussed on pp. 19-20 but could be added on p. 68 in ch. 9 and ch. 10's discussion of cumulative effects on p. 128. (VCC)	There are many possible additions to the management principles as well as measures of cumulative effect. The ones cited in the document we feel are the most important, but they are not the only measures that will be used. In fact, the trust is monitoring the factors noted.
We urge a rigorous approach be taken to science-based adaptive management and note key steps in the document on page 4.	As discussed in chapter 5 of the *Framework and Strategic Guidance for Comprehensive Management*, the trust supports a rigorous approach to science-based adaptive management. This document is not intended to be a definitive work on adaptive management but serves as a framework and strategic guidance for further work.
Re "state of the preserve"–In chapter 2, a conceptual model of the ecosystem–a diagram and bulleted list of key components, processes and relationship–illustrating these relationships would be helpful. State an intention to continually improve upon this first draft of a conceptual ecosystem model, which is	This document is not intended to be a definitive work on adaptive management but serves as a framework and strategic guidance for further work.

PUBLIC WRITTEN FEEDBACK	VALLES CALDERA TRUST RESPONSE
necessarily remote at first. Refer to the Nature Conservancy approach to tracking conservation objectives. See quotes by Patrick McCarthy re an inclusive project team, collaboration, consensus-building, commitment, and simplicity. We urge a rigorous approach be taken to science-based adaptive management and notes key steps in their document on p. 4. (VCC, p. 4)	
Re p. 12, discussion of science-based adaptive management: include a description of how the trust actually uses monitoring data to set and adapt policy. Describe the efforts that are being made "to build an organizational culture and structure that will fully support science-based adaptive management." Three years into the experiment, what tools and methodologies are being used? (VCC, p.6)	Chapter 6 of the *Framework and Strategic Guidance for Comprehensive Management* provides details on this topic. Three graphical representations in the text show how monitoring will be incorporated into decision making for the preserve. Further, a senior scientist is a member of the trust's executive team to incorporate science into day-to-day management of the preserve. At this writing (fall 2004), we have used data for decision making for the grazing program and to protect the bald eagles on the preserve, but more data are being gathered to further incorporate into management practices. The trust took over management authority of the preserve in August 2002, so the experiment is two years in the making at this writing. The cumulative effects program will develop more specifics on how to use monitoring data.
Re p. 62, discussion of application of science-based adaptive management and livestock grazing: include brief description of learning curve. Discussion provided seems "white washed." Targets for standing biomass are provided. see p. 6 for examples. The trust could identify site-specific reference conditions for its grassland, the desired/acceptable range of variation around the average, and what would be a healthy distribution of sites with these values? Also, the trust could identify current conditions (lb/acre) at a statistically sound number of representative sites; set targets to improve conditions at sites with lowest	The "learning curve" referred to is indeed a context even for the draft document. The level of specificity requested goes beyond the scope of this document. These specifics will be addressed in on-going monitoring efforts.

PUBLIC WRITTEN FEEDBACK	VALLES CALDERA TRUST RESPONSE
values, designing management proposals accordingly, testing ungrazed/ burned sites vs. grazed sites. (VCC, pp. 6-7)	
Re (p. 60) discussion on science-based adaptive management: consider revisions suggested that would emphasize that uncertainty is the context within which we operate (it is discussed much later on p. 128 re cum. effects); that we do our best to anticipate consequences (p. 12); the greater the uncertainty, the greater the burden of proof to justify an action; and the availability of data alone cannot ensure resource protection or progress toward goals. See suggested edits. (VCC, pp. 5-6)	These concerns will be considered in the development of the cumulative effects program plan presently under development at this writing (fall 2004).
p. 80—Applaud effort to build educational components into all programs. Many visitor activities could be built around participating in research, monitoring, and collecting observations. Participating in the experiment(s) could be a common thread for all activities. All visitors can contribute to a daily catalog of observations. (VCC)	This is a laudable suggestion that can be incorporated into forthcoming planning for the preserve.
Questions about road planning are wise, but answers should be provided to some questions. Suggest that one road should be open to public access to a trailhead in Valle San Antonio plus one branch to the Westside if hot springs/other features are to be open to the public. Roads should be gravel. East-side access should be by trail from a parking area of Hwy. 4. Put the majority of roads "to bed" to diminish erosion. (Peterson)	The particulars of open roads/closed roads and road surfaces are part of a transportation plan the trust is developing, and it will be made available for public feedback.
Re Restoration of Rio Grande cutthroat trout: it is a subset of a larger question, "Do we want the preserve to be more like a park, in which native species would be more important, or more like a national forest, in which non-native trout would do quite nicely?" A tough question given the legal mandate. We vote to upgrade to native species, including the use of piscicdes. (Peterson)	This issue is still under discussion with the appropriate agencies and the public. The Valles Caldera Preservation Act of 2000 explicitly states that the New Mexico Department of Game and Fish is responsible for the fish and wildlife of the preserve.

PUBLIC WRITTEN FEEDBACK	VALLES CALDERA TRUST RESPONSE
Operate as a working ranch:	
p. 121–Include "the working ranch" in the discussion of facilities. (VCC)	The working ranch is a strong theme under development by our interpretive plan.
The document and the operation of the preserve would have gained focus and direction from a mission statement. In its fourth year of operation the trust has not yet clearly defined what it wants to be. Definition and operation of this project has been complicated to the point where it is nearly impossible for it to function. You admit it is a ranch but can't seem to let it happen. (R. Tilkemeier)	The board has created a mission statement that will be shared with the public in the fall of 2004.
The word ranch is not a nebulous word and does not need to be interpreted. (See dictionary definitions, "an establishment maintained for production of livestock; a large farm for the raising of cattle, horses, or sheep in large numbers.") . . . There is no definition of a working ranch but use of working does not dilute its purpose but emphasizes it. Synonyms for working include running, operation, useful, or viable which in ranching lingo is generally accepted to mean the intent to run profitably or financially viable. This meaning is confirmed by Ranch/Range Management Depts. at NMSU, CSU, ASU, and Texas A&M as well as those actively making a living in ranching. A definition of a working ranch should include recreation, environmental concerns and meet other goals in the legislation. It is a large parcel of land that is specifically managed for raising livestock, with the intent to be a financially viable business enterprise, as opposed to a hobby or recreation ranch. Ranch-friendly recreation activities, good land stewardship, and sound, practical, environmental practices are integral parts of the process. (R. Tilkemeier)	There are many differing ideas as to how a working ranch should be defined; our definition is presented in chapters 4, and 5 and the glossary of the *Framework and Strategic Guidance for Comprehensive Management.*
Popular use of the word includes recreation, hobby, fishing, guest, etc; many	Agreed.

PUBLIC WRITTEN FEEDBACK	VALLES CALDERA TRUST RESPONSE
such ranches do run livestock to maintain an agricultural tax base or for personal reasons. (R. Tilkemeier)	
Four different sections of the legislation address financial viability or optimizing income, leaving no room for misunderstanding: Section 103(4); Section 106(e)(3); Section 108(d)(6); Section 111(b) (R. Tilkemeier)	The trust is striving for financial self-sufficiency by 2015. See Appendix B for a discussion of the Trust's Plan for Decreasing Appropriations, 2000-15.
The definition of a working ranch provides a basis for a mission statement, offering guidance for essential projects that can be done well. It is an essential and well-accepted prologue to most management plans. Suggest the following mission statement: To develop and execute a plan to manage the preserve, historically known as the Baca Ranch, as a working livestock ranch. The many natural resources available on the ranch, including publicly accessible, ranch-friendly, recreation resources shall be used to supplement the economic viability of the ranching operation–and at the same time satisfy the other multiple-use requirements of the enabling legislation that established the trust. Sound, practical environmental practices, good land stewardship, and financially self-sustaining operation shall be the focus elements of the operating plan. (R. Tilkemeier)	See Chapters 4 and 5 and the glossary of the *Framework and Strategic Guidance for Comprehensive Management.* The trust has developed a mission statement to further direct the trust in developing programs that will be published in the fall of 2004.
Involvement in holistic range management and such people as Greg Simonds would be helpful in ranch management deliberations. Their science and environmental practices will direct you toward producing a profit from the business of ranching. (R. Tilkemeier)	We appreciate the amount of innovative research and practices available to us as we further development a comprehensive grazing program.
Three documents are attached regarding holistic range management and running cattle to help manage wildlife. (R. Tilkemeier)	We have shared these documents with our preserve manager for consideration.
The reference to "working ranch" on page 57 most accurately reflects the intent of the enabling legislation.	The board's interpretation of the Valles Caldera Preservation Act directs the trust to treat the six goals stated

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Reference to the act, Section 105(b) should be included in the executive summary, p. 9. The discussion on p. 47 is inaccurate as the working ranch goal does not include the other goals. Rather, the working ranch goal is a subset of three goals–protection/ preservation, multiple use/sustained yield, and public recreation–because ranching must be "consistent with" the first three. This misrepresentation must be clarified as the legislation is not ambiguous. (VCC)	in the legislation equally (see the Valles Caldera Preservation Act of 2000, Section 108(d). See also the discussion "Purpose of theTrust and Preserve" as written in the *Framework and Strategic Guidance for Comprehensive Management*, chapter 4.
Re p. 107, sidebar: mentions visitor guidelines with no reference to ranching operation despite the conflicts between fishermen and cows. Good place to mention a "right to ranch" policy.	Verbiage will be added in the sidebar "Visitor Program Guidelines" in chapter 9 that notes the role of ranching on the preserve and possible conflicts with recreational activities that may result.
Re chapter 6: implies that each decision must physically go through the detailed process, causing costs and unacceptable delays. (R. Tilkemeier)	The goal of the planning process is to keep it simple and accessible to anyone with an interest in the preserve. Our goal is to create an open, participative process.
Ranching as described in the legislation is a vital part of history and culture of the West and the preserve. It is a driving economic force in the development and well-being of New Mexico. It is an important element in maintaining the vast and scenic open spaces all admire. Ranchers produce one of the nutritionally complete forms of protein; by-products are used extensively in our daily lives. These factors compel us to manage the property as a working ranch. *Courtesy of response appreciated.* (R. Tilkemeier)	The legislation specifically states the we will operate the preserve as a working ranch.
Change cattle where the word occurs throughout the document, to livestock to retain the trust's options to work with a variety of livestock. (VCC)	Agreed.

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Renewable resource utilization and management alternatives:	
Welcome this visionary document as it represents deliberations and statements of values and vision that have been largely missing in the history of land management. Can serve as a "center board" to formally engage the public in quantitative decisions, including charting a course, developing something akin to a business plan, and making on-the-ground decisions in the context of science-based adaptive management. (VCC)	That is our hope.
In chapter 6 or a closing chapter, commit to drafting and improving comparable conceptual models of the trust itself and the greater social and economic systems that are undeniably shaping this "experiment." Key variables and trends in social/cultural and financial/economic systems are important to document. (VCC)	It is difficult for the trustees to envision and commit to creating future models in the midst of creating this particular one as guided in the enabling legislation. Trend analysis would be one tool for future planning.
In chapter 8 or 9, include a sidebar that summarizes the "challenges" that the trust explicitly identifies throughout the text regarding elk management, protecting archaeological sites, achieving science-based adaptive management, providing ample opportunity for public involvement without overdoing it and tiring participants, restoring woody streamside vegetation, balancing ranching needs with that of wildlife; determining visitor capacities that preserve opportunities for solitude and silence, avoiding congestion of people and vehicles. (VCC)	Our central challenge is balancing a variety of interests and activities. The search for a balancing point is part of every decision of the board of trustees and is implied and implicit in the document's overall discussion.
Multiple use and sustained yield of renewable resources: (consumptive uses)	
In what ways should hikers be treated differently from other users like hunters, animals, cowboys? (Pajarito Group, CJ)	In forthcoming long-term, site-specific planning, we will endeavor to provide more clarity around an approach to different users and what prompts

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	us to direct programs that make distinctions.
More specific next steps should be included to lead to measurable objectives, such as hikers should have the same rights to roam as quadrupeds and should be studied through a RIM project to understand the relationship of hikers and forest health, including wildlife. (Pajarito Group, Sierra Club,CJ)	In forthcoming long-term, site-specific planning, we will endeavor to provide more clarity around an approach to different users and what prompts us to direct programs that make distinctions. In the *Framework and Strategic Guidance for Comprehensive Manage-ment*, chapter 9, under "Hiking and Camping," the trust clearly states that different users of the preserve will have different impacts. We are committed to developing programs within the goals expressed in this discussion in chapter 9.
p. 85–Re elk management: include management of habitat as a mechanism for influencing population and distribution. (VCC, pp. 8-9)	We agree that habitat management is a major tool with which to manage numbers and distribution of wildlife.
Page 92–The diagram may be parry oatgrass (*Danthonia parryi*) not Arizona fescue. (VCC, p. 9)	We concur; this change will be included in the final text
Re elk population numbers: pp. 27 and 110, summer population estimated to be 4500 with NMDGF as source. It is not in agreement with our records. The dept. has not surveyed the summer populations on the Valles Caldera or anywhere in Unit 6 in the recent past. Rather, the dept. has conducted winter sightability surveys in Unit 6 in 1999, 2000, and 2002. These surveys sampled almost the entire Jemez Mtn. Range, with population estimates of 3958 plus or minus 1184 elk in 1999, 4283 plus or minus 1993 elk in 2000, and 4434 plus or minus 529 elk in 2002. The survey was not designed to estimate population size in GMU 6 by subunit; hence no winter estimates to the preserve can be constructed. We feel it is highly unlikely that most if not all elk in the entire Unit 6 are present on the VC during the summer months. An estimate of approximately 2500-3500 elk during summer is probably more	This section will be rewritten to properly reflect current knowledge about herd size and locations.

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appropriate and realistic. However, we stress we're not aware of any "hard data" on which a claim can be based." Request a letter be sent to address questions of constituents should need arise. (S. Kohlmann, NMDGF)	
General comments	
Historical chronology should begin with human presence, not 1821, to provide a broader context. (VCC)	Additional information found on p. 39 has been added to reflect a longer span of history as it is understood.
The Pueblo of Jemez is a gateway to the Valles Caldera, not a back door.	We agree. The board has passed a resolution to this effect on November 14, 2003, that acknowledges that the Pueblo of Jemez is a gateway to the Valles Caldera.
p. 75–Re actively engaging the public–should read, "to developing effective, *culturally appropriate,* inclusive avenues for information dissemination and collection, (not relying solely on the Internet). Use e-mail lists and listserves organized by topic, newspaper advertising space to give regular updates, and regular press releases giving updates and references to sources of further information for use in existing organizational newsletters (not just to mainstream media). (VCC, p. 8)	Chapter 7 of the *Framework and Strategic Guidance for Comprehensive Management* provides guidance, but the trust is still working to develop methods that are both informative, cost- and time-effective, and useful.
How will the trust gauge the level of public interest before determining the length of the comment period? What is the definition of an "emergency" that warrants suspension of the opportunity for public comment? What is the burden of proof? (VCC, p. 8)	Section 108 of the Valles Caldera Preservation Act offers guidance on this issue. The trust's published NEPA procedures refer to "extraordinary circumstances" but to date (fall 2004) the trust has not invoked the suspension of the opportunity for public comment. Further, we would follow the Council on Environmental Quality (CEQ) (40 CFR Part 1506.11), which refers to emergencies as "actions necessary to control the immediate impacts of an emergency."
p. 79–Consider including a box with a bulleted list of the avenues of communication listed in this narrative. Also, list the constituencies that you	This document does not address the day-to-day tactics of communication but does offer guidance on outreach to the public. We will continue to

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are aware you are not reaching and/or hearing from. (VCC)	explore different ways for the trust to communicate.
Propose that the trust identify design elements and possible ways to address those elements. This "bundling" serves as a way to organize questions, key considerations, ideas, contact info, and literature and as a basis for mixing and matching the solutions into alternatives in Step 6 (management alternatives). (VCC)	Such planning belongs in a planning document and not in the context of this document. The StARS process is different from this *Framework and Strategic Guidance for Comprehensive Management.* The StARS process was formally addressed in the trust's published NEPA procedures and public feedback was received. However, suggestions on improvements will be considered going forward. In the future, when we reevaluate the StARS process, we will refer to the addendum provided to the trust as a possible template. To make further changes, a process of public involvement and publication in the *Federal Register* will be pursued.
In the future, beware of creating the impression that the trust has made its decisions and invested a great deal of money before the public has had a chance to see data and contribute to idea development. The polished appearance of the draft is a case in point. (VCC)	Noted.
Gary Ziehe's presentation should be included in the administrative record of the CMF. In a new closing chapter, include the essence of that presentation, placing the framework in context and articulating that the trust's next steps include identifying measurable objectives/outcomes for "what to preserve and protect" and "specific programs." (VCC)	A copy of Gary Ziehe's presentation will be included in the administrative record. A postscript will be added to this *Framework and Strategic Guidance for Comprehensive Management* to describe more fully the next steps in planning that the trust will undertake.
pp. 83-125—Include sidebars that outline the vision and goals statements embedded in the narrative, chapters 8 and 9 (see attachment, pp. 13 and 17, respectively). (VCC)	This information is already appropriately presented in the *Framework and Strategic Guidance for Comprehensive Management.*
p. 83-125—Include a matrix that cross-references all resources and proposed activities. This can serve as a template to suggest possible benefits and impacts arising from the interactions across "disciplines."	The level of detail suggested is not within the scope of this document.

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Re FS 268: Is not a highway but an unimproved Forest Service road. (Blaine Hadden)	Agreed.
Re p. 49: List protection and preservation as goal 1. Multiple use/ sustained yield is 2, public access and recreation is 3 (as per order noted in act), working ranch is 4 (to be consistent with first three goals), 5 and 6 are in appropriate places in the discussion. (VCC)	The board of trustees believes that the six goals are co-equal. A balancing of these goals is the special task of the Valles Caldera Trust. See chapter 4, "Purposes of the Trust and Preserve," for a discussion on this topic.
Framework lacks specificity needed. Guidance provided is too broad, lending to conflicts. (Pajarito Group, MJ)	More specificity will be part of the trust's ongoing planning efforts.
All forward-looking statements are either very general or undecided, but perhaps at this stage that's necessary. Management principles and other commitments are praise-worthy. (Roger S. Peterson, NM Natural History Institute, 4/23/04)	Noted.
VCNP will benefit greatly from a volunteer program that includes an incentive program for volunteers. Volunteers could coordinate the program. (Pajarito Group, MJ)	The volunteer program is still in its infancy, but incentives will be important in the long-term work with volunteers.
Re goals: does the vision statement meet the stakeholder vision for which it was written, i.e., is this what the public anticipated? (Pajarito Group, CJ)	To meet the intent of the Valles Caldera Preservation Act, the board set up a series of listening sessions in 2002. This document in part grew out of that feedback and is also meant to meet the requirements of the Valles Caldera Preservation Act.
Is it legitimate to compare the trust plans with benchmarks of other federal agencies? How have other agencies excelled? Do the management plans of other agencies tie to their success? If so, use them as a baseline. Consider comparing this plan with the new model for the Escalante Staircase National Monument plan. (Pajarito Group, CJ)	Noted. The trust strives to learn from the experience of other agencies. The diversity of the members of the board of trustees includes a representative of the National Park Service.

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Does this vision plan allow the trust to meet the congressional mandate? (Pajarito Group, CJ)	We believe it meets the congressional requirement for the publication of a comprehensive program for management of the lands, resources, and facilities.
The document in its format appears finished. Should have been printed more cheaply in loose leaf or stapled, no photos, in an inexpensive report cover. This is an irresponsible waste of taxpayers' money. Was the format budgeted and approved by the board? (Roger Tilkemeier, 4/19/04)	Yes. The format and budget of the document was created by the board and approved in the annual budget process. The printing costs were competitively bid.
An old-fashioned organization chart with job descriptions would be more helpful than the comprehensive management charts provided on pps. 67, 69, and 71. (R. Tilkemeier)	The organization will continue to evolve and a snapshot of its status at a given time would soon become obsolete. The charts included in the document refer to the decision-making process and are not intended to depict the staff organizational structure.
The trust might do well to address mineral rights here, re intent to purchase all outstanding rights, "put them to bed." (VCC)	A discussion on the outstanding mineral rights has been added to chapter 4 of the *Framework and Strategic Guidance for Comprehensive Management.*
p. 139—In further reading pertaining to cultural history, include the environmental impact statements prepared for the extension line and for geothermal exploration. (VCC)	The list has been limited to sources that are or will soon be readily available.
The draft does not address the benefits and impacts of the development of the geothermal resources (including the construction of a generating facility and installation of transmission lines) on the preserve, including an evaluation of the benefits. (Nibert, 4/13/04 letter)	The enabling legislation states clearly that the outstanding minority mineral interests should be acquired by the Secretary of Agriculture. Moreover, assessing the potential impact and benefits of geothermal development is not within the scope of this document.
Correct error: p. 36 states a well drilled in 1959 was drilled to test geothermal potential. It was drilled for oil. (Nibert)	This error has been corrected.
Conflicting goals stated: p. 49—goal 5 is headed "renewable resource utilization," but discussion of this goal on p. 49 doesn't refer to renewable resources. (Nibert)	This error has been corrected.

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Correction re history of ownership. Page 42—1963 entry regarding conveyance of land from Bond family to Dunigan—it was conveyed to Baca Land and Cattle Co (50% undivided interest shared among four managing partners) and 50% to Dunigan Tool and Supply Co. Therefore, not all owners were Dunigan family members. (J. B. Harrell, Jr. 4/14/04)	This error has been corrected.
Draft document is not complete or forthcoming. It should be factual and comprehensive. Independent outside parties have reviewed the U.S. Forest Service appraisal on the minority mineral interests and found the USFS appraisal did not comply with the Uniform Appraisal Standards for Federal Land Acquisitions as directed by Public Law 106-248 (VCPA). The trust has not complied with "the spirit of the law" by not causing an appraisal to be made in accordance with the law followed by negotiations as directed by the act. Further, the trust has tried to prevent the development of our resource by their actions at hearings before the Oil Conservation Commission and request for a rehearing. (J. B. Harrell, Jr.)	The appraisal of outstanding mineral interests or the request to drill on the preserve are topics outside the scope of this document. A discussion on geothermal development has been added to chapter 4. The trust does not believe that the development of commercial geothermal power generation is in keeping with the establishment of the preserve by Congress.
The (drilling) project can go forward with or without the trust's cooperation. It should be disclosed in the trust's management and guidance plan. The plan is seriously flawed in that full disclosure has not been made. The public should be made aware of GeoProducts' proposed geothermal development program. It should be discussed in an official document, not the news media. (J.B. Harrell, Jr.)	See the discussion on geothermal development added to chapter 4 of the *Framework and Strategic Guidance for Comprehensive Management.*
Re "the Kiva" [now known as Casa de Baca Lodge] on p. 37, it was not built for elk hunting initially. Deer was the primary game on the ranch until elk took over some years later. The building was built for friends and family and was	The incorrect statement has been deleted.

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used later for elk-hunt activities. (Ken Boren, GeoProducts of NM)	
The draft document is inadequate because it fails to address the most serious threat facing the preserve, namely the risk that the VCNP could be permanently defaced and defiled by the development and construction of geothermal wells, pipelines, roads, generating plants, and high-voltage transmission lines. . . . GeoProducts is seeking to not only reopen existing wells in the Redondo Creek area but also to explore areas including the Valle Grande. It has also applied to the Bureau of Land Management for a lease to majority mineral interests. Such threats should be disclosed and discussed in the document. (Lauren Ward, American Land Conservancy, 4/14/04)	The goal of this document is to provide a framework and strategic guidance for the comprehensive management of the preserve. This document is not envisioned as providing a discussion of all potential threats.





VALLES CALDERA
NATIONAL PRESERVE



The Valles Caldera National Preserve is an 89,000-acre federal property in northern New Mexico, administered by the Valles Caldera Trust under an experimental management regime. This document presents the framework for decision-making that the trust proposes to use as it develops programs and policies for use of the preserve.





VALLES CALDERA NATIONAL PRESERVE

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