National Park Service
Cultural Landscapes Inventory
2004

Mariposa Grove

Yosemite National Park

CULTURAL LANDSCAPES INVENTORY (CLI) PROGRAM
2009 Condition Assessment Update for:

Mariposa Grove
Yosemite National Park

Yosemite National Park concurs with the condition assessment update for Mariposa Grove as identified below:

CONDITION ASSESSMENT: **FAIR**

Good: indicates the landscape shows no clear evidence of major negative disturbance and deterioration by natural and/or human forces. The landscape's cultural and natural values are as well preserved as can be expected under the given environmental conditions. No immediate corrective action is required to maintain its current condition.

Fair: indicates the landscape shows clear evidence of minor disturbance and deterioration by natural and/or human forces, and some degree of corrective action is needed within 3-5 years to prevent further harm to its cultural and/or natural values. If left to continue without appropriate corrective action, the cumulative effect of the deterioration of many of the landscape characteristics will cause the landscape to degrade to a poor condition.

Poor: indicates the landscape shows clear evidence of major disturbance and rapid deterioration by natural and/or human forces. Immediate corrective action is required to protect and preserve the remaining cultural and natural values.

for James F. Hammett — 6/3/2009

Superintendent, Yosemite National Park — Date

Please return to:
Vida Germano
PWR CLI Coordinator
National Park Service
Pacific West Regional Office
1111 Jackson Street, Suite 700
Oakland, CA 94607-4807
(510) 817-1407
(510) 817-1484 (fax)

Cultural Landscape Inventory Level II:
Mariposa Grove
Yosemite National Park

Yosemite National Park concurs with the Management Category and Condition Assessment assigned through completion of this Level II Cultural Landscape Inventory for Mariposa Grove as listed below:

MANAGEMENT CATEGORY A: **Must be preserved and maintained**

CONDITION ASSESSMENT: **Fair**

Superintendent, Yosemite National Park — Date 9/2/03

Please return this form to:
Shaun Provencher
Coordinator, Cultural Landscape Inventory
National Park Service
Pacific Great Basin Support Office, Suite 700,
1111 Jackson Street
Oakland, CA 94607

MARIPOSA GROVE
YOSEMITE NATIONAL PARK

California SHPO Eligibility Determination

Section 110 Actions Requested:

1) SHPO concurrence with determination of eligibility for listing the Mariposa Grove as a historic district on the National Register.
2) SHPO concurrence with the addition of structures to the List of Classified Structures (LCS). (See chart below)

___X___ I concur, _____ I do not concur that the Mariposa Grove is eligible for listing as a district on the National Register of Historic Places.

___X___ I concur, _____ I do not concur that the **Setting,** as described in the CLI, contributes to the Mariposa Grove (see the following landscape characteristics: natural systems and features, spatial organization, vegetation, and views and vistas).

The following structure, located within Mariposa Grove, is already listed on the National Register:

LCS number	Structure Name	Structure Number
005806	Mariposa Grove Museum (NR #78000381)	WA04725

Based on the information provided in the CLI, the following previously unevaluated structures have been identified as **contributing** to the Mariposa Grove:

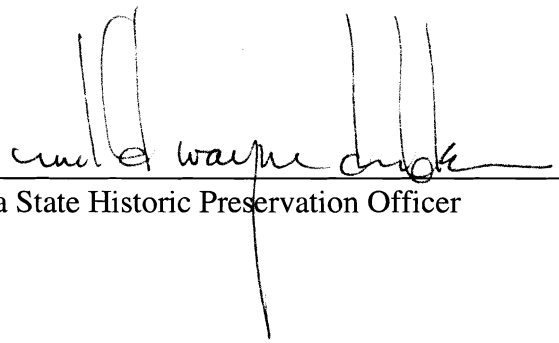
LCS number	Structure Name	Structure Number	Concur	Do not Concur
55756	Mariposa Grove Comfort Station**	WA0476	X	
339741	Wawona Point Stone Features		X	
339727	Mariposa Grove Dry-laid Stone Retaining Walls		X	
339748	Mariposa Grove Bridle Paths		X	
339753	Mariposa Grove Historic Trails		X	
339756	Mariposa Grove Wagon Roads		X	
339758	Mariposa Grove Historic Paved Roads		X	
339765	Mariposa Grove 1906 Survey Marker		X	
339768	Mariposa Grove Drinking Fountains		X	
339770	Mariposa Grove American Legion Memorial Plaque		X	
339773	Mariposa Grove Fire Hydrants		X	

**This structure is also being individually nominated to the National Register (see nomination within the Multi-Property Documentation)

Based on the information provided in the CLI, the following previously unevaluated structures have been identified as **not contributing** to the Mariposa Grove:

LCS number	Structure Name	Structure Number	Concur	Do not Concur
N/A	"Telephone" Building at Wawona Point Lookout		X	
N/A	Comfort Stations at parking lot		X	
N/A	Concession gift/snack shop		X	
N/A	Modern comfort station at tram stop		X	
N/A	Relay station at Wawona Point Lookout		X	
N/A	Timber crib retaining wall		X	
N/A	New pedestrian trails		X	
N/A	Modern routed wood signage		X	
N/A	Split rail fence throughout grove		X	

Reasons/comments why any 'Do Not Concur' blocks were checked:



25 AUG 2004

California State Historic Preservation Officer — Date

Contents

Executive Summary

General Introduction to the CLI

The Cultural Landscapes Inventory (CLI) is a comprehensive inventory of all historically significant landscapes within the National Park System. This evaluated inventory identifies and documents each landscape's location, physical development, significance, National Register of Historic Places eligibility, condition, as well as other valuable information for park management. Inventoried landscapes are listed on, or eligible for, the National Register of Historic Places, or otherwise treated as cultural resources. To automate the inventory, the Cultural Landscapes Automated Inventory Management System (CLAIMS) database was created in 1996. CLAIMS provides an analytical tool for querying information associated with the CLI.

The CLI, like the List of Classified Structures (LCS), assists the National Park Service (NPS) in its efforts to fulfill the identification and management requirements associated with Section 110(a) of the National Historic Preservation Act, NPS Management Policies (2001), and Director's Order #28: Cultural Resource Management (1998). Since launching the CLI nationwide, the NPS, in response to the Government Performance and Results Act (GPRA), is required to report on an annual performance plan that is tied to 6-year strategic plan. The NPS strategic plan has two goals related to cultural landscapes: condition (1a7) and progress on the CLI (1b2b). Because the CLI is the baseline of cultural landscapes in the National Park System, it serves as the vehicle for tracking these goals.

For these reasons, the Park Cultural Landscapes Program considers the completion of the CLI to be a servicewide priority. The information in the CLI is useful at all levels of the park service. At the national and regional levels it is used to inform planning efforts and budget decisions. At the park level, the CLI assists managers to plan, program, and prioritize funds. It is a record of cultural landscape treatment and management decisions and the physical narrative may be used to enhance interpretation programs.

Implementation of the CLI is coordinated on the Region/Support Office level. Each Region/Support Office creates a priority list for CLI work based on park planning needs, proposed development projects, lack of landscape documentation (which adversely affects the preservation or management of the resource), baseline information needs and Region/Support office priorities. This list is updated annually to respond to changing needs and priorities. Completed CLI records are uploaded at the end of the fiscal year to the National Center for Cultural Resources, Park Cultural Landscapes Program in Washington, DC. Only data officially entered into the National Center's CLI database is considered "certified data" for GPRA reporting.

The CLI is completed in a multi-level process with each level corresponding to a specific degree of effort and detail. From Level 0: Park Reconnaissance Survey through Level II: Landscape Analysis and Evaluation, additional information is collected, prior information is refined, and decisions are made regarding if and how to proceed. The relationship between Level 0, I, and II is direct and the CLI for a landscape or component landscape inventory unit is not considered finished until Level II is complete.

A number of steps are involved in completing a Level II inventory record. The process begins when the CLI team meets with park management and staff to clarify the purpose of the CLI and is followed by historical research, documentation, and fieldwork. Information is derived from two efforts: secondary sources that are usually available in the park's or regions' files, libraries, and archives and on-site landscape investigation(s). This information is entered into CLI database as text or graphics. A park report is generated from the database and becomes the vehicle for consultation with the park and the

SHPO/TPO.

Level III: Feature Inventory and Assessment is a distinct inventory level in the CLI and is optional. This level provides an opportunity to inventory and evaluate important landscape features identified at Level II as contributing to the significance of a landscape or component landscape, not listed on the LCS. This level allows for an individual landscape feature to be assessed and the costs associated with treatment recorded.

The ultimate goal of the Park Cultural Landscapes Program is a complete inventory of landscapes, component landscapes, and where appropriate, associated landscape features in the National Park System. The end result, when combined with the LCS, will be an inventory of all physical aspects of any given property.

Relationship between the CLI and a CLR

While there are some similarities, the CLI Level II is not the same as a Cultural Landscape Report (CLR). Using secondary sources, the CLI Level II provides information to establish historic significance by determining whether there are sufficient extant features to convey the property's historic appearance and function. The CLI includes the preliminary identification and analysis to define contributing features, but does not provide the more definitive detail contained within a CLR, which involves more in-depth research, using primary rather than secondary source material.

The CLR is a treatment document and presents recommendations on how to preserve, restore, or rehabilitate the significant landscape and its contributing features based on historical documentation, analysis of existing conditions, and the Secretary of the Interior's standards and guidelines as they apply to the treatment of historic landscapes. The CLI, on the other hand, records impacts to the landscape and condition (good, fair, poor) in consultation with park management. Stabilization costs associated with mitigating impacts may be recorded in the CLI and therefore the CLI may advise on simple and appropriate stabilization measures associated with these costs if that information is not provided elsewhere.

When the park decides to manage and treat an identified cultural landscape, a CLR may be necessary to work through the treatment options and set priorities. A historical landscape architect can assist the park in deciding the appropriate scope of work and an approach for accomplishing the CLR. When minor actions are necessary, a CLI Level II park report may provide sufficient documentation to support the Section 106 compliance process.

Park Information

Park Name: Yosemite National Park

Administrative Unit: Yosemite National Park

Park Organization Code: 8800

Park Alpha Code: YOSE

Property Level And CLI Number

Property Level: Landscape

Name: Mariposa Grove

CLI Identification Number: 725297

Parent Landscape CLI ID Number: 725297

Inventory Summary

Inventory Level: Level II

Completion Status:

Level 0

Date Data Collected - Level 0: 11/1/1999
Level 0 Recorder: HRA, Inc. (Caywood & Homstad)
Date Level 0 Entered: 11/1/1999
Level 0 Data Entry Recorder: HRA, Inc. (Caywood & Homstad)
Level 0 Site Visit: No

Level II

Date Level II Data Collected: 11/1/1999
Level II Data Collection HRA, Inc. (Caywood & Homstad)
Date Level II Entered: 11/1/1999
Level II Data Entry Recorder: HRA, Inc. (Caywood & Homstad)
Level II Site Visit: Yes
Date of Concurrence 2/3/2003

Explanatory Narrative:

HRA, under contract with Yosemite National Park, conducted historical research in YOSE archives between November 1 and November 11, 1999. Field personnel also completed a site visit of the Mariposa Grove, in order to document the landscape characteristics of the grove.

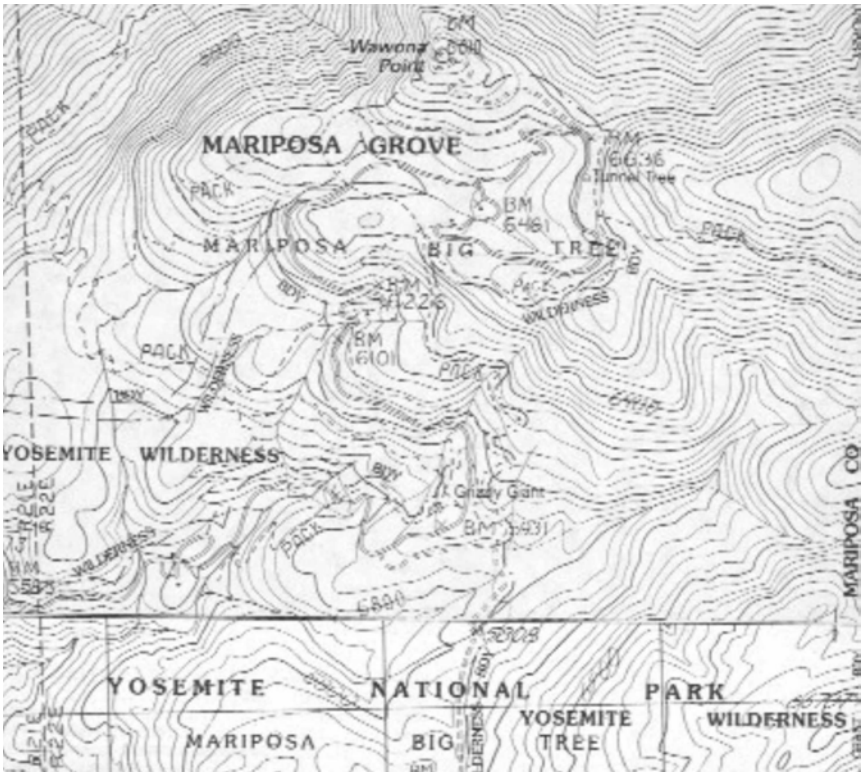
Landscape Description

The Mariposa Grove landscape consists of an area of approximately four square miles, located on the western slope of the Sierra Nevada Mountains. The grove is located approximately two miles from the South Entrance Station of the Park. The landscape can be classified as a historic district (originally established for its natural resource and recreational values), and a historic designed landscape. The period of significance for this property spans the period between the original withdrawal of the land from the public domaine in 1864, through the end of the historic period as defined by the National Register (approximately 1950). The landscape is in fair condition and, with a few exceptions, retains historical integrity. The most important landscape characteristics associated with the grove include the natural systems and features of the district, the site-specific ecology of which continues to sustain the stand of giant sequoias--the vegetation features which captured the attention of Euroamericans in the 1850s. Superimposed upon the natural landscape is a system of transportation (circulation) features and buildings and structures, which collectively, are representative of park service landscape design of the 1930s.

Cultural Landscapes Inventory Hierarchy Description

The Mariposa Grove is a landscape within Yosemite National Park. Described in some planning documents as a "park within a park," the grove is an important historic district, originally distinguished for its natural resource values. Subsequent development, most of which has been conducted according to the landscape design characteristic of the National Park Service during the 1930s and early 1940s, has resulted in an overlay of designed landscape features within the inventory unit. Both natural and cultural features are counted among the contributing landscape characteristics, and contribute to the eligibility of the property as a whole.

Location Map



Portions of the 7.5 minute, Mariposa Grove and White Chief Mountain quadrangles, showing the location of the Mariposa Grove

Boundary Description

The boundary of the landscape corresponds to the boundary of the original 1864 State grant, an area measuring approximately four square miles.

Regional Context

Cultural Context

Originally set aside as a component of the first national effort at preserving scenic places, the Mariposa Grove of Big Trees is representative of the value that our nation as a whole has placed upon conservation and preservation of wild places. Subsequent development of the grove has included the construction of circulation systems designed to provide visitor access for viewing the trees and associated natural features such as the view from Wawona Point.

Political Context

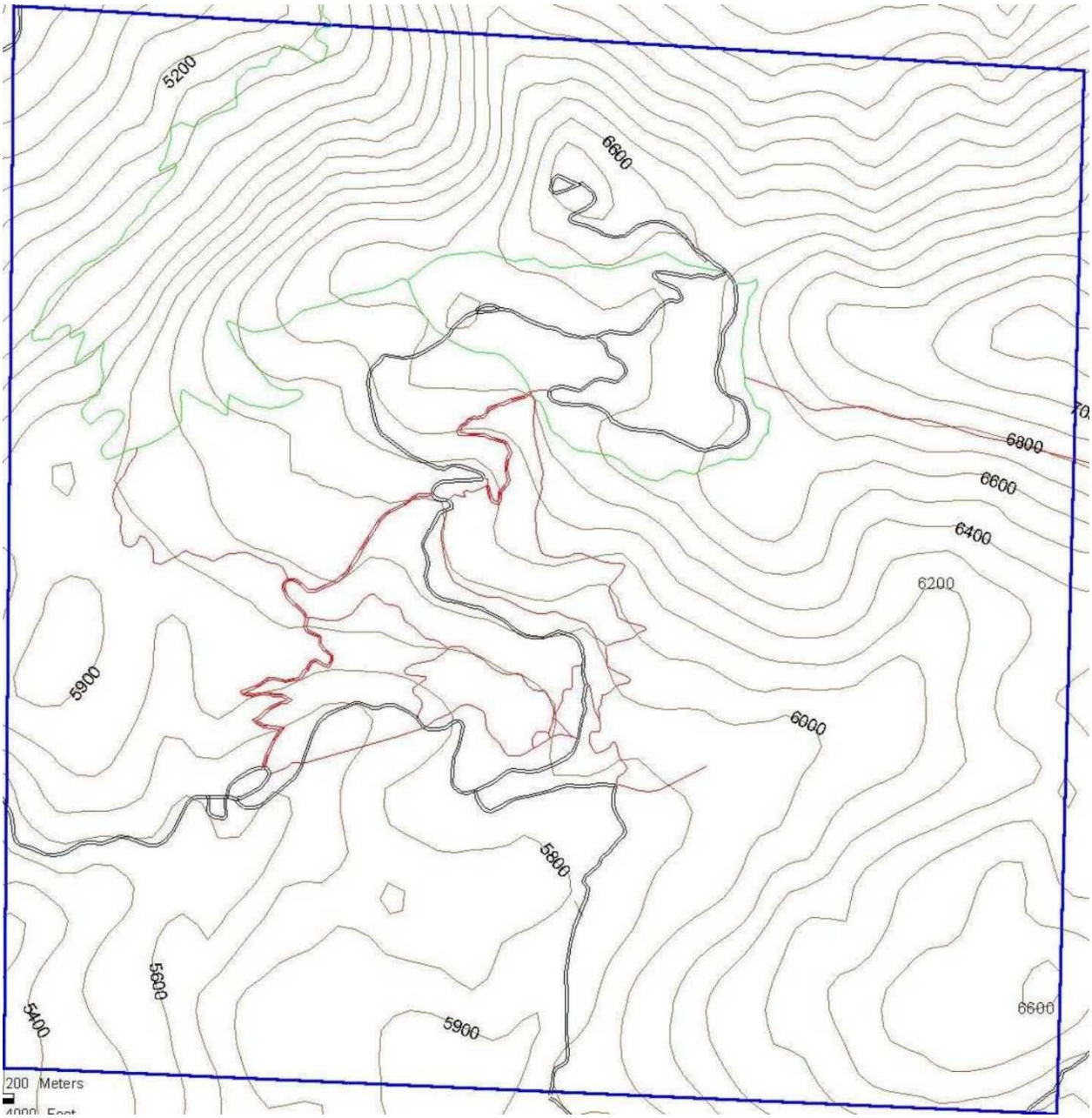
The Mariposa Grove is located withing the boundary of Yosemite National Park, Mariposa County, California. The roughly two square mile area is located within unsurveyed portions of T5S /R21E and T5S/RE.

Physiographic Context

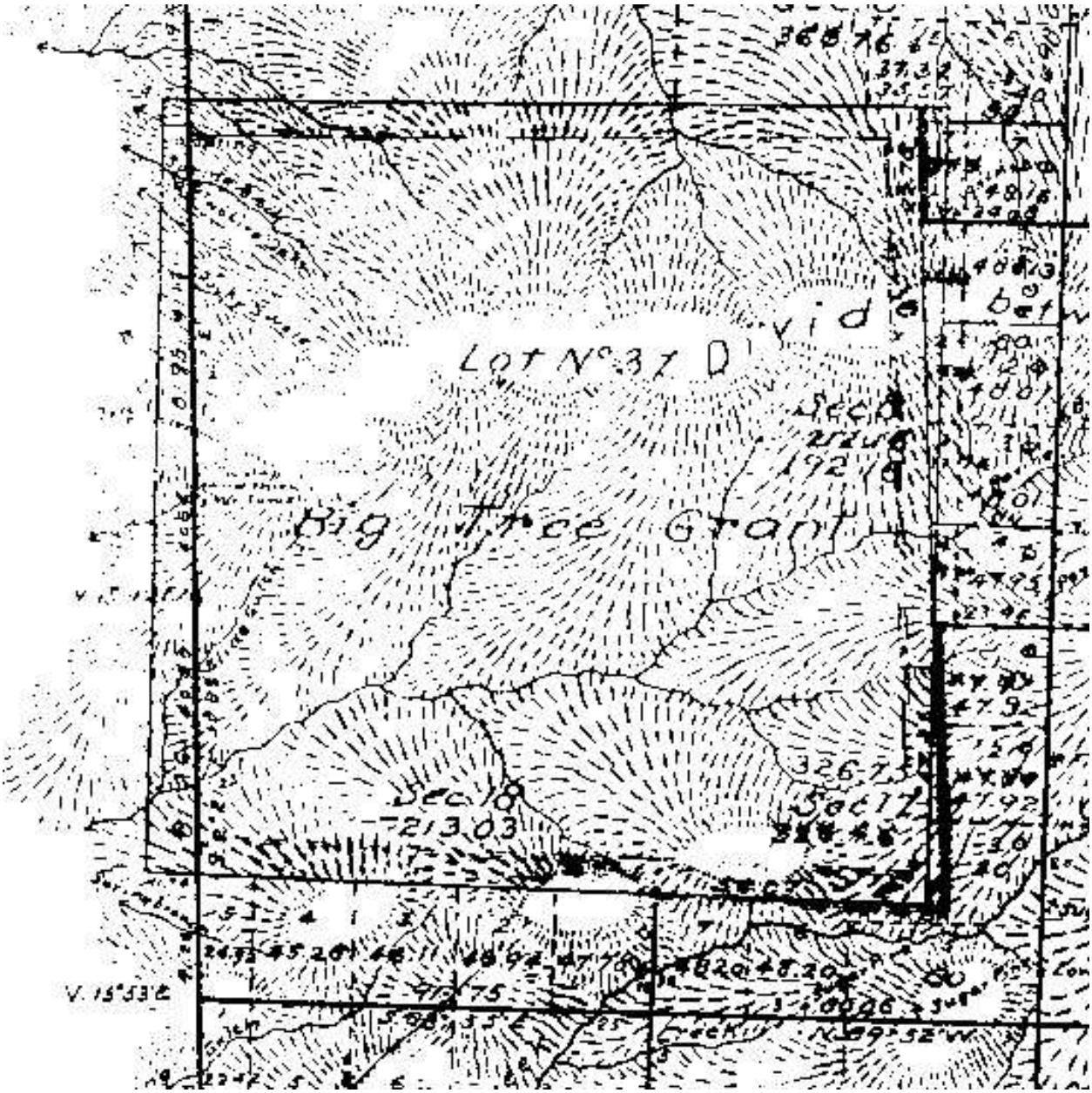
The Mariposa Grove is located on the gentle west slope of the south-central portion of the Sierra Nevada Mountain Range. This mountain range divides central and northern California from the more arid lands of the Great Basin to the east. The major landforms in the park are relatively young and only lightly eroded, resulting from the most recent period of glaciation, which ended between 10,000 and 12,000 years ago. Exfoliating granitic domes (e.g., the Wawona Dome) and sparsely vegetated ridge tops of decomposed granite are common in the middle elevations from 7,000 to 9,000 feet (NPS 1997:7-8).

Site Plan

Plan of the Mariposa Grove, showing boundary and major improvement.



Copy of the General Land Office Survey Plat for T5S/R22E, Lot 37 (the Big Tree Grant), surveyed in Sept. of 1864.



Chronology

Year	Event	Description
1858 - 1864 AD	Built	Galen Clark constructs the first building in the vicinity of the current museum. This first building served as the template for all that followed, and was christened "Clark's Hospice" by the Reverend Henry Bellows of New York. Builder: Galen Clark
1860 AD	Built	Milton Mann builds the first trail connecting "Clark's Station" with the Mariposa Grove--specifically with the site of Clark's Hospice. Builder: Milton Mann
1864 AD	Established	In 1864, the United States of America granted to the state of California, the four sections of land that coprises the Mariposa Grove.
1869 - 1870 AD	Built	Galen Clark and others form the Mariposa Big Trees & Yosemite Turnpike Company to construct a toll road to the Mariposa Grove. The road is completed by August of 1870.
1879 AD	Built	Washburn brothers hire Tom Gordon to build a wagon road through the grove. Road passess near the majority of the Big Trees. Gordon also improves the rought trail to Wawona Point. Gordon hires 200 Chinese laborers to assist with the work. Engineer: Tom Gordon
1881 AD	Built	Washburn Brothers hire Scribner brothers to cut a tunnel through the Wawona Tree, in order that stages can be driven through the tree. Builders: Scribner brothers
1885 AD	Altered	The state pays for the renovation of Clark's Hospice. Changes include the demolition of the area previously used for a kitchen, enclosing the space and additng a chimney.

1885 AD	Built	The Yosemite commissions report $500 spent on the construction of new roads and the improvement of previously existing roads within the grove.
1889 AD	Altered	Galen Clark increases clearing efforts in the grove in response to a fire the previous year that threatened the grove. Area beneath the sequoias cleared to mineral soil.
1890 AD	Established	Federal governmnet establishes Yosemite National Park in October of this year. The new park includes nearly a million acres--part of which is located north of the grove.
1892 AD	Altered	Road system within the grove extended to enclose all the sequoias, either singly or in groups, thereby providing a fire break for the trees. Project financed by the Yosemite Commission.
1895 AD	Built	Washburn brothers hire W.H. Coop and John Cummings to create another tunnel tree--this one at a lower elevation. The tree selected is the California Tree, located 100 yards east of the Grizzly Giant. Builders: W.H. Coop/John Cummings
1902 AD	Altered	At the behest of the State of California, a second room (to function as an office for the guardian), is added to Clark's Hospice.
1905 AD	Land Transfer	On March 3, 1905, the state grant is receded to the United States, so that the lands included in the Mariposa Grove (as well as those included in the valley grant), become part of Yosemite National Park.
1906 AD	Altered	State adds a second room to Galen Clark's cabin.
1923 AD	Built	Log ranger station constructed near entrance to Mariposa Grove. Architect: National Park Service

1925 AD	Built	Two-stall frame barn built in the vicinity of the ranger station near entrance to Mariposa Grove Architect: National Park Service
1925 AD	Built	Water system constructed to serve ranger station/campgroung/construction camp in lower grove. Engineer: National Park Service
1930 AD	Moved	Campground moved from the area near the Ranger Station to an area between the road to the checking station and the road to the old campground
1930 AD	Removed	Pit toilet in old campground and two pit toilets near Grizzly giant removed.
1930 - 1931 AD	Built	Park Service replaces Clark's cabin (modified twice by the state) with a new building, designed to mimic the construction of the previously existing building. Architect: National Park Service
1930 - 1931 AD	Expanded	300 feet of road in vicinity of Museum widened for parking. Engineer: National Park Service
1931 AD	Built	Construction camp built on the banks of Big Trees Creek to support the construction program.
1931 AD	Built	Park service builds comfort station near museum in upper portion of the grove. Architect: National Park Service
1931 AD	Built	Water system for upper portion of grove built to supply domestic water for new Big Trees Lodge, and to supply water for fire protection. Small "2-inch line" fire hydrants installed at this time. Engineer: National Park Service
1931 - 1932 AD	Built	NPS improves the Wawona Point Lookout, beginning with "vista clearing" in 1931, through grading of the parking area and construction of stone retaining walls, guard rails and sidewalks. Landscape Architect: Frank Wosky

1931 - 1932 AD	Built	Two sewer systems built in grove. One to serve the comfort station and one to serve the new Big Trees Lodge. Engineer: National Park Service
1931 - 1932 AD	Destroyed	Buildings associated with the original Big Trees Lodge complex destroyed by heavy snow during the winter of 1931/1932.
1932 AD	Built	"New" Big Trees Lodge constructed by concessioner.
1932 - 1933 AD	Altered	Road rerouted away from the base of the Grizzly Giant. Segment of abandoned road (which passed through the California Tunnel Tree), reduced to an oiled footpath. Two paved parking areas added in the vicinity of the Grizzly Giant at this time. Engineer: National Park Service
1933 AD	Removed	CCC crews remove 3,000 trees (mostly firs) from the grove.
1933 - 1934 AD	Built	CCC enrollees construct 6-foot-wide bridle paths; one from Wawona to the grove, and one that circled the "upper grove."
1933 - 1934 AD	Paved	Vehicular road within the grove paved. From entrance to Grizzly Giant in 1933, and from Grizzly Giant through the loop in the upper portion of the grove in 1934. Paved parking areas also added to vicinity of the museum.
1950 - 1954 AD	Abandoned	Campground near ranger station abandoned.
1971 AD	Built	Parking lot for private cars constructed in lower portion of grove.
1973 AD	Reconstructed	Plans prepared to rehabilitate/stabilize the MG roads, including improveing grade and upgrading the associated drainage structures (including replacement and removal of culverts and under drains). Only minor parts of plan implemented. Engineer: National Park Service
1984 AD	Built	Concessioner builds new gift/snack shop.

Statement Of Significance

Summary:

The Mariposa Grove is nationally significant under criterion A for its association with the "Conservation" and "Recreation" areas of significance. Along with the valley portion of the 1864 state grant, this grove of giant sequoias represents the first public land to be permanently set aside by Congress for the preservation of its natural scenic values. From 1864 to the present, the various managers of the grove, the State of California, the U.S. Army (at the behest of the Secretary of the Interior), and finally, the National Park Service, have striven to maintain the integrity of the grove's ecosystem, and the preservation of the "big trees," for which it was established. The grove embodies the birth of the American ideal that the best use of lands distinguished for their great scenic beauty is preservation; furthermore, that the best choice an enlightened federal government can make is to reserve such lands for all time for the enjoyment of the people.

In addition to the national significance of the grove under criterion A, elements of the built environment within the district also possesses significance at the state level under criterion C, under the "Architecture" and "Landscape Architecture" areas of significance. The design of the museum and the comfort station are illustrative of park service rustic architecture. The museum especially, embodies the most important principle of park service rustic design, namely the construction of buildings that harmonize with the environment through the use of locally available materials. The design of this building was of sufficient quality to warrant its inclusion in a 1935 compilation of "successful natural park structures" in which it is described as follows:

Here are all the theoretical good features of the ideal log structure, universally known but seldom encountered in one building—simple lines, excellent scale of logwork and shake roof, and massive chimney of admirable masonry and good silhouette. . . . Dwarfed in scale but not in merit by the huge trees, the presence of this simple and unassuming cabin is not the wide target for criticism that almost any other structure in so impressive a setting would be. (NPS 1935: 162).

The designed lookout at Wawona Point also has merit. Improvements there embody the work of the park service's early "naturalistic" landscape design, which successfully balanced the need for development with the need to preserve the landscape. From the initiation of the "vista clearing" to completion of construction, all phases of work were overseen either by Assistant Landscape Architect John Wosky, from the Branch of Plans and Design in San Francisco, or directly by Thomas Vint, the Chief Landscape Architect for the Park Service. The resulting development enhances rather than detracts from the natural features of the district.

Additional Information:

In 1864, while the Civil War was still piercing the heart of the nation, Congress passed a piece of landmark legislation to preserve Yosemite Valley and the Mariposa Grove of Giant Sequoia located in California's Sierra Nevada. The monolithic granite walls of the valley and the immense stately trees of the grove together inspired the federal government to grant these lands to the state of California "upon the express conditions that the premises shall be held for public use, resort, and recreation, and shall be inalienable for all time" (Act of June 30, 1864, 13 Stat., 325). The portion of the state grant that included the Mariposa Grove was to comprise four sections of land (Sections 6, 7, 8, and 18, T 5 S, R 22 E, Mount Diablo Meridian) and was located approximately thirty-five miles south of the valley. (When survey of the township was complete in 1859, the state grant, identified as Lot #37 in the General Land Office

(GLO) survey plats, actually straddled two townships, T 5 A, R22E and T 5 S, R 21 E.)

Composed of some 500 giant sequoia (Sequoiadendron giganteum), the Mariposa Grove is the largest of three relict groves found within the borders of Yosemite National Park (Hull 1989:20; Willard 1994:55). These "distinguished strangers," which had "come down to us from another world," as Frederick Law Olmsted described the trees in 1865, continue to inspire with their enormous size, their unfathomable age, and their peaceful presence.

By withdrawing these lands from the public domain in 1864, the federal government intended both to protect the grove and to ensure that future generations of Americans could enjoy visiting it. First the state of California, then the army, and finally the National Park Service have each managed the grove in order to achieve the dual – and sometimes conflicting – objective of preservation and access. Continued visitation in greater and greater numbers since 1864 has meant the need to build and maintain roads and trails throughout the grove. Increased visitation over the years also raised concerns over possible negative impacts to the trees and led to the decision in 1969 to prohibit private vehicles from entering the grove. Lodges and campgrounds have likewise been removed from the grove to reduce visitor impact.

The history of the management of the grove mirrors the evolution of our understanding of ecological systems and of conservation practices. During the first five decades following establishment, decisions regarding its development and management were not science-based. Although some managers recognized the adverse effect of specific development on individual sequoia specimens, recognition of the effect of development and management policies on the natural systems within the grove did not really occur until the 1930s. In 1930, the report of a forester conducting studies within the grove sparked dialogue between a number of prominent figures in the park service, including National Park Service Director Horace Albright and George Wright. Basically, the discussion revolved around the advisability of tree thinning within the grove, and expanded to a discussion of the character of natural systems—about whether or not the grove represented a "primeval" forest, one "untouched by the hand of man." Wright's contribution to the dialogue was an important one, stating that park service management policies should be based upon the results of scientific inquiry. Since this time, the Mariposa Grove as well as other groves within the national park system have served as a kind of natural laboratory for the study of sequoia grove ecology.

Landscape Architecture in the Park Service:

The influence of the discipline of landscape architecture on the development of park infrastructure began with the birth of the National Park Service. During the 1916 meeting of the American Society of Landscape Architects, participants discussed four areas in which the application of the principles of landscape architecture would be of benefit to the fledgling park service. They would be critical to identifying appropriate boundaries for parks; in developing comprehensive general plans for park facilities; for approving designs for buildings and special structures; and, for developing maintenance systems that preserved park landscapes (Tweed et al. 1977:21).

In 1919 the director of the parks service hired formally trained landscape architect Charles Punchard to head the Landscape Division (later named the Branch of Plans and Design). For the remainder of the historic period, the division's directors and staff would be directly responsible for developing in house plans and for approving plans developed by concessioners. This oversight ensured that improvements harmonized with a park's natural and cultural values. In some parks, concessions development preceded by years the establishment of the Landscape Division, therefore the task of creating a unified, integrated appearance between old and new infrastructure and their natural settings represented a formidable challenge (McClelland 1990).

By the late 1920s, park superintendents, with the assistance of Landscape Division staff, had begun preparing development plans for parks. These "master plans" (as they came to be known in 1932) were used to justify and apply for appropriations, and covered a variety of topics including the development of roadways, trails, campgrounds, administrative and concession buildings, and water and waste disposal systems. The mater plants incorporated maps illustrating the existing and proposed development areas, and provided text with specifications and the rationale behind the development schemes.

Preliminary fieldwork for the preparation of the maps and text was conducted by park service landscape architects during the summer, who then incorporated the information into the planning documents during the winter months. Both landscape architects and architects worked together within the Landscape Division, the former contributing their knowledge and sensitivity of specific park environments and the latter, their understanding of structural systems and building design.

As park service funding increased during the 1920s and early 1930s, so too did the number of employees in the Landscape Division. In 1928, Chief Landscape Architect, Thomas C. Vint, hired a number of assistants, who, after one year of training, were assigned to specific western parks. Working in the parks during the summer season, these landscape architects acted as consultants, developed and reviewed all construction plans, and furthered the park service philosophy regarding the manner in which the natural environment should be modified to accommodate park visitors and staff. John Wosky was Yosemite's "resident" landscape architect, directly responsible for much of the historic-era work in the Mariposa Grove. Following a pattern basic to all of the large western parks, Wosky developed preliminary plans and worked with field construction crews. Periodically, Thomas Vint visited the park to consult and conduct field checks of Wosky's work.

Slightly later, funding sources associated with relief projects of the New Deal era, facilitated more rapid development of park service infrastructure. In 1933, the park service submitted portions of the master plans to the Public Works Administration (PWA)when that agency solicited potential projects. During that year, the administration approved a total of 164 building projects among western parks and monuments (Tweed et al. 1977:76-77).

The large number of Landscape Division employees, coupled with an increase in building appropriations through Works Progress Administration (PWA) and later Civilian Conservation Corps (CCC) programs, created a training crisis. Landscape Division employees had to be integrated into park service philosophy regarding appropriate development. This need was addressed in part by the 1935 publication of a manual that presented improvement designs and specifications appropriate for parks in different areas of the country. The purpose of the manual and the philosophy of the park service towards development is outlined in the "apologia" in the 1935 edition:

"The intent in publication of this collection will be misconstrued if it is interpreted as providing source material for park structures, denying need for competent professional assistance in the creation of park buildings that may follow. The intent is the very opposite. The most completel satisfying subjects included herein are so, not as a result of chance, but because training, imagination, effort and skill are conjoined to create and fashion a pleasing structure or facility appropriate to a particular setting … . If an existing structure is so admired that it persuades duplication, careful analysis will inevitably demonstrate that admiration springs from a nice perfection of the subject within one circumstantial pattern. As that pattern changes so must the structure change. To venture in translation without benefit of technical idiom foredooms to mediocrity if not to failure (Good 1935:8)."

The manual also provides a most useful descriptive definition of "rustic" design:

"Successfully handled, [rustic design] is a style which, through the use of native materials in proper scale, and through the avoidance of rigid, straight lines, and over-sophistication, gives the feeling of having been executed by pioneer craftsmen with limited hand tools. It thus achieves sympathy with natural surroundings and with the past (Good 1935:3-4)."

Albert Good, the editor of the 1935 manual, included examples of a wide range of improvements, including retaining walls on trails, road culverts, entry signs and administrative and concessions buildings. All of the examples emphasize the use of native materials to create structures and buildings that harmonized with the environment of the park in which they were located. Perhaps not surprisingly, several of the examples selected for inclusion in the manual came from Yosemite National Park—including the Mariposa Grove Museum, constructed in 1930.

Park service landscape architects also had a great deal of influence on the development of transportation systems within park units. Generally, three types of circulation systems were provided in parks, vehicular roads, bridle paths and foot trails. The Branch of Engineers provided field personnel as well as written guidelines regarding the development of park roads. Topics covered in Branch of Engineering publications such as "Specifications and Instructions for Minor Roads and Appurtenant Structures," included everything from the location of, and sanitary provisions for, construction camps, to methods for clearing and grubbing lands prior to road construction, to instructions on the size and weathering of stones used in retaining walls and culverts, to the disposition of fill materials.

Landscape "engineers" working for the park service selected road alignments based upon minimization of disturbance to the surrounding environment, while providing visitors with the best views of the surrounding country. In places like the Mariposa Grove, where the park service was not involved in siting the roadway, engineers and landscape architects were left with the task of improving the road and landscaping the adjacent areas so that they conformed to "modern" park service standards.

Physical History

1864-1906 State Administration

In 1864, while the Civil War was still piercing the heart of the nation, Congress passed a piece of landmark legislation to preserve Yosemite Valley and the Mariposa Grove of Giant Sequoia located in California's Sierra Nevada. The monolithic granite walls of the valley and the immense stately trees of the grove together inspired the federal government to grant these lands to the state of California "upon the express conditions that the premises shall be held for public use, resort, and recreation, and shall be inalienable for all time" (Act of June 30, 1864, 13 Stat., 325). The portion of the state grant that included the Mariposa Grove was to comprise four sections of land (Sections 6, 7, 8, and 18, T 5 S, R 22 E, Mount Diablo Meridian) and was located approximately thirty-five miles south of the valley. (When survey of the township was complete in 1859, the state grant, identified as Lot #37 in the General Land Office (GLO) survey plats, actually straddled two townships, T 5 A, R22E and T 5 S, R 21 E.) Composed of some 500 giant sequoia ("Sequoiadendron giganteum"), the Mariposa Grove is the largest of three relict groves found within the borders of Yosemite National Park (Hull 1989:20; Willard 1994:55). These "distinguished strangers," which had "come down to us from another world," as Frederick Law Olmsted described the trees in 1865, continue to inspire with their enormous size, their unfathomable age, and their peaceful presence.

By withdrawing these lands from the public domain in 1864, the federal government intended both to protect the grove and to ensure that future generations of Americans could enjoy visiting it. The following site history reviews how the landscape of the grove has reflected its management over time. First the state of California, then the army, and finally the National Park Service have each managed the grove in order to achieve the dual – and sometimes conflicting – objective of preservation and access. Continued visitation in greater and greater numbers since 1864 has meant the need to build and maintain roads and trails throughout the grove. Increased visitation over the years also raised concerns over possible negative impacts to the trees and led to the decision in 1969 to prohibit private vehicles from entering the grove. Lodges and campgrounds have likewise been removed from the grove to reduce visitor impact.

Throughout the history of the grove since 1864 park managers have long sought to prevent destructive fires. The desire to protect the grove, combined with a misunderstanding of the role of fire in maintaining its vitality, resulted in at least a century of fire suppression as a guiding principle in management of the grove. As ecological awareness began to expand in the 1960s, a policy of prescribed burning has since supplanted that of fire suppression. This emerging ecological understanding also reversed the previous tendency to focus on the needs of individual trees, often by devising types of enclosures around their bases, rather than seeking greater knowledge of the entire ecosystem and making management decisions based on that knowledge. Despite these instrumental changes, and their impacts on the landscape of the grove, the management goals have consistently emphasized the need to protect the Mariposa Grove while ensuring visitor access to it.

Prior to Euro-American settlement in California and the establishment of the Yosemite grant, American Indians – particularly the Southern Sierra Miwok and the Western Mono – knew of the existence of the grove. According to ethnographer Stephen Powers, the Western Mono believed that the giant sequoia was sacred, calling it Wah Woh Nau, a word conceived to imitate the hoot of the great horned owl, which was considered the guardian spirit of the big trees (Powers 1877:368; Browning 1988:158). However, the bulk of the ethnographic evidence indicates that sequoia groves may have been deliberately avoided rather than exploited by indigenous peoples.

Archaeological excavations in sequoia groves in general have been limited. Excavations conducted in 1985 in the Mariposa Grove, as well as at the nearby South Entrance to Yosemite National Park, documented small settlements that yielded a comparatively minimal sample of cultural materials (Hull 1989:135). Suggesting only limited, short-term use, these sparse scatters of material of an ephemeral nature date perhaps as far back in time to 3500 years ago (Hull 1989:136-137).

Fire history prior to establishment of the grant has also been documented. Larger fires, big enough to cause the fire scars seen on most of the oldest sequoias, are known to have burned historically in the grove in the following years: 450, 1652, 1690, 1710, 1742, 1803, and 1842 ("Yosemite Nature Notes" [YNN], March 1958:37). Based on fire scars and ring counts, studies have shown that between 1760 and 1900 there were as many as 18 fairly large fires within the Mariposa Grove (Hartesveldt 1964:15). Another large fire occurred in 1862 (YNN, March 1958:37). By then, certain influential leaders in California had begun to lobby for the scenic preservation of the grove and valley.

Awareness of the existence of the grove spread after a laborer working for Lafayette Bunnell, a member of the Mariposa Battalion sent to remove Indians from the vicinity of Yosemite, had seen the big trees in 1849. Another early discovery is credited to R. H. Ogg, a camp hunter who worked for the same mining company as did Galen Clark, who would later serve as the first guardian of the grant after its establishment. Ogg reportedly saw three of the huge trees in 1855. His interest piqued, Clark hoped to also find the trees, and in late May, 1857, while hunting with trail-builder Milton Mann, Clark discovered the upper portion of the Mariposa Grove of Giant Sequoia (Greene 1987: 47; Russell 1929: 50; Sargent 1981:11, 15). Within a few days Clark had also explored the lower portion of the grove and, because of its location within Mariposa County, gave the grove its name: Mariposa Grove of Big Trees (Russell 1929:51; Sargent 1981:15).

Clark by then had built his first log cabin in the vicinity of the Wawona Meadow, soon to become known as Clark's Station where intrepid tourists could take lodging. Clark had come west to California from New Hampshire in the fall of 1853. Plagued with ill health and mounting debts, Clark sought in the California gold mines a chance to cure both. Finding barely enough gold for subsistence, however, he switched from prospecting for gold to working for a mining company, the Mariposa Ditch Company. Surveying for this company took Clark into the rough terrain along the South Fork of the Merced River. In August of 1855, Clark journeyed with a group of miners into Yosemite Valley. During the trip the group had camped at the Wawona meadow, near the location where in 1856 Clark filed a homesteading claim for 160 acres. Among Clark's most frequent visitors were Milton Mann and his brothers, Houston and Andrew, whose trail to Yosemite Valley had opened in August of 1856 (Sargent 1981:11-15).

Clark conveyed his fascination with the big trees and publicized its existence by leading tourists to the grove. Sometime between 1858 and 1864, he constructed a small, windowless cabin in the upper grove to accommodate and shelter visitors (Figure 1). One early visitor, Reverend Henry Bellows of New York, probably gave the cabin its name of "Clark's Hospice" after taking shelter there in June of 1864. Another early tourist stopped there three years later, referring to it as "Clark's Hospice" and noting that the cabin stood near "a spring of ice cold water," where the group had eaten lunch and rested (Greene 1987:236-237; Hull 1989:10). By the early 1860s, Milton Mann had built a trail from Clark's Station at the Wawona Meadow into the grove as far as the site of this cabin, initiating a long and vital association between Wawona and the grove (Barbee 1968:Appendix A).

Additionally instrumental in publicizing the grove were the visits of such early photographers as Charles Weed and Carleton Watkins in 1859. Their photographs of the big trees, reproduced in such publications as "Hutchings' California Magazine", captured the imagination of Americans. Along with the romantic

paintings of Albert Bierstadt, the work of these photographers awakened increasing numbers of Americans to the stupendous beauty of the Mariposa Grove and Yosemite Valley. Not only did photographs and paintings play a role in spurring tourism in the area, they also lent telling support to the arguments of those who hoped to ensure the preservation of these lands by withdrawing them from the public domain (Runte 1990:16).

For as visionary as the resultant legislation was, the campaign to preserve Yosemite Valley and the Mariposa Grove was swift and relatively painless. In February, 1864, Israel Ward Raymond, a representative of the Central American Steamship Transit Company of New York, which stood to profit from tourist travel to Yosemite, wrote to California Senator John Conness, recommending that the federal government grant the Mariposa Grove and Yosemite Valley to the state of California "for public use, resort, and recreation" (quoted in Carr 1998:27). Just weeks later, on March 28, 1864, Conness introduced legislation to achieve that objective ("Congressional Globe" [CG] 1864:1310). On May 17, the Senate Committee on Public Lands reported favorably on the bill and the Senate briefly debated the issue. Conness explained that the bill provided for granting to the state both Yosemite Valley and the Mariposa Grove on the condition that they "be held for public use, resort, and recreation" and that the property "shall be inalienable forever." Income derived from leases would pay for the "preservation, improvement, and protection of the property." The measure further provided that the governor of California would appoint eight commissioners who would receive no compensation for their work in this capacity. Together, the governor and the commission were charged with the responsibility of managing the grant. According to Conness, this commission would "undertake the management and improvement of the property by making roads leading thereto and adopting such other means as may be necessary for its preservation and improvement." Specifically regarding the grove, Conness explained that the grant included "a few sections of ground upon which one of the celebrated big tree groves of that State is located, of which most Senators doubtless have heard. The trees contained in that grove have no parallel, perhaps, in the world. They are subject now to damage and injury; and this bill, as I have before stated, proposes to commit them to the care of the authorities of that State for their constant preservation, that they may be exposed to public view, and that they may be used and preserved for the benefit of mankind" (CG 1864:2300-2301).

Connecticut Senator La Fayette Foster then asked how the measure originated and whether the state of California had intimated "any wish that we should make this grant to them." Conness replied that "various gentlemen in California, gentlemen of fortune, of taste, and of refinement" had suggested that the property "be committed to the care of the state." Conness had subsequently submitted this plan to the commissioner of the General Land Office (GLO), who according to the senator also took "a great interest in the preservation both of the Yosemite valley and the Big Tree Grove." When he submitted the proposal to the GLO commissioner, Conness had added the instruction: "Let the grant be inalienable" (Runte 1990:19). To his fellow senators Conness again stressed that the purpose of the bill was to ensure the valley and the grove's protection: "The Mariposa Big Tree Grove is really the wonder of the world, containing those magnificent monarchs of the forest that are from thirty to forty feet in diameter....The necessity of taking early possession and care of these great wonders can easily be seen and understood." The Senate agreed, and without further debate, passed the measure.

Debate in the House of Representatives was similarly brief. On June 29, 1864, California Representative William Higby explained that the bill had originated in the Senate. When asked specifically by Massachusetts Representative George Boutwell if the measure protected the giant sequoias, Higby answered in the affirmative, adding that the state of California would "take good care of these big trees; the object of this bill is to prevent their being cut down or destroyed." The House then passed the bill without discussing the measure any further (CG 1864:3389). The next day, June 30, President Abraham Lincoln signed the bill into law.

Had California still been a territory it is conceivable that the federal government would have created the first national park to protect Yosemite Valley and the Mariposa Grove rather than grant the property to the state in 1864. Fundamentally at work here, however, was the concept that the federal government must take action to reserve the lands from private ownership in order to preserve the scenic value of the valley and the grove simply because of their astonishing beauty. Scenic preservation for the "benefit of mankind" outstripped any other possible use of this land. Determining how to protect the grove while simultaneously providing access to it would subsequently guide its management and would influence changes to the landscape of the grove.

Although the state did not formally accept the grant until April 2, 1866 during the next session of the legislature, only a few months passed before Governor Frederick Low on September 28, 1864 warned "all persons to desist from trespassing or settling upon said territory, and from cutting timber or from doing any unlawful acts within the limits of such grant" (quoted in Sargent 1981:19). Governor Low also appointed the first Yosemite commission, choosing such prominent men as Frederick Law Olmsted, then employed as the superintendent of John Fremont's estate; Israel Ward Raymond; California State Geologist Josiah D. Whitney; William Ashburner, a mining engineer and member of the California Geological Survey; E. S. Holden, Stockton businessman; Alexander Deering, a Mariposa attorney; George W. Coulter, a Coulterville merchant; and Galen Clark (Sargent 1981:19).

The group elected Olmsted – famed already as the designer of New York City's Central Park – as its first chairman. He perceived that it was his responsibility "to take possession of the Valley for the State, to organize and direct the survey of it and to be the executive of various measures to guard the elements of its scenery from fires, trespassers, and abuse" (quoted in Sargent 1981:19). The commission next authorized the survey of the valley and grove. By the autumn of 1864, James Gardner and Clarence King, noted explorers of the Yosemite region, had completed the survey to determine the "locus, extent and limits" of the grant as Congress had directed in the 1864 act (Runte 1990:22).

Consistent with how he perceived his responsibility, Olmsted prepared a report intended to be presented to the state legislature concerning the administration of the grant. On August 9, 1865, on the floor of Yosemite Valley, he read this report to the members of the first Yosemite commission. In it Olmsted described the natural beauty of the grant and acknowledged Congress's recognition that these lands must remain in public ownership and be protected from the "false taste, the caprice or the requirements of some industrial speculation" (1865:2). He contended that among the duties of a republican government was that of providing sources of happiness to all its citizens – including the enduring happiness made possible by experiencing the sublime beauty of the valley and grove (12). Contrasting the grant to private parks owned by the wealthy, Olmsted argued that the public nature of the grant was crucial to ensuring that no one obtained a monopoly over access to its beauty and restorative powers (17-18). He also foresaw a time when the number of visitors to the grant would reach into the millions, warning prophetically that as a result any slight injury when visitation was small would be increased a million-fold as those numbers rose (23).

Of the Mariposa Grove in particular, he noted the hundreds of giant sequoias that were of "such beauty and stateliness that, to one who moves among them in the reverent mood to which they so strongly incite the mind, it will not seem strange that intelligent travellers have declared that they would rather have passed by Niagara itself than have missed visiting this grove" (6). To achieve the grant's protection while providing visitor access, he advised, the commission must, "within the narrowest limits consistent with the necessary accommodation of visitors," restrict "all artificial constructions" and prevent "all constructions markedly inharmonious with the scenery or which would unnecessarily obscure, distort or detract from the dignity of the scenery" (21). Fire must be prevented, he further warned. To that end,

Olmsted advised that a road should be constructed to the Mariposa Grove and then extended "completely around it, so as to offer a barrier of bare ground to the approach of fires" (26).

In this report, then, Olmsted envisioned a park whose chief value lay in its natural scenery made available to all, where accommodations nonetheless must remain minimal so as not to interfere with that primary value. He proposed a comparatively large budget of $37,000 for construction of trails, roads, bridges, and a few cabins, as well as for a superintendent's salary. Although his fellow commissioners approved the report on August 9, they later decided against presenting it to the state legislature (Ranney 1995:xviii; Runte 1990:39).

On April 2, 1866, the California state legislature voted to accept the grant from the federal government and agreed to the condition of inalienability. The act also confirmed the appointment of the Yosemite commissioners and entrusted them with "full power to manage and administer the grant." It prohibited the cutting down or injuring of trees and the defacement of any natural object, authorizing the appointment of a guardian to enforce this regulation. Rather than Olmsted's $37,000, however, the act appropriated $2,000 to pay the commissioners' incidental expenses and the guardian's $500 annual salary (Greene 1987:1082-1083). Just over a month later, on May 21, 1866, the commissioners named Galen Clark the grant's first guardian (Sargent 1981:20).

By 1867, at the behest of the commissioners (long without Olmsted who had returned to New York shortly after submitting his 1865 report), the state geologist had completed a survey of the Mariposa Grove. Each sequoia of over one foot in diameter was measured and then plotted and numbered. In their first biennial report, dated November 14, 1867, the Yosemite commissioners noted the completion of this survey and Clark's success at preventing fires in the grove. They also clarified their position on road-building: "The Commissioners do not, however, consider it any part of their duty to improve the approaches to the valley or Big Trees; this may safely be left to the competition of the counties, towns, and individuals interested in securing the travel" (Whitney 1867: 10).

As a result, road-building to provide access to the valley and the grove proceeded with private capital. This was, moreover, consistent with the enabling legislation, which had provided that income derived from leases of portions of the grant would be spent in part on road-building. In March, 1869, Clark and others organized the Mariposa Big Trees & Yosemite Turnpike Company to construct a toll road to Clark's Station at Wawona and to the Mariposa Grove. By August, 1870, the road was complete to Clark's Station (Sargent 1981:35-36).

The following spring in May, Ralph Waldo Emerson visited the grove. Emerson traveled through the grove on a trail system that approached the upper portion of the grove from the west and wound through the grove in such a way that visitors passed close to most of the largest trees (California Geological Survey 1868:111). Reacting to the splendor of the giant sequoia, Emerson stated, "The greatest wonder is that we can see these trees and not wonder more." He named one of the trees "Samoset" in honor of a New England Indian leader. With names chosen to honor states, cities, political and military leaders, and universities, this naming practice would continue for decades (Sargent 1981:38).

By 1879, the Washburn brothers (Henry, John and Edward) had bought Clark's interests and acquired the Mariposa Big Trees & Turnpike Company. Tying their hotel interests with tourist travel through the grove, the Washburns instructed one of their employees, Tom Gordon, to build a wagon road by expanding upon the existing trail system. By 1879, with the assistance of 200 Chinese laborers, Gordon had overseen the construction of this road through the Mariposa Grove. Gordon also improved upon a rough trail that led to Wawona Point at the top of the grove from which visitors could gaze at Wawona Meadow and Wawona Dome (Greene 1987:108; Reynolds and Gordon 1994:15, 35, 95).

Illustrative of popular notions at the time that saw the big trees as natural curiosities, the Washburns decided to cut a tunnel through one of the trees so that tourists could drive through a giant sequoia. They paid the Scribner brothers $75 to cut the 8-foot-wide, 26-foot-long, and 9-foot-high tunnel in the Wawona Tree. Completed in early August of 1881, the tunnel was an enlargement of an existing fire scar in the tree (Godfrey 1929:45; Greene 1987:49; Sargent 1979:35). The first choice of a tunnel tree had been the Telescope Tree, so named for the ability to see the sky when looking up through the tree from the ground. Making several cuts in the bark of the tree that are still visible, the Scribners started increasing the already large hole at the base of the Telescope Tree. Fearing it would fall as a result of the cut, however, they chose the Wawona Tree instead (A. C. Leonard, Park Ranger, to Gabriel Sovulewski, Park Supervisor, March 18, 1913, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, Yosemite Research Library, Yosemite National Park, California [YRL]). First to drive a stage through the Wawona Tunnel Tree was Tom Gordon, who had to stop and chisel a bit more bark away in order to pass completely through the tunnel (Reynolds and Gordon 1994:97-98). Ironically, what could be considered a defacing of the tree further publicized the grove as photographs of stages coming out of the tunnel were sent all over the world and as tourists flocked to the grove in order to have their photograph taken at the Wawona Tunnel Tree.

In 1895, the Washburns contracted for the cutting of a second tunnel tree in the grove and W. H. Coop and John Cummings bored a similar hole through the California Tree located some 100 yards east of the Grizzly Giant. The Washburns wanted a second tunnel tree in order to afford passage to tourists when snows at the Wawona Tree's higher elevation blocked the route (Godfrey 1929:45; J. V. Lloyd photo essay, Nov. 10, 1925, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL; Reynolds and Gordon 1994:98).

Some ten years earlier, in 1885, Clark's Hospice in the grove had undergone a renovation at the state's direction. The renovated cabin was an extension of Clark's original structure: the open triangle that had been previously used as a kitchen at one end was demolished and replaced with an enclosed area with a chimney (Greene 1987:236) (see Figure 2). One of Clark's successors as guardian, W. E. Dennison, visited the remodeled cabin in September of 1885 and described it as "a most substantial, roomy, old-fashioned structure with [a] good stone chimney, a crane in the fire place, two doors and two windows and an even floor of tongue & groove yellow-pine boards." He characterized the cabin as "entirely in keeping with its massive surroundings" (W. E. Dennison, Guardian, to William B. May, Secretary and Treasurer, Yosemite Commission, Sept. 24, 1885, 979.447 Y-5a, Vertical Files, YRL).

In their biennial report for 1885-1886, the Yosemite commissioners noted that the "comfortable and artistic" cabin was located "at a central point in the grove for the shelter and convenience of visitors" (1886:10). That year they also reported that $500 had been "expended in the construction of new roads in and about the grove, and in the improvement of those heretofore laid out" (1886:10). The report further reflected an abiding concern to prevent fires that camping parties in the grove might inadvertently start (1886:10). In September of that year, inaugurating decades of continued clearing practices as a fire-preventative measure, Dennison had instructed Henry Washburn (in his capacity as sub-guardian) to clear away debris from under the sequoias for a distance of at least 30 feet and then to carefully burn the debris piles (W. E. Dennison to Henry Washburn, Sept. 24, 1885, 979.447 Y-5a, Vertical Files, YRL).

In the fall of 1888, a large fire burned outside the Mariposa Grove, and in some instances crept inside the boundaries. The Yosemite commissioners speculated that either campers accidentally started the fire or sheepherders purposefully set it. The fire had taken weeks to contain, costing most of the state's annual appropriation for care of the grove (Biennial Report 1890:6). In response, Galen Clark, whom the commissioners reappointed as guardian in 1889, increased clearing efforts, clearing the area beneath the

big trees down to mineral soil (Biennial Report 1892:11; Sargent 1981:66-67). Additionally, in 1892, the Yosemite commissioners reported that roads had been extended in the grove so that all the sequoia, either singly or in groups, were enclosed by a roadway. According to their report, the work proved expensive but it "furnished the most effective safeguard against fire" (Biennial Report 1892:11; Biennial Report 1894:5).

The disturbance to the soil and the access to bare mineral soil helped sequoia seeds to germinate and seedlings to prosper. The 1892 report noted that "since the surface under the Big Trees has been cleared down to the soil, beneath each has sprung a nursery of Sequoias, which are stoutly growing in vast numbers." The commissioners "encouraged the transplanting of these wherever requested" in California and also sent seedlings to England, France and other European destinations, where they would provide "a reminder to recall to the traveler the noble forests and enchanting mountains of California" (Biennial Report 1892:11).

By this time, the federal government had established Yosemite National Park in October of 1890. The new park comprised nearly a million acres that surrounded the valley and lay just north of the grove. The legislation creating the park stipulated that nothing in it should be "construed as in anyway affecting the grant of lands made to the State of California" in 1864. Charged with the administration of the new park, the army was stationed at Camp A. E. Wood at Wawona from 1891 to 1906. From there patrols were periodically sent into the Mariposa Grove to drive out cattle that were grazing within the protected area (Reynolds and Gordon 1994:98-99). At the same time a guardian employed by the state continued to manage the valley and grove. Galen Clark served in this capacity until 1896 (Sargent 1981:74). He continued to stress the need to clear and burn debris inside the grove and in the area immediately surrounding it "to more thoroughly protect and preserve the Big Trees from destruction or further injury by fire" (Clark to Yosemite Commissioners, Aug. 30, 1894, in Biennial Report 1894:15).

In 1902, the state enlarged the cabin in the grove by adding another room that functioned as an office for the guardian (Greene 1987:236; Reynolds and Gordon 1994:12). A year later, in mid-May, President Theodore Roosevelt visited the grove with John Muir. Rather than stay at Wawona, the two chose to sleep outside beneath the giant sequoias (Greene 1987:405; Sargent 1979:58). By then, Muir and members of the Sierra Club were actively campaigning for the recession of the valley and grove so that both would again fall under federal jurisdiction. Galen Clark, distressed with the state's apparent political inefficiency and inability to provide sufficient funding for the care of the original grant, joined Muir in advocating recession (Sargent 1981:77). Those who agreed with Muir and Clark contended that the state simply did not have the financial resources that were required to adequately care for Yosemite Valley and the Mariposa Grove. They were persuasive in their arguments and on March 3, 1905, the California governor approved a measure receding the original grant to the United States so that the lands could become part of Yosemite National Park (Annual Superintendent's Report 1905:5; Greene 1987:405).

Upon receiving the news about this state action, California Senator George Perkins immediately introduced a bill in Congress to accept the recession and to appropriate funding for the care of the valley and the grove. But because it was the last day of the congressional session, new legislation could not be introduced. Senator Perkins then chose to introduce a joint resolution to accept the grant and provide funding for its administration, which quickly passed both the Senate and the House (Annual Superintendent's Report 1905:5-6; Joint Resolution 29, March 3, 1905). Some of the Yosemite commissioners then contested this measure, suggesting that the joint resolution was not sufficient evidence of the federal government's intent to accept the recession. As a result, the state retained control of the grant for one more year. On June 11, 1906, Congress again passed a joint resolution accepting the recession of the grant, reserving and withdrawing the valley and the grove from settlement, occupancy or sale. This measure apparently satisfied all the members of the Yosemite Commission, and on August 1,

1906, state authorities relinquished control of the original grant to the federal government (Annual Superintendent's Report 1906:6-7; Greene 1987:408-411).

Figure 1. Clark's cabin ("hospice") in the upper portion of the Mariposa Grove. Photograph by John. P. Soule, 1870. YRL Photo No. RL-16483.

Figure 2. Clark's cabin after renovation by the state. YRL Photo No. RL-17479.

1906-1929 Early Federal Administration

From 1906 until two years before the creation of the National Park Service in 1916, the U.S. Army managed the Mariposa Grove. During the intervening two years, civilian rangers who would later become part of the National Park Service managed the valley and the grove in the army's stead (Sargent 1979:59). The ranger station, which was located near the entrance of the grove and was subsequently removed, dates from this period. A persistent concern among all managers remained the need to prevent fire by clearing dead timber and brush and undergrowth away from beneath the giant sequoias. Increases in visitation also sparked concern for possible damages to individual trees, especially after cars were allowed to enter the park in 1913. By 1920, the first Big Trees Lodge was in operation in the grove. By 1929, the arrival of cars in greater and greater numbers had led to decisions to relocate portions of the road and to widen, grade, and oil it. The increase in numbers of visitors also raised new questions about how to best protect the grove.

Late in 1910, Acting Superintendent Major William Forsyth replied to an inquiry from Interior Secretary Richard Ballinger regarding measures for the improvement of the Mariposa Grove and for its protection from fire. Major Forsyth, as had Galen Clark and others, stressed the need to remove "the dead timber and brush and inflammable undergrowth." This removal alone, Forsyth believed, would afford 75 percent "complete protection" of the grove (Forsyth to Ballinger, Dec. 2, 1910, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL). Accordingly, the Army continued to pursue the earlier policy of clearing debris away from beneath the giant trees (Grizzly Giant Report, 1935, 979.447 Y-35b, Vertical Files, YRL). During September and October, 1913, approximately 80 acres of the upper grove were "cleared of debris, fallen timber, and jungle growth of shrubs and young yellow pines and firs" (Annual Superintendent's Report 1913:16). In addition to the goal of fire prevention, the clearing was also intended to create a more aesthetically pleasing vista in the grove (Annual Superintendent's

Report 1914:8).

Concern for aesthetics by then had also led park managers to assert some control over name signs that were attached to more and more individual trees. In 1910, Major Forsyth found many of these signs "most unsightly and inappropriate." Until "suitable tablets in harmony with the environment" were designed, he determined that "a small metal plate, painted black, with the name in gilt" should replace the existing signs (Annual Superintendent's Report 1910:14). Accordingly, Forsyth instructed the secretary of the San Jose Chamber of Commerce, which had requested attaching the name "San Jose" to one of the sequoias in the grove, to send a name plate made out of "sheet zinc about six inches wide, 1/16 of an inch thick, and painted black or dark green, with the letters in gilt four inches high and three inches wide" (Forsyth to Joseph T. Brooks, July 30, 1912, Mariposa Grove of Big Trees, File: 701-01.42, Separate Files, YRL). The naming phenomenon by then had led to 105 named trees in the upper grove and 11 of them in the lower grove. Most names honored states, cities, universities, and American political leaders ranging from William Penn to General Robert E. Lee. Some names, like that of the Clothespin Tree or the Telescope Tree, reflected physical characteristics of individual trees. In 1912, Major Forsyth reserved 44 remaining unnamed trees that stood near the road in the grove for "special naming" in the future (Forsyth to the Secretary of the Interior, Aug. 2, 1912, Mariposa Grove of Big Trees, File: 701-01.42, Separate Files, YRL). After 1929, name signs were no longer attached to the trees (Greene 1987: 48).

In 1912, reflecting growing concern for the well-being of individual trees in the face of increased visitation, the first of many enclosures around the Grizzly Giant was built. This initial enclosure consisted of a "woven-wire fence" with two strands of barbed wire at the top (Annual Superintendent's Report 1912:16). Additionally, a year earlier, dirt had been hauled to cover the Grizzly Giant's exposed roots (Ralph Anderson, A Photographic Study of the Grizzly Giant, ca. 1938, 979.447 Y-35a, Vertical Files, YRL). By 1922, Landscape Engineer Dan Hull was considering different types of enclosures. Too high a fence would block views of the tree, especially the gnarled base. An iron fence, as the California Automobile Association had offered to build, was apt to appear "commercial" in Hull's view. A split-rail fence would seem "rustic" and "woodsy" and as such would belong "in this environment," but Hull thought it would prove too easy for tourists to climb. Hull found it "unfortunate ... that these splendid trees should require protection, standing as they have [through] countless storms, yet I am satisfied that we cannot afford to allow them to be abused by the tourist as they have been in the past" (Hull to Director, National Park Service, July 24, 1922; Dec. 23, 1922, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL).

The purpose of these enclosures was two-fold: to prevent tourists from climbing on the bases of trees and to deter them from taking pieces of sequoia bark as souvenirs. By 1926, the wire fence around the Grizzly Giant had been removed, at the behest of Park Superintendent W. B. Lewis. As an alternative, National Park Service Director Stephen Mather had suggested setting posts around it and erecting signs to warn visitors to stay out of the enclosure. Superintendent Lewis, on the other hand, favored a barrier of unpeeled cedar logs around the base of the tree to deter climbing and the chipping of bark as souvenirs (O. G. Taylor, Resident Engineer, to Dan Hull, Landscape Engineer, July 22, 1926, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL). Director Mather's suggestion was implemented between 1926 and 1929. Sequoia wood posts were set around the base of the Grizzly Giant in 1926. Signs warning "Do not enter this circle" were attached to several of these posts (Figure 3). Within three years, a chain was hung between the posts (Ralph Anderson, A Photographic Study of the Grizzly Giant, ca. 1938, 979.447 Y-35a, Vertical Files, YRL). The search for an effective enclosure, however, would continue into the 1930s.

The arrival of private cars and motor-stages in the grove in 1915 presaged telling changes to its

landscape. Automobiles brought increasingly more visitors, which eventually led to wider roads with first oiled, and then asphalt, surfaces. Parking areas were built along the side of the road in places where tourists frequently stopped such as the Grizzly Giant. More tourists raised new concerns about the effect of soil erosion and compaction around the bases of the trees. As early as 1915, Park Superintendent George Bell commented on the increasing numbers of tourists in the grove made possible by motorized vehicles: "Since the operation of automobiles into these groves of big trees in such large numbers by both the transportation companies and private individuals the roads have been in a very poor condition." Bell recommended repairing and widening the roads "so that they will be more accessible to automobile travel." That year, cars and motor-stages had brought nearly 14,000 visitors to the Mariposa Grove. To regulate travel through the grove, schedules for entering and exiting the grove were established. Drivers had to first check with the clerk at the Wawona Hotel to find out when they could enter the grove and then with the person stationed at the cabin in the upper grove as to when they could leave (Annual Superintendent's Report 1915:11, 36).

As of 1919, two primary areas – the lower and upper portions of the grove, continued to define the grove's spatial organization. The road looped around the entire site, snaking around the route near most of the predominant individual trees and occasionally splitting into one-way segments. The desire to allow views of individual trees had determined first where trails were built, and then where the road had expanded upon the trail system or diverged from it. A "tourist camp" for overnight visitors was located near the entrance to the grove, just southeast of the ranger station. In the upper grove, visitors encountered Clark's renovated and enlarged cabin as well as the Wawona Tunnel Tree. Soon they would be able to stay in the interior of the grove at the first Big Trees Lodge, built in 1919 and 1920 near Clark's cabin and adjacent to the Montana Tree (Figure 4) (1919 Map, "Mariposa Grove of Big Trees," Information Circulars, Vertical Files, YRL; Reynolds and Gordon 1994:106).

In 1919, the D. J. Desmond Co. began construction of the Big Trees Lodge. Plagued by financial difficulties, however, the company went into receivership, reorganized, and re-emerged as the Yosemite National Park Company in 1920 (Robinson 1948:88). This company completed the construction of the lodge complex that year. It consisted of many component parts. The main structure – gazebo-like and octagonally shaped – was eventually attached to the Montana Tree (see Figure 5). This structure housed the lobby and other administrative offices. An open-air 28-foot by 45-foot dining room, ringed by a log railing, looked out into the grove from the main lodge. Open from June through September, as many as 30 guests could stay at their choice of redwood cabin, canvas cabin or canvas tent. The difference between a canvas cabin and a canvas tent was that the cabin's interior was divided by means of canvas walls. Altogether, the lodge complex included 14 redwood cabins, 3 canvas cabins, and 2 canvas tents. As of 1923, the concessioner had also applied for permission to construct tree cabins by cutting into nearby sequoias and erecting glass walls. These were apparently not built. Other associated buildings housed a kitchen, a woodshed, two lavatories, and as of 1923, a 10,000-gallon redwood water-tank and a fenced-off covered well. Galen Clark's cabin also served tourists at this time by housing a photograph studio and curio shop (Big-Tree Lodge, June 1923, Insurance Appraisal Photo Album no. 9, YRL).

In 1925, in response to increased traffic, the Park Service widened and graded 3.25 miles of the road throughout the Mariposa Grove. The project further entailed a few changes in the location of the road. A former exit road extending from the Diamond Group to a junction near the Clothespin Tree was abandoned. Also eliminated was a short section south of a small intermittent creek between the Fallen Monarch and the sharp curve below the Grizzly Giant. Near the Grizzly Giant itself the road was moved to a point farther north some 30 feet from the base of the tree. Traffic on the old road had cut too close to the tree and vehicles had driven over its roots. Trenches were dug along the new road edge for drainage (Figure 6). Additionally, the grade of the new road was raised and fill added to provide greater protection to the roots (Anderson, A Photographic Study of the Grizzly Giant, ca. 1938, 979.447 Y-35a, Vertical

Files, YRL; Grizzly Giant Report, 1935, 979.447 Y-35b, Vertical Files, YRL). When completed, total expenditures on this project reached over $54,000 (Final Report on Mariposa Grove 1929).

Improvements to the water system to serve the campground, ranger station, and a nearby construction camp were also made in 1925. This project involved reconstructing and enlarging a water line that had been built just one year earlier. In 1925, the Big Creek water system was also originally installed in order to serve a sprinkling tank located just above the Grizzly Giant. When completed, water was sprinkled on the road to reduce dust. By 1929, roads were oiled for the same reason (Grizzly Giant Report, 1935, 979.447 Y-35b, Vertical Files, YRL).

In the early spring of 1927, the Massachusetts Tree fell. It measured approximately 280 feet high and was 28 feet in diameter at the base. To facilitate tourists to climb on the fallen giant, the Park Service constructed a walkway and stairway up the trunk (Grizzly Giant Report, 1935, 979.447 Y-35b, YRL). Park Naturalist C. A. Harwell attributed the fall to two factors: Fire had burned away about two thirds of its base and the wagon road built in the 1870s had cut through it roots (Mariposa Grove Guide, Special Bulletin, 979.447 Y-35, Vertical Files, YRL). Fear that other giant sequoia might be at risk led to studies on the effects of damage to the trees' root systems. Dr. E. P. Meinecke, a plant pathologist, submitted a preliminary report on September 30, 1927. Noting that the root system of the giant sequoia extends as far as 150 feet away from the base of a given tree, Meinecke focused on the potential harm to a tree when the roots cannot obtain sufficient water, air and food. He found the connection between the roots and crown of the Texas Tree in the lower grove, for example, to be reduced to 75 percent of "normal connections" and that of the Grizzly Giant reduced to 24 percent. He argued that the "Big Trees stand on a comparatively very small and shallow inverted plate of heavy roots from which much smaller roots branch out. The fine root endings which are the real feeders of the tree are in the main confined to the upper three or four inches of soil where they find just the right set of conditions." Meinecke contended that the increased numbers of tourists walking around the bases of the sequoia were eroding and compacting the soil to the point where the roots could not obtain sufficient nutrients and water. Accordingly, he advocated banning all camping in the grove (Meinecke to Stephen Mather, Sept. 30, 1927, File: 582, Sequoia – Mariposa Grove, Separate Files, YRL).

Not long after Meinecke submitted his recommendations, Park Ranger William Godfrey in 1928 reported on his examination of roots that had been cut during road-building. He counted the number of roots and measured the size of the roots that had been damaged in this way at the Corridor Tree and at others near it. Eleven such roots of the Corridor Tree were cut; the largest of these measured 34 inches in diameter. At the Three Graces two roots were cut, the largest of which measured 20 inches in diameter. In the upper grove, Godfrey noted that roots were cut to give proper drainage to the Big Trees Lodge's covered well. One of these roots measured 44 inches in diameter (Godfrey Report, Aug. 4, 1928, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL).

In addition to fears concerning the possible damage to trees caused by the impact of increased visitation in the grove, the persistent fear of fire resulted in another project to clear debris. In 1929 the Park Service cleaned up most of the entire Mariposa Grove, in addition to doing similar work in both the Merced and Tuolumne groves. As Park Superintendent Charles Goff Thomson informed Dr. Meinecke, they had "spent all available funds in cleaning up all of the [forest] litter because of the fire menace." Some of the debris was burned then, but other piles awaited more favorable conditions as of May, 1930. Thomson would not permit any burning "within five hundred feet of any Sequoia because of destruction to the root system" (Thomson to Meinecke, May 16, 1930, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL).

By the end of the 1920s, many changes had altered the landscape of the Mariposa Grove. Chief among

these were the construction of the Big Trees Lodge and the widening and repositioning of the grove road. Cleaning debris from the forest floor was periodically repeated in the interest of fire prevention. The first of many types of enclosures was tried around the Grizzly Giant. By 1929, name signs were no longer attached to the trees. Finally, research into the possible damaging effects to the big trees took on a new urgency as the automobile brought more and more visitors to the grove. Those numbers would not continue to rise dramatically during the 1930s since the Great Depression meant fewer vacations for most Americans (although those who came to camp tended to stay for longer periods of time). Instead, the dramatic changes in the grove during the 1930s resulted from the amount of federal funding that the government made available in response to the financial crisis of the Depression.

Figure 3. Photograph of the Grizzly Giant in 1926, showing the sequoia wood stubs around the base of the tree. YRL Photo No. RL-979447-9.

Figure 4. H. S. Hoyt map of the Mariposa Grove of Big Trees. Reproduced from Information circulars, Vertical Files, YRL.

Figure 5. Photograph of the main building in the Big Trees Lodge complex. Dates 1919. YRL Photo No. RL-17136.

Figure 6. Photograph of the Grizzly Giant showing road and drainage ditches on north side of tree. YRL Photo No. RL-979447-7.

1930-1945 Development and Expansion

The combination of federal sponsorship of numerous projects and the availability of a large labor force produced in the Mariposa Grove steady changes throughout the 1930s. Additionally, correspondence at mid-decade regarding a proposal to thin trees in the grove led to a significant discussion regarding both the role of management in the National Park Service and the possible detrimental effects of fire suppression. Changes to the landscape ranged from the construction of bridle paths to the paving of the main road; from the duplication of Clark's old cabin to house the grove museum, and to the collapse of the first Big Trees Lodge and construction of a new one near Sunset Point. Other significant changes to the landscape included the construction of the comfort station near the museum in 1931 and the placement underground of the overhead telephone lines in 1934.

In May of 1930, Superintendent Goff anticipated some of these changes. An additional large project was the construction of a water system to provide both fire protection and complete sanitation. In response to Dr. Meinecke's suggestions, the Park Service further planned to move the campground to an area of pine trees (Goff to Meinecke, May 16, 1930, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL).

A landscape project in June, 1930 entailed several work items. Debris was cleared and burned in the vicinity of the Diamond Group of giant sequoias. Workers hauled dirt to cover exposed sequoia roots near Clark's cabin and to make a large fill "for rounding out the contour of the bank just west of the log cabin." To border the fill, workers placed "a huge log" cut in half lengthwise to be used as a loading platform for buses. Workers additionally placed 3 to 6 inches of dirt over an old parking lot near the cabin. Another work item was the hauling of rocks to form a barrier around the Haverford Tree, near the Ohio Tree, where sometimes cars would illegally park too close to the tree. A second rock barrier was

built so as to block access to the old parking lot. Workers also erected a "bulletin board" at Wawona Point. A stairway that had been built to the top of the trunk of the Fallen Monarch was dismantled and burned. In response to Dr. Meinecke's recommendations, this project also involved moving the campground near the ranger station at the entrance of the grove to an area between the road to the checking station and the road to the old campground. Workers built new fireplaces and placed logs to prevent access to the old campground. They also removed a pit toilet that had been near the old campground as well as two pit toilets that had been located near the Grizzly Giant (Ralph Anderson, Park Ranger, Special Report to the Superintendent, June 29, 1930, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL).

This landscape work was all part of cleanup operations that ran from May 1, 1930 until the end of June, 1931. Fallen logs and decayed logs, dead brush and inflammable materials within approximately a 165-acre area were cleared. This cleanup was concentrated along the grove road from 50 to 100 feet from the principal giant sequoias. Other work in this project included widening the road in front of the old Galen Clark cabin for a distance of 300 feet for parking and building a loop entrance road that encircled the cabin area. Also, two developed springs located to the northeast of the Big Trees Lodge were filled in and landscaped. This detail was consistent with Superintendent Thomson's policy of conserving "all underground water supply for the preservation and growth of the Big Trees" (Thomson 1931 [Final Report]:2).

In October of 1930, Assistant Acting Forester Alfred Bellue reported the results of a survey he had conducted in the grove. Bellue measured every sequoia over a foot in diameter at breast height (DBH, roughly 4.5 feet). In the lower grove, he found 172 trees between 1 foot and 26 feet DBH, of which 38 extended to 10 feet or more in diameter at 10 feet from the ground. Bellue also calculated the heights of 61 trees between 192 and 293 feet, the latter (the Clothespin Tree) representing the tallest in the grove. (Other sources state that the Mariposa Tree is the tallest giant sequioa in the Mariposa Grove.) In the upper portion of the grove, Bellue plotted nearly every giant sequoia. Of these, 147 reached 10 feet or more in diameter at a distance of 10 feet from the ground. Bellue advocated judicious thinning of young sequoias, believing this would (1) accelerate growth; (2) produce more "symmetrical trees"; (3) result in sturdier trees; and (4) reduce fire danger. Bellue also recognized the impact that dense groves of faster-growing white fir were beginning to have on the sequoias: "Due to the ability of the Fir to grow several times faster than the Sequoia, they should be removed from the midst of the young Sequoias for they are being slowly killed off. In dense stands of young fir, the Sequoia cannot compete for light and succumb." Bellue further noted that he had done some "experimental thinning" in the lower grove. "It will be of interest," he remarked "to watch the accelerated growth of the liberated trees and to see if they recover from the dense shade of the firs" (Bellue 1930). Although Bellue did not here make this connection, some thirty years later ecologists would begin to connect the role of fire in the grove and the threat to the sequoia from dense white-fir growth.

National Park Service Director Horace Albright appreciated the work Bellue had done in compiling statistics on the size of the giant sequoias in the Mariposa Grove. But he adamantly disagreed with Bellue's suggestion that trees should be thinned. "This, of course, is a typical forester's recommendation," Albright wrote in a March 12, 1931 letter to Yosemite Superintendent Thomson, "but it overlooks entirely the well-defined functions of the national parks." These well-defined functions represented "our duty to present nature unspoiled." In the national parks, concluded Albright, "our greatest duty is to present a primitive forest untouched by man" (Albright to Yosemite Superintendent, March 12, 1931, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL).

A Civilian Conservation Corps (CCC) project in the grove in the fall of 1933 during which 3,000 trees, mostly firs, were cut, removed and burned sparked a further examination of national park management.

How were parks to be managed in such a way that, as Albright had put it, nature could be presented "unspoiled"? F. L. Cook, chief ranger at nearby Sequoia National Park, examined the effects of the clearing project. It seemed to him that "unless one knew that the clearing had been done he would think that it were a natural condition of the forest." Cook believed that some of the advantages of the vista clearing included the following:

1. The trees are more readily visible and one gets a better impression of size, majesty and numbers while riding along the road;

2. The opening up should materially improve the conditions for seedling growth of both trees, shrubs and flowers and ferns;

3. It has made a more open "park like" forest;
4. It has removed most of the snags and unsightly debris of logs, branches and brush.

Cook acknowledged that the removal of trees might upset "the natural ecological balance of the forest," but he thought that only time would tell the long-lasting impact on the sequoia caused by the removal of fir or other trees. Moreover, Cook argued that the "whole question of vista clearing or other artificial improvement on nature in the National Parks is an administrative problem on which the future will judge our handling of these areas....Whether we are to preserve in their natural condition or 'improve on nature' for the benefit of the public is the question involved" (F. L. Cook, Memorandum for the Superintendent, Oct. 30, 1933, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL).

National Park Service Assistant Director H. C. Bryant answered that question by rejecting the value of vista clearing. "A grove of Sequoias," he contended, "should be presented to the public in its normal, natural habitat." The Park Service should go to great lengths to maintain it as a "primeval forest" (Bryant to Supt., Sequoia National Park, Nov. 10, 1933, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL.) George Wright agreed, for two reasons. One, if conducted at all, knowing what the ecological effects of vista clearing might be required years of preliminary experimentation. Two, "in a national park, we are both obligated and should desire to present Sequoias exactly as found in nature. The only permissible deviation relates to the practical necessity of making the groves accessible to visitors" (Wright to National Park Service Director, Dec. 11, 1933, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL).

Having received copies of all this correspondence, Superintendent Thomson at Yosemite fired a response to the National Park Service director. Referring to such concepts as "balances of nature," "primeval condition" and "wilderness" with respect to national park management as "mere shibboleths," Thomson contended that "for at least fifty years primeval conditions have been gone from every square mile of Yosemite." Significantly, Thomson pointed to the fire-suppression policy, lamenting that it had resulted in "enormous and menacing jungle growths that threaten our best exhibits, including the Big Tree groves," such as Mariposa (Thomson to National Park Service Director, Feb. 9, 1934, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL).

But the fear of fire was still emblazoned on Park Service policy. Adding his thoughts to this discussion, Yellowstone Superintendent Roger Toll suggested that "thinning to prevent disastrous fire damage would be justifiable. Such thinning should be done where it will be of most help to the sequoias, and that might be in the grove, or it might be a fire break around the grove or both." To this, Wright agreed: "If good fire protection demanded that both thinning and fire-break measures be employed, it might be possible to keep the thinning to a minimum by constructing a fire break also." In the end, all could agree that

management of the grove must be predicated on determining whether its effect benefited the giant sequoia. "Benefit to the public," as George Wright concluded, was "secondary and should not result in injury to the grove" (Toll to Supt. Thomson, Mar. 16, 1934; Wright to Toll, Mar. 23, 1934, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL; Runte 1990:165-167).
Trying to either "improve on nature" or move toward the restoration of "primeval conditions" led to decisions that affected everything from signage to road design and construction. In 1930, throughout Yosemite Park, a comprehensive sign program began. The objective, according to Superintendent Thomson, was to create a "series of informational signs over roads and trails, each distinctive and self-explanatory, with a minimum of each" (Annual Superintendent's Report 1930:29). At the Mariposa Grove, redwood signs with burned lettering replaced older informational signs. One was placed at the sequoia that had been dedicated to the memory of Stephen Mather. Others instructed "Be Careful with Fire" or "Entering Upper Grove" (Thomson 1931 [Final Report]:Inventory of Signs at Mariposa Grove; John Wosky, Report to Chief Landscape Architect, Yosemite National Park, Aug. 5, 1930, Landscaping General File: 601-15, 1929-1930, Vertical Files, YRL).

Trying to protect the sequoias from the impact of heavy visitation continued to produce new ideas for enclosures around them, especially around the Grizzly Giant. In late 1930, Superintendent Thomson "hit upon" a new device, inspired from his years as a soldier in France during World War I. As a result of Thomson's flash, a "low parapet wire entanglement" of the "low German type with long triple-barbed wire strung crisscross between steel posts standing at a maximum of a foot from the ground" some 20 feet from the tree's base now encircled the Grizzly Giant. To soften the effect, the project also included the planting of ferns, azaleas and snow bushes. To Thomson's eye, the effect was "simply splendid as now the Grizzly Giant rears its great bulk out of an area of lush vegetation (Figure 7). A narrow trail encircles the tree at a reasonable distance, reducing the hazard to its root system to the absolute minimum possible" (Thomson to National Park Service Director, Nov. 11, 1930, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL).

A major development in 1930 and 1931 was the replication of the old Galen Clark cabin. Determining that it had deteriorated too badly to repair, Superintendent Thomson urged that a duplicate cabin be built in its place. National Park Service Director Horace Albright hoped that as "much of the old building" as possible could be used in order to retain "the sentiment of the old place" (Albright to Thomson, Aug. 22, 1930, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL). But it had fallen too deeply into disrepair: the foundation had given way and the chimney was almost ready to collapse. Early in September, 1930, Superintendent Thomson "ordered its reconstruction with special emphasis upon a faithful exterior duplication" (1931: 1).

On September 15, 1930, workers began dissembling the old cabin. In dismantling it, they took the chimney apart in such a way that they could use the same rocks to reassemble it in the same order. Chief Landscape Architect Thomas Vint witnessed the crew beginning to dismantle the old cabin. He observed that the "idea of tearing down the old log cabin and rebuilding it as closely as possible to the original has been adopted and the construction is under way, the plan being to make the new building a museum and quarters for a naturalist." Vint thought the location for the building was a good one, but he wondered if the Big Trees Lodge were moved out of this area, would this location remain the right one for the museum. "Most likely it is," he answered, "because that is the spot which was selected for development in the first place and the development was there a considerable period of years without many changes," which in his view supplied "fairly definite proof that it is a good place to stop" (Vint, Memorandum for Superintendent Thomson, Sept. 18, 1930, Landscaping General File: 601-15, 1929-1930, Vertical Files, YRL).

By February, 1931, most of the project had been completed. The 45-foot by 20-foot log structure also

has a 10-foot-wide porch that runs its length at the rear. The foundation was made with rubble masonry; primarily sugar pine logs, peeled and saddle-notched, were used for the new cabin's walls. The roof consisted of solid 1-inch sheathing, built directly over log rafters, building paper and shakes. Inside, the cabin has housed ever since a small museum dedicated to telling the giant sequoias' story (Greene 1987:237; Thomson 1931 [Final Report]:2). In 1935, the Park Service publication, Park Structures and Facilities, characterized the museum as a "pioneer cabin of the region, re-built to serve as [a] museum" that included "all the theoretical good features of the ideal log structure, universally known but seldom encountered in one building – simple lines, excellent scale of logwork and shake roof, and massive chimney of admirable masonry and good silhouette. A cabin such as this must have been the original of the 'home on the range.' Dwarfed in scale but not in merit by the huge trees, the presence of this simple and unassuming cabin is not the wide target for criticism that almost any other structure in so impressive a setting would be" (1935:162).

The designers and builders had done an excellent job of "retaining the sentiment of the old place" as Albright had hoped. One of the newly created redwood signs was placed in front of the museum to say: "These Sequoia Giganteas represent the only living things that bridge humanity back through eons to the age of reptiles. Here live venerable forest kings in reveries that carry back a thousand years before Jesus Christ walked the shores of Galilee. In their majestic shadows fretting men may well pause to ponder values – to consider the ironic limitations of three score years and ten. Here through a compelling humility, men may achieve a finer integrity of soul" (quoted in Thomson 1931 [Final Report]:3).

By May of 1931, a new construction camp had been built in a secluded area east of the Grizzly Giant near Big Tree Creek. This replaced the older construction camp adjacent to the entrance ranger station. Consisting of a mess hall, storage room, cook house, shower, toilet and tent platforms, the new camp could house as many as 65 workers and subsequently served as a CCC camp. Additionally, 2,200 feet of service road was built to connect the camp with the main road at a point about 600 feet below the Grizzly Giant. The size of the construction program at Mariposa Grove in the early 1930s warranted construction of this camp. Among the projects were the development of a water system and sewer system, construction of a comfort station near the new museum, landscaping at Wawona Point, and relocating the main road farther away from Grizzly Giant (Thomson 1932 [Final Report Water System]:12).

By May, the Park Service had approved the location chosen by Assistant Landscape Architect John Wosky for the new comfort station (Wosky, Memorandum for Vint, May 1, 1931, Landscaping General Files: 601-15, 1931 to ___, Vertical Files, YRL). With the decision to duplicate the old cabin and use the new structure as a museum came the acknowledgment that a comfort station was also needed. It is located approximately 400 feet south of the museum and about 30 feet below and parallel to the road. Based on building design and materials that blend with the natural environment, the comfort station was built with native stone and wood. The one-story 18-foot by 28-foot log building has a medium-pitched shingled gable roof consisting of hand-split sugar pine shakes. Like the museum its exterior is formed by peeled, saddle-notched sugar pine logs. Its simple design and superior level of craftsmanship typify Park Service rustic architecture of the 1930s (National Register of Historic Places Registration Form 1988; Wosky 1931:3).

In conjunction with the reconstruction of the log cabin and the building of the comfort station were the construction of a gravity pipeline water system and a sewer system in the grove. In addition to meeting the growing demand for a domestic water supply, more water was then needed for irrigation and fire protection. When completed, the project consisted of 14,985 feet of 4-inch cast iron pipe and 252 feet of 8-inch cast iron pipe; 58 feet of 4-inch cast iron drain from a pressure relief tank; 848 feet of masonry buttresses on the main pipeline; 2 masonry spring catch basins at the intake; the pressure relief tank; installation of a water meter and nine fire hydrants near various individual sequoias. The springs were

located on Raynor Creek outside of the boundary of the grove. The pipeline intersected the loop road twice in the upper grove, ran along the north edge of the road shoulder and then terminated at the Elephant's Foot. Alignment and grade of the pipeline followed local topography. Of the numerous bends in the line, the sharpest was 85 degrees. The grade varied from .6 percent to 27 percent. In some instances, trenching required careful tunneling in order to avoid sequoia roots. The minimum and maximum trench depth were 1 foot and 4 feet respectively. At two places in the line the pipe was laid in fill with 12 inches of cover protected by a dry masonry retaining wall. Total costs for the project amounted to approximately $27,000. (Annual Superintendent's Report 1931:4; Thomson 1932 [Final Report Water System]:2-4).

In addition to assuring a water supply, developing the water system in the grove in turn allowed the development of a sewer system. Prior to 1931, Mariposa Grove had no sewer system primarily because of the inadequate water supply. In 1931 and 1932, two separate sewer systems were constructed in the grove. The first system was intended to serve the new comfort station near the museum (completed October, 1931). The second system was designed to serve a second Big Trees Lodge being built by the Yosemite Park and Curry Company near Sunset Point (completed August 1932 – Yosemite Park and Curry Company was the result of a merger in 1925 between the Yosemite National Park Company that had completed the construction of the first Big Trees Lodge and the Curry Camping Company, Robinson 1948:88). Both systems used salt-glazed vitrified clay sewer pipes measuring 6 inches in diameter. Manhole walls were constructed of two rings of red brick bonded in Portland cement mortar with 12-inch thick concrete bottoms. Two types of manhole covers were used in the project: one standard size made of cast iron, flat without vent holes and measuring 27.5 inches in diameter; the other 4 ½ feet in diameter and made of ¼-inch-thick sheet iron, reinforced for shallow manholes. Similar care to avoid sequoia roots was taken during trenching operations (Thomson 1932 [Final Report Sewer System]:1-2).

The sewer system at the comfort station commenced there and then ran westerly on the contour line. It consisted of 862 feet of sewer pipe laid on a .68 percent grade, with three manholes. Other components included a reinforced concrete septic tank that measured 9 feet by 23 feet by nearly 7 feet deep; 200 feet of 6-inch main tile drain pipe with 1,400 feet of 4-inch tile drain branch lines. The second system, located at Sunset Point, began at the new lodge, which was then still under construction, and ran westerly on a .6 percent grade. It included the following components: 1,715 feet of sewer pipe with 8 manholes; a redwood box sub-surface sewage filter trench; 300 feet of 6-inch tile drain pipe; and 100 feet of open trench at the end of the drain pipe. Total costs for both systems reached nearly $9,000.

Spurred by the goal of protecting and preserving the sequoias, another important project in 1932 and extending into 1933 was the relocation of the main road away from the Grizzly Giant. As a result of this project, the road no longer went through the California Tree and was used instead as an oiled footpath. Plant authorities, such as E. P. Meinecke, had argued that the road's close location, in combination with excessive trampling of the soil above the shallow root structure of these trees, was harmful and would contribute to the trees' death.

When completed, the rerouted road lay approximately 260 feet from the base of the Grizzly Giant. This compared to a previous distance of 50 feet from the giant tree. The total length of new road was 2,172 feet. Minimum and maximum grades respectively measured 1.4 percent and 8.9 percent, the latter for a distance of 200 feet. The line of the grade conformed more or less with the ground topography. Total cut measured 2,330 cubic yards; total fill 2,890 cubic yards. The cross-section was "Bureau of Public Roads Standard," that is, "20 feet in cut with 2 foot ditches on each side; 21 feet on [the] side hill with [a] 2 foot ditch and 22 feet on fill" (Thomson 1932 [Final Report, Grizzly Giant Road]:1-3).

The cost of the project totaled over $11,000, reaching so high in part because dynamite was not used

during construction to avoid the possibility of toppling or damaging the already-leaning Grizzly Giant. Rock excavation and stump-pulling were done by hand with some use of a tractor (Figure 8). The 50-foot right of way required clearing of 2.3 acres. More than 80 trees, ranging in size from 3 inches to 30 inches in diameter were removed for the right of way as well as to improve the open views of the Grizzly Giant (Superintendent's Monthly Report, Aug. 1932; Thomson 1932 [Final Report, Grizzly Giant Road]:1-3).

This road project also entailed building two parking areas that together encompassed approximately 3,000 square feet. These were built on both sides of the road. Eighteen feet of roadway was surfaced to a depth of roughly 5 inches of a mix of decomposed granite and oil mix, salvaged from the base course paving of the new Wawona Road. The wearing surface of the road was also treated with oil (Annual Superintendent's Report 1932:25; Grizzly Giant Report 1935, 979.447 Y-35b, Vertical Files, YRL). Dr. Meinecke, who had recommended in 1927 a reduction of human impact to the Grizzly Giant, visited the area after the new road and trail were complete. In his view, this road project in combination with the planting of vegetation under the Grizzly Giant, bode well for the future: "I feel confident that the withdrawal of the area from tourist use except on made trails, the treatment of the soil by covering it over a large area with forest litter and humus and the successful planting of native low vegetation around the tree are responsible for the decided improvement in the general appearance of the foliage. The tree again looks vigorous and healthy, and the surface rootlets are beginning to adjust themselves to the more favorable conditions....The retracing of the road not only removes a grave danger from the Grizzly Giant but affords far better views of the tree than before" (E. P. Meinecke to Horace Albright, National Park Service Director, Sept. 23, 1932, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL).

The first planting of native vegetation beneath the Grizzly Giant had suffered from lack of water. In response, in the spring of 1932, a 2-inch water pipe was installed to bring water from the construction camp water tank. A second planting that spring included the following: brackens within the barbed-wire entanglement "with the hope that the expanded fronds of the brakes would lay a charming green mantle above the wire"; "a careless sprinkling of flowering plants such as lupine and iris to brighten the monotony of the brakes"; " a generous sprinkling of gooseberry" to form a protective thicket; snow bushes; a scattering of such shrubs "of attractive nature and easy culture" as snow berry, hazel and chinquapin; and, beyond the enclosure, small shrubs and wood roses "to lead pleasantly away and break the austerity of the protective entanglement." In all, some 3,000 plants of some 25 varieties were planted (Thomson 1932 [Final Report, Grizzly Giant Road]:4-5).

Work completed in 1933 on this project, considered then to be one of Yosemite's most significant landscape efforts in the past several years, included the obliteration of 3,360 feet of old roads: 924 feet abandoned in 1925 and 1,946 abandoned in 1932 (both because of relocating the road farther away from the Grizzly Giant) as well as 490 feet of the old California Tree road This work entailed tearing down dry rock retaining walls, tapering cutbanks, scarifying and plowing the old hard road surfaces, hauling earth for fill and finally spreading pine needles "to give a natural appearance to the landscaped area" (Thomson 1933 [Final Report, Landscaping Grizzly Giant]:2-3).

The 6-foot-wide trail, leading from the parking area to the Grizzly Giant and the California Tree, extended for a little over 1,000 feet. Workers spread a mixture of decomposed granite and oil over the trail to a depth of 3 inches. A small-scale feature of this project was the construction of a drinking fountain. Additionally, at the parking area a 650-foot-long log rail was also constructed, using logs that measured between 8 and 12 inches in diameter. The logs were laid flush with the ground and were set with bolts onto wooden posts (Thomson 1933 [Final Report, Landscaping Grizzly Giant]:2-3).

Developments at Wawona Point proceeded in two steps, commencing in 1931. First, a vista clearing

project resulted in the removal of over 50 trees and snags, ranging in size from 20 inches to 74 inches in diameter. Workers used a tractor to haul these trees and snags for an average distance of 500 feet and then disposed of them by rolling them down the hill toward the South Fork of the Merced River. Brush, limbs and dead falls and all other inflammable materials were piled and burned. By removing these trees, the Park Service hoped to improve tourists' ability to view Wawona Meadow, Wawona Dome, Mt. Raymond, Buena Vista Peak, Pilot Peak and other beautiful sights to the east, north and west (Figures 9 and 10). "The popularity of this place called for its improvement. By removing obstructing trees and snags and general cleanup of Wawona Point, the view was improved to a high degree of practical possibility" (Thomson 1932 [Final Report, Account 504.2, Development Wawona Point]:1).

The second phase of this project, funded by "destitution relief" allocations, entailed improvements to the parking area, the construction of trails, and the development of a retaining wall and guard rails for the protection of tourists as they looked out over the point. For the parking area, a 956-square-yard space was leveled between the egg-shaped loop in the road that led up to the point (Figure 11). The maximum cut measured 4 feet, while averaging 2.5 feet. Approximately 100 lineal feet each on the entrance and exit roads also needed to be re-graded. A mix of oil and decomposed granite to a depth of 2 inches was spread on the parking area. Workers also built 380 lineal feet of 6-foot-wide trails. These led to and connected lookout points. Below a portion of the trail a steep bank was protected by riprap. A 146-foot-long walkway was also filled to 4 inches in depth in front of the parapet wall at the point (Thomson 1932 [Final Report, Account 504.4, Development Wawona Point]:1-3).

The rubble masonry retaining wall was built on the south side, using granite boulders hauled from the vicinity of the Grizzly Giant old road because schist at the excavation proved unsuitable. Its top width measured 18 inches. A "face batter" of 1 to 12 inches was used. Workers built a guard rail continuation, 18 inches wide and 24 inches high, on the top of the retaining wall, against which on the parking area side the walkway was constructed. The guard rail that formed parking lines and enclosed the part of the parking area that was not protected by the rubble masonry was constructed of a continuous log rail, formed of 10-foot lengths measuring 10 to 12 inches in diameter, equal diameters butted together, peeled and creosoted. The logs were set on 10-inch square-hewn redwood posts that extended 18 inches above the ground. The length of this log guard rail in the parking area totaled 194 feet (Thomson 1932 [Final Report, Account 504.4, Development Wawona Point]:2-3).

Under the heavy snow pack of the winter of 1931-1932, the old Big Trees Lodge and cabins collapsed. By 1932, the Yosemite Park and Curry Company had built a new Big Trees Lodge in the upper grove, just west of the Elephant's Foot. In conjunction with its construction, the Park Service built 700 feet of new road at a distance of 40 feet from the lodge. The 18-foot-wide road segment passed through the fallen trunk of the Elephant's Foot. Also constructed were two parking areas (Figure 12). One area could accommodate 26 cars with right-angle parking, was located parallel to the road, and consisted of an 18-foot widening of the road's downslope side that extended for a distance of 210 feet opposite the new lodge. The other could accommodate 24 cars, was a rectangular area 55 feet by 100 feet, and was located downhill from the lodge (Thomson 1933 [Final Report, Mariposa Grove Lodge Road & Parking Area]:1).

During grading operations associated with road construction near the second Big Trees Lodge, workers encountered underground springs that required sub-drainage and the installation of 30 feet of 12-inch corrugated iron culverts. This and the attempt to avoid sequoia roots markedly increased expenditures for grading. Combining road and parking, a total area of 2,670 square yards was graded. This same area was surfaced with 5 inches of decomposed granite, which was in turn covered with 3 inches of oil. The parking areas also required the construction of a dry rubble rock retaining wall and a 410-foot-long guard rail, built in much the same way as was the log guard rail at Wawona Point. The distance from the top of

the rail to the ground measured 18 inches. Finally, the project also entailed cutting down nearly 40 trees ranging from 18 inches to 60 inches in diameter, pulling out stumps, gathering logs and brush, and hauling all of this material to a spot over a mile away to be burned (Thomson 1933 [Final Report, Mariposa Grove Lodge Road & Parking Area]:1-2).

The lodge itself opened for business in June of 1933. Like its predecessor its monthly operations ran from June through September every year. Built at a cost of $35,000, it could accommodate 24 guests and, according to Superintendent C. G. Thomson offered "the utmost in comfort and convenience." The architect, E. T. Spencer, patterned its design "after early California residences" (Superintendent's Monthly Reports, June 1933:7). By 1934 an outdoor terrace had been added, the floor of which was made out of circular blocks from the cross sections of a fallen giant sequoia (Big Trees Lodge, RL-E-007, Vertical Files, YRL). Subsequent to its construction, two large sequoias were cut down in order to protect the lodge. The cutting down of these trees illustrates the periodic conflict between the goal of providing accommodations for the public in the grove and the goal of preserving the resource.

Two important projects that affected the landscape of the Mariposa Grove in 1934 were the paving of the grove road and the completion of bridle paths to and within the grove. Both were funded by the Public Works Administration (PWA). [The PWA was a separate relief effort among the many "alphabet" entities created during the Great Depression. It did not serve as an umbrella organization that provided funding for other relief efforts – such as the CCC or Works Progress Administration (WPA) – but was just a separate means of providing funding for projects to put unemployed Americans back to work.] During the fall of 1933, work had begun on the paving project in large part to help relieve unemployment. Using emulsified asphalt, these crews were able to pave the 16-foot-wide road as far as the Grizzly Giant before weather conditions deteriorated. They also sloped and landscaped 1,600 lineal feet of bank (Figures 13 and 14). To provide drainage, workers also installed nearly 5,000 lineal feet of 6-inch Terra Cotta drain tile. Ditches were excavated to a depth of 4 feet in places where the surface of the roadway had been damaged and the flow from the tile was directed into existing culverts wherever possible (Figure 15). Crews installed two new culverts near the Grizzly Giant (Thomson, March 1934 [Preliminary Report, Armor Coat Paving, Mariposa Grove Road]; Thomson, Sept. 1934 [Final Report, Mariposa Grove Road]).

As soon as the snow cleared in 1934, paving work proceeded on the remainder of the road that looped around the upper grove, the width of which was 10 feet. Paving did not extend at this time to the Wawona Point spur road. Others aspects of the project was the realignment of the road so that it ran behind, rather than in front of the museum, as well as the development of a new angled parking area near the museum. At the direction of the Landscape Division, this road was built by the fill method, avoiding cuts, in order to avoid disturbing any sequoia roots. Its alignment was often shifted in order again to avoid injuring any roots. The road project further entailed improvements to the segment of the road that led to Wawona Point. (Thomson, March 1934 [Preliminary Report, Armor Coat Paving, Mariposa Grove Road]; Thomson, Sept. 1934 [Final Report, Mariposa Grove Road]).

The work specific to the Wawona Point Road involved sloping and re-grading it to make a 16-foot roadway for 2,400 lineal feet and, at the point of entrance and exit to the parking area, approximately 600 lineal feet of 12-foot roadway. Crews also widened a switchback in order to permit two cars to pass simultaneously on the sharpest curve of the road, an improvement that allowed large buses to easily negotiate this curve. Total cost of the entire road project exceeded $70,000 (Thomson, March 1934 [Preliminary Report, Armor Coat Paving, Mariposa Grove Road; Thomson, Sept. 1934 [Final Report, Mariposa Grove Road]).

Additionally in 1934, CCC crews completed work begun in 1933 on the construction of new 4-foot and

6-foot-wide bridle paths within the grove (Figure 16) as well as a path from the grove to Wawona that replaced the steep Lightning Trail. At a junction near Sunset Point, the bridle path from Wawona joined the outer loop path that circled the upper grove (General Management Plan 1942; Grizzly Giant Report, 1935, 979.447 Y-35b, Vertical Files, YRL; Superintendent's Monthly Report, Sept. 1933; Nov. 1933). Smaller projects in 1934 included placing overhead telephone wires underground (also funded by PWA) and building ten wooden platforms in the 1.3-acre campground near the ranger station. The platform flooring was surrounded by pipe to which tent ropes could be attached. In this way, campers would put up their tents on the platforms rather than on the sloping ground, thereby preventing damage to the roots of nearby trees (General Management Plan 1942; Grizzly Giant Report, 1935, 979.447 Y-35b, Vertical Files, YRL).

On August 28, 1934, the Stable Tree, which the army had used at the turn of the century to stable their cavalry horses, fell a short distance from the museum. During the previous winter the Utah Tree had also fallen so cushioned by snow that none of its trunk broke during the fall (Supt. C. G. Thomson to Robert Woodburn, Nov. 25, 1935, Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL).

Heavy flooding in late 1937 tested the new drainage system along the Mariposa Grove road. Culverts became completely clogged and the underground tile installed in 1934 did not function correctly, allowing the saturation of the sub-grade. Drainage repairs began in late June, 1939, and continued into October. To remedy the problem, CCC workers installed 4-inch perforated metal pipe and replaced culverts where necessary. Over 900 lineal feet of salvaged tile (almost one-fifth of what had been installed in 1934) was also re-installed. Crews additionally installed 320 lineal feet of surface drains. At one location some 400 yards below the Grizzly Giant on the south side of the road, workers had to cut a ditch through solid rock to facilitate drainage (Merriam 1939 [Final Report, Flood Damage Repair]).

By the late 1930s, visitation numbers in the grove were reaching close to 100,000. Congestion and long waits at the Wawona Tunnel Tree had become notorious (Supt. C. G. Thomson to Robert Woodburn, Nov. 25, 1935; Lawrence C. Merriam, Acting Superintendent, to Don Tresidder, President, Yosemite Park and Curry Co., Sept. 10, 1937, both in Mariposa Grove of Big Trees, 1910-1939, File: 701-01.42, Separate Files, YRL). These numbers, however, would decline in the early 1940s, as the nation's tourists became increasingly focused on World War II and lived with the rations it necessarily imposed.

Gas rationing that began in November 1942, combined with other restrictions on civilian driving, "resulted in an expected, yet nevertheless drastic reduction in park travel, and in the curtailment of services to the public by the park operator" (Annual Superintendent's Report 1943:1). Also in 1942 the last of the CCC crews disbanded, as enlistment numbers in the armed forces surged. Aside from the falling of the San Francisco tree in 1944, little occurred in the Mariposa Grove during the war, but peacetime would bring enormous numbers back to see the splendor of the big trees.

Figure 7. Photograph of the base of the Grizzly Giant with barbed wire entanglement and newly planted shrubs. Approximately 1931. YRL Photo No. 979447-14

Figure 16. Photograph of newly completed bridle trail in upper portion of the grove. YRL Photo No. RL-7564.

Figure 8. Rerouting the road around the Grizzly Giant. [Photo scanned from Thomson 1932 "Final Report, Grizzly Giant Road", Office of the Chief of Maintenance, El Portal, CA.]

Figure 9. Mt. Raymond vista prior to clearing. [Photo scanned from Thomson 1932 "Final Report, Account 504.2, Development Wawona Point", Office of the Chief of Maintenance, El Portal, CA].

Figure 10. Mt. Raymond vista after clearing. [Photo scanned from Thomson 1932 "Final Report, Account 504.2, Development Wawona Point", Office of the Chief of Maintenance, El Portal, CA.]

Figure 11. Workers clearing the top of the lookout. [Photo scanned from Thomson 1932 "Final Report, Account 504.4, Development Wawona Point", Office of the Chief of Maintenance, YOSE, El Portal, CA.]

Figure 12. Overview of the new Big Trees Lodge and access road. [Scanned from Thomson 1933 "Final Report, Mariposa Grove Lodge Road & Parking Area", Office of the Chief of Maintenance, YOSE El Portal, CA.]

Figure 13. "Landscaping an unsightly slope near Mariposa Grove Big Trees Museum." [Scanned from Thomson 1934 "Preliminary Report – Armor Coat Paving Mariposa Grove Road F.P.#238.8 Account No. 521", Office of the Chief of Maintenance, YOSE, El Portal, CA.]

Figure 14. "…All evidence of stumps and overhanging bank removed" [Scanned from Thomson 1934 "Preliminary Report – Armor Coat Paving Mariposa Grove Road F.P.#238.8 Account No. 521", Office of the Chief of Maintenance, YOSE, El Portal, CA.]

Figure 15. "Installing 6-inch drain tile…" [Scanned from Thomson 1934 "Preliminary Report – Armor Coat Paving Mariposa Grove Road F.P.#238.8 Account No. 521", Office of the Chief of Maintenance, YOSE, El Portal, CA.]

1947-1965 Conservation and Public Access

In July, 1947, numbers of visitors in that month alone reached 43,000. Stunned by the increase and worried about its impact on the trees, Ranger Naturalist James McFarland recommended the following preventative measures: increase the number of trails, erect log barriers along side them, and place a ranger on duty to ensure that tourists stay on the designated trails. He believed this would allow natural vegetation to recover in the grove, would reduce the amount of dust, and would "result in a more natural park-like area" similar in his view to how the grove would have appeared in 1857 (James McFarland, Ranger Naturalist, Memorandum to Donald McHenry, Chief Naturalist, Yosemite National Park, Aug. 18, 1947, Mariposa Grove of Big Trees, 1908-1961, 979.447 Y-35b, Vertical Files, YRL).

In reply to McFarland's recommendations, John Wosky, by then assistant superintendent, lamented that experience had shown that "we cannot successfully confine people to designated walks." Moreover, pointing to the trails in the vicinity of the Grizzly Giant as an example, he thought the proposed "maze of footpaths, outlined by conspicuous log rails, would be a terrific blot on the landscape." Wosky wondered if the solution might be to move the museum since he believed its presence led to the heavy concentration of visitors in this area. The real hindrance, however, as he added in a postscript, was lack of funding, reflecting the initial inability of federal funding after the war to keep pace with increased visitation in the park (John Wosky, Memorandum for the Park Naturalist, Sept. 11, 1947, Mariposa Grove of Big Trees, 1908-1961, 979.447 Y-35b, Vertical Files, YRL).

By 1951, increased visitation and continued congestion at the Wawona Tunnel Tree had led to a proposal to build a bypass road around it. Park Naturalist Donald McHenry and Assistant Chief Naturalist Paul Franks together investigated the possibility. Such a construction, they concluded, would "greatly jeopardize the root system of both the Wawona tree and the other Sequoias growing down hill" from the world-famous sequoia. They doubted that the Park Service would approve an alternate proposal of building a trestle to create a bypass. In the end, McHenry realized that "people do not come to this tree with the idea of by-passing it, but for the experience of a ride through the tree" (Donald McHenry, Park Naturalist, Memorandum to Carlton Smith, Park Engineer, July 20, 1951, Mariposa Grove of Big Trees, 1908-1961, 979.447 Y-35b, Vertical Files, YRL).

The bypass proposals reflected a continuing emphasis on addressing the problems of individual trees rather than on seeking to understand the entire ecosystem of the grove, as did a project to reduce erosion around the Wawona Tree. Erosion there, caused by countless visitors walking around its base, had destroyed the ground cover where as late as the 1930s lupine and other native plants had flourished. In May and June of 1954, a mortared stone wall was placed on the upslope side of the tree to retain both soil and moisture. The project also entailed covering its exposed root system with sequoia limbs to help protect feeder roots (Annual Superintendent's Report 1954; McIntyre 1955).

By then as well yet another type of enclosure had been devised to protect the base of the Grizzly Giant. Consisting of a circle of strewn logs all around the tree, the enclosure also used signage to advise tourists to "please stay out of enclosure. Trampling ground at base of tree or carving and climbing on roots will shorten the life of this noble tree" (Figure 15) (McIntyre 1955).

In February of 1954 yet another giant sequoia – this time the Iowa Tree – fell. In addition to the Iowa Tree, the following sequoias had also fallen in the recent past: the Massachusetts Tree (1927); the Utah Tree (winter of 1933-34); the Stable Tree (1934); the Mark Twain Tree (1943); the San Francisco Tree (1944) and an unnamed tree east of the Mariposa Tree (1949). This relatively high number of trees that had fallen since 1927 sparked increasing concern for the possible detrimental effect of such heavy

visitation in the grove. In response, a committee formed to investigate the erosion problem in all three groves in the park. Composed of the park naturalist (McHenry), the park forester (Ernst), the landscape architect (Westley), an assistant chief ranger (Murdock) and the administrative assistant (McIntyre), this committee first conducted field studies in the Mariposa as well as the Merced and Tuolumne sequoia groves. They found the erosion problem to be most acute in the Mariposa Grove (McIntyre 1955).

Chairing the committee was R. N. McIntyre whose report on the effects of human impact upon the grove initiated a change toward examining the problems of the grove based on a better understanding of its ecology. Among the report's recommendations was a call for greater funding for a maintenance plan through the park forestry department whereby "the ecological needs of the Sequoia groves in the park" could be met. The report further recommended that a forest ecologist, a silviculturist, or a doctoral candidate conduct a detailed ecological study of the groves (McIntyre 1955).

The committee found much evidence that human impact was harming the Mariposa Grove. In addition to the "alarming increase in the rate of fall," the 1953 cone crop also indicated "a state of reduced vigor or vitality" in more than one tree, including the Wawona Tree. Where large numbers of visitors congregated, the committee noted the "bare and desert-like appearance of the forest floor." They also observed "a startling amount of human attrition to the exposed roots and lower boles" and an "apparent acceleration of erosion by wind and water about the root systems" of many of the big trees. Road and trail building, as well as "the wear of millions of visitors' feet on the exposed roots" had cut and damaged the root systems. Ground cover and sequoia seedlings had disappeared from the areas near the most heavily visited trees. A "tremendous increase in soil compaction over the root structure" had reduced the porosity of the soil causing a "loss of both air and water needed for healthy root development" (McIntyre 1955).

Corrective measures included discontinuing the "use of hot or sealed macadam for trail construction." Instead, trails should have a "ground surface covering of crushed gravel through which moisture will penetrate and feeder roots can move." Physical barriers "of an appropriate and esthetic nature" should restrict visitors and their vehicles "to very limited areas." The committee further suggested building wooden platforms at the base of some of the more prominent trees. Signs should be worded so as to "appeal to the conservation and protective instincts of the park visitor." Finally, the committee recommended that "Every effort should be made to remedy the bad practices of management which grew up with man's use of the Sequoia groves over the last century, the results of which are now quite obvious in an ecological study of the areas. In most instances man and his cultural developments must be restrained from encroachment upon the wilderness setting of the trees, or the trees themselves will be lost one by one to the visitor of this and future generations" (McIntyre 1955). Although this report did not recommend prohibiting private vehicular traffic through the Mariposa Grove, it is surely the harbinger of that decision.

In the late 1950s, as a result of the work of the McIntyre committee, several projects were initiated to protect the sequoias. In an attempt to reduce the impact of heavy visitation, the campground near the entrance of the grove was removed. Another project entailed spreading coniferous chips around the base of the most frequently visited trees, based on the theory that the chips would "act as a cushion and mulch," which would, in turn, enable the root system to function normally. In several cases, ground-level log barriers were also placed from 10 to 30 feet away from the base of the trees to retain the chips inside the enclosure (Project Completion Report [Protection of Big Trees, Mariposa Grove] ca. 1959). At the Grizzly Giant and the California Tree, in addition to a 4-inch layer of chips and a ring of logs around their bases, protective measures also included the construction of puncheon decks and rails on the upslope side of the Grizzly Giant and on the downslope side of the California Tree so that visitors could approach them without actually climbing on them (Annual Superintendent's Report 1958).

Another direct offshoot of the work of the McIntyre committee was the research of Richard Hartesveldt who studied the effects of human impact on the giant sequoia and its environment in the Mariposa Grove for his doctoral dissertation. Hartesveldt found evidence of much damage caused by soil compaction, road construction, changes in plant succession, and changes in the water content of the soil (Annual Superintendent's Report 1960; Hartesveldt 1963).

Hartesveldt elaborated on some of these points in a comparative study of changes in the Mariposa Grove and in the groves of Sequoia and Kings Canyon national parks. At the Mariposa Grove, Hartesveldt found slower growth rates than at either Sequoia or Kings Canyon. He attributed this slower growth rate to two key factors: the artificial creation of the wet meadow west of the Grizzly Giant (caused by the water system there) "had raised the water table in the main drainageway to an unprecedented high"; and the soil at the Mariposa Grove had a higher clay content compared to the sandy soil, which permitted better drainage, at the other groves. Good drainage and root aeration both minimized damage to sequoia roots and reduced the "activities of root pathogens which have high water and low oxygen requirements" (Hartesveldt 1965:14-15).

General factors that reduced growth rates at all of the groves, according to Hartesveldt, included soil compaction, damage to roots caused by road construction, and advancing plant succession caused by fire suppression. At especially the Mariposa grove, however, young sequoias could not successfully compete for soil moisture, nutrients, and light with other plants, particularly the white fir. Soil moisture relationships were also altered by soil compaction, concluded Hartesveldt: "Where the soil moisture regime is altered for the worse, it may be a significant factor in reduced seed germination" (1965:2-4, 28-30).

Although Yosemite Superintendent C. G. Thomson as early as 1933 had realized that fire suppression itself increased the risk of a catastrophic fire (Annual Superintendent's Report 1933:13), Richard Hartesveldt was one of the first to argue that fire suppression was permitting such species as the white fir to out-compete the giant sequoia. "Fires provided a release from competition," wrote Hartesveldt. "The fire-resistant sequoia, with its thick, fibrous bark, may only have been injured, while its less resistant associates were either killed or greatly impaired. This left more soil moisture for the remaining sequoias....The absence of fire has permitted uninterrupted plant succession and has altered the species composition of the groves in favor of sugar pine and white fir." The period since 1889, observed Hartesveldt, represented "the most prolonged fire-free period in the history of the Mariposa Grove." The results in his view bode ill for the long-term vitality of the grove where in some places "stands of fir are so dense that their deep shade renders conditions intolerable for young sequoia seedlings, which thrive best in sunlight and eventually die in shade." As evidence, Hartesveldt pointed to the less than 30 sequoias in the upper grove that had survived germination since 1934 (Hartesveldt: 1964).

Building on the incipient ecological awareness of the work of the McIntyre committee, Hartesveldt's studies marked a significant shift away from focusing on the needs of individual trees in the Mariposa Grove and toward seeking to understand ecological relationships within the entire grove. Especially key was the changed appreciation for the role of fire. These changes would in turn prove instrumental in altering the landscape of the grove during the remainder of the twentieth century.

1968-2000 Resource Stewardship

In 1968, Resources Management Specialist Robert Barbee submitted an administrative brief on the ecosystem of sequoia groves. Barbee agreed with many of Richard Hartesveldt's points regarding the

effect of fire suppression in the Mariposa Grove. In addition to reducing competition from white fir and sugar pine for sunlight, soil moisture and nutrients, fire produced a mineral seed bed that Barbee contended was “essential to the successful germination and early seed growth of the sequoia.....All evidence,” he suggested, “seems to indicate that lightning and wildfire in general, whether caused by the Indians or naturally, played a crucial role in the perpetuation of the sequoias” (1968:5).

Barbee further noted the detrimental effects of soil compaction and erosion. Contrary to what had been held as gospel since at least the 1920s, the real danger here arose not so much from the effect of human trampling around the bases of trees but from water accumulation on impacted surfaces. “Gullying due to runoff of impervious surfaces and compacted soils,” wrote Barbee, was “having a significant effect in certain parts of the Mariposa Grove” (1968:7). Barbee noted how the appearance of the landscape reflected changing ecological relationships within the grove. “The open forest floor” had been “invaded by dense stands of white fir and to a lesser extent sugar pine.” Two noxious weeds, the bull thistle and the common mullein, had invaded the grove. The originally dry meadow west of the Grizzly Giant had become a “wet sedge meadow” as a result of the discharge from an overflow valve placed there in 1931. In this regard, however, Barbee noted that after the valve was removed in the early 1960s the meadow began to return to its natural condition (1968:8).

Management polices must be changed, Barbee urged, if the Mariposa Grove were to survive in the long term as a grove of giant sequoias: “There is an urgent need for a restatement of sequoia management policy which should include the preservation or perpetuation of the processes that made the ecosystem possible. Individual tree protection, an obsession of long standing, must give way to management of the total system” (1968:9, emphasis in original). Barbee relied heavily on Hartesveldt’s work in devising specific recommendations for management of the grove. These recommendations were predicated on the idea that “preserving sequoia communities” represented the only “scientifically sound” management goal. They included clearing and removing combustible debris from the grove; finding ways to loosen the soil in areas of compaction; preventing further soil compaction; adding native topsoil to eroded surfaces to encourage root development; avoiding severe root cutting in the planning and construction of new roads, parking lots, buildings or other facilities; limiting the area where root systems were covered by impervious pavement to not more than 25 percent; removing bull thistle and common mullein plants from the grove and the approach road; and informing the public about ecological relationships in the grove (Barbee 1968: Appendix B).

In 1969, under Barbee's direction, the park instituted a thinning project in the grove to address the problems with encroachment of white fire and sugar pine in the sequoia grove understory. Initially, in several test plots, understory trees less that 20 feet in height were cut, limbed and burned. After the initial cutting, it was determined that limiting the removal to trees under 20 feet in height was insufficient, and a second round of cutting and burning occurred. In a 1970 progress report, Barbee reported that "The rapid and unnatural shift in the forest successional scheme has been checked, and the area again resembles the open and park-like forest considered by scholars as 'pristine'." (Barbee 1970:2).

Further changes to the management of sequoia groves were soon to be instituted. Barbee's November, 1968 brief on sequoia management policy coincided with a visit to the Mariposa Grove by National Park Service Director George B. Hartzog, Jr. Hartzog's visit sparked a series of discussions about management of the grove that culminated in a fundamental change: the prohibition of private vehicles from entry in the grove. Explaining the change to the Western Regional Director, Yosemite Superintendent Lawrence Hadley stated that “development of the Mariposa Grove for public use and interpretation has proceeded on the assumption that the private automobile will offer access to and through the Grove.” But it had become painfully clear that at “present levels of park travel and use, the circulatory road system and parking capacity in the Grove are totally inadequate.” As a result of heavy

increases in visitation, the "surface treatment of roads and parking areas has badly deteriorated." Moreover, the "congestion and noise of moving automobiles defeat enjoyment of the giant sequoias and frustrate attempts to develop a meaningful interpretive program in the Grove. Of overriding importance," wrote Hadley, "is the possible threat to the existence of the sequoia due to impairment of the ecology of the Grove from prolonged exposure to unrestrained use" (Lawrence C. Hadley, Superintendent, Yosemite National Park, to Regional Director, Western Region, National Park Service, Nov. 12, 1968, File: C58 Concessioners Developments 1968-1969, Yosemite Archives, El Portal, California).

The alternatives to prohibiting private vehicular traffic through the grove would have also radically altered its landscape. Illustrative more of the automobile-orientation of Mission 66, the park management paradigm of the 1950s, they included proposals to either reconstruct the existing road system and enlarge the parking areas or build new roads and parking lots on the periphery of the Grove, allowing access into it only by walking. Three reasons had led to choosing the option of prohibiting private cars and providing public transportation to be operated by the concessioner: (1) this option would serve "the best interest of the public in experiencing enjoyment and fulfillment from the Grove"; (2) this option offered "the best and widest opportunities for providing significant interpretive services"; and (3) this option assured the "preservation of the specimen sequoias, as well as the unique ecology associated with the sequoia community" (Hadley to Regional Director, Nov. 12, 1968).

The concessioner (the Yosemite Park and Curry Company) essentially agreed with the decision, although the company strongly believed that parking for at least 200 cars would have to be provided, and that a point of transfer to and from buses or trams would have to be developed. As of November, 1968, plans targeted the following June for initiating these changes (Hadley to Regional Director, Nov. 12, 1968).

During the winter of 1968-1960, shortly before park management would implement this decision, the Wawona Tunnel Tree fell. An exceptionally heavy load of snow in the crown of the 234-foot-high tree probably caused its toppling. A narrow bypass road was subsequently built around the base of the tree to replace the section of road that previously passed through it ("Wawona Tunnel Tree" Information Sheet, 1972, Yosemite National Park, File: 582 Sequoia-Mariposa Grove, Separate Files, YRL). Somewhat ironically, perhaps the one sequoia to have lured the most visitors to see the grove fell just at the time when the Park Service was taking active steps to sharply reduce visitor impact. In 1970, in what Alfred Runte (1990:203) referred to as a "dramatic departure" from the objectives of Mission 66, the Park Service closed both the Mariposa Grove as well as the eastern third of Yosemite Valley to motor vehicles.

In May of 1969 work began on the parking lot at the entrance to the grove. A little over two years later, in July of 1971, the lot was completed. Other components of the project included the bus parking area and the tour bus loading area. Each was constructed as close to the existing grades of the ground as possible in order to avoid cut and fill scars. Each had a 4-inch "crusher base" with a 2-inch asphalt surfacing. Concrete half logs for safety bumpers were placed where necessary. The visitor parking area could accommodate 130 vehicles while the bus parking area was large enough for 5 large buses (Project Completion Report, Mariposa Grove Parking Area 1974). In part because of the change to the use of only public transportation through the grove, the Big Trees Lodge stopped functioning as a hotel in 1972. Instead it served as a dormitory for the Youth Conservation Corps until 1983, when after damaged by a fire and a falling tree, the structure was removed from the park (Greene 1987:894-895).

After several years of prohibiting private vehicular traffic in the grove, the Park Service assessed the major change in this way: "The awesome beauty and quiet of the grove are being protected by only allowing visitors to walk through the grove or ride a tram system with an interpreter." All interpretation would continue to "focus on the sequoias and their environment" (NPS General Management Plan 1980:59).

At roughly the same time, the Park Service – equally dramatically – changed its policies toward the suppression of wildfire and the use of controlled burns as a management option. In 1970, echoing the recommendations of Richard Hartesveldt and others, prescribed fire emerged as a viable management tool for curtailing plant succession toward more shade-tolerant plants, for reducing large accumulation of fuels, and for eliminating dense canopies of understory trees. In addition to the use of prescribed burns, since 1972, this new management policy has resulted in allowing lightning-ignited fires to burn throughout Yosemite National Park (Runte 1990:216).

Prescribed burns, conducted by setting fires in a spot pattern, allow "fuels, weather and topography to produce a mosaic of fire behaviors and effects." In the Mariposa Grove as well as at other Sierra Nevada sequoia groves, these fires have tended to produce crown scorch heights that average about 30 feet, although in instances where the amount of dead wood is large, scorch heights have reached as high as 60 to 100 feet. The goal of the new policy regarding fire is to "restore or maintain the natural fire regime to the maximum extent possible so that natural ecosystems can operate essentially unimpaired by human interference" (Parsons and Nichols 1986). As the 1997 vegetation management plan for the park acknowledged, the "natural regeneration of giant sequoia is strongly dependent upon conditions produced by recurring, moderately intense fires. Such fires produce optimum conditions by removing thick layers of dead and down debris; leaving the mineral soil covered by a thin layer of ash; and removing thickets of white fir and sugar pine to maintain an open canopy condition and thus a high degree of irradiation on the ground surface. These fires also heat the canopy of mature sequoias, causing a sudden release of large numbers of seeds from serotinous cones" (Yosemite National Park, Vegetation Management Plan 1997:146).

Without fire, the landscape of the Mariposa Grove, over time, would have lost the one component – the giant sequoia – that had motivated Congress to make the grove forever inalienable. Without a more complete understanding of the ecology of the grove and an awareness of the role of fire, species shift towards more shade-tolerant plants, over time, might have created conditions in the grove where no young sequoias could have survived. By discontinuing fire-suppression policies park managers sought to prevent the eventual creation of such a landscape, and in the late 1990s, fire again significantly impacts the landscape of the grove. Management policies that once focused on the needs and attributes of individual trees now seek to understand key ecological relationships in the grove. Throughout its history, since the establishment of the original Yosemite grant in 1864, guardians of various stripes have sought to protect the grove while still allowing access to visitors so that they could experience the magnificence of the big trees. Although notions of how best to achieve both goals have changed over time, the goal of protection has never wavered.

Analysis And Evaluation

Summary

The Mariposa Grove retains integrity of the following landscape characteristics; natural systems and features, vegetation, spatial organization, views and vistas, circulation, and buildings/structures. Clustering, the grouping of buidngs within the landscape, was once an important characteristic of the later, designed landscape of the grove. However, the principal clusters have been removed or altered and no longer retain integrity. For the most part, these changes are due to the elimination of some land uses from the grove. Similarly, the grove once contained a wealth of small-scale features, including the name signs affixed to the trees and the log benches (the latter constructed by the CCC). Today, the majority of the tree name signs have been removed. Those that remain do not date to the historic period although their design is generally compatible with late historic period signage. The inventory unit also contains a variety of historical archaeological features that are associated with now-obsolete land uses. These features--mostly secondary waste disposal areas--have not yet been tested to determine if they contain information significant to the history of the grove.

Landscape Characteristics And Features

Archeological Sites

A number of archaeological features associated with former activity areas have been identified within the Mariposa Grove. For the most part, these appear to be refuse scatters, representing items deliberately discarded during the operation of the concessioner's lodging facilities or the park service construction camps. These features have not been tested to determine whether or not they contain significant information and are eligible under criterion D.

Buildings And Structures

Buildings

Several buildings and structures within the grove date to the historic period, retain integrity, and contribute to the eligibility of the property as a whole. Contributing buildings include the museum (WA04725) and comfort station (WA04726) both located in the "upper" grove. Both buildings are built in the park service rustic style and are included in the List of Classified Structures. Of particular interest is the museum (constructed in 1930 and reconstructed in 1980), since it is unique within the park service system—having been designed to mirror the design of the previous buildings at this site. This is a one-story, rectangular, log bearing building, constructed of peeled sugar pine logs with little taper. The logs are joined at the corners with "V" shaped saddle notches. The side-facing gable roof is covered with split sugar-pine shakes, applied 24 inches to weather. Fenestration includes six-over-six-light double hung windows and a vertical plank door with hand-forged strap hinges. A prominent feature of the exterior is a massive rubble stone chimney, which fills the southeast elevation. A large wooden platform, accessed by two wooden steps, extends along the entire length of the south elevation.

The comfort station (built in 1931), located approximately 400 feet southwest of the museum, is also a log bearing building. It shares many of the characteristics of the museum, including the use of peeled sugar pine logs notched at the corners with saddle notches, and a gable roof covered with sugar-pine shakes. The interior floor plan of this building is typical of comfort stations built throughout park units in the west, consisting of men's and women's lavatories on each side of the building, and separated by a plumbing alley and maintenance area, which runs the width of the building. This building is an excellent example of the application of site-specific materials standards to a generally accepted "standard plan" building.

Structures

The principal structures that contribute to the eligibility of the Mariposa Grove are components of the system of retaining walls and paths located at Wawona Point Lookout. Prior to the 1931 construction of the current lookout, improvements consisted of a one-way loop road that "skirted a dangerous cliff." The intent of the Wawona Point development project (beyond expansion of the parking area) was to provide an aesthetically pleasing and safe point from which to experience the view. Structural components include the battered stone retaining wall built around the cliff-side of the parking area and part of the exit road (approximately 184 feet in length); a guardrail atop the retaining wall (18 inches wide and 24 inches high); and, a 4-foot-wide sidewalk with a stone curb, constructed inside the retaining wall. The rubble masonry retaining wall is constructed with local granite, obtained from boulders hauled from the vicinity of the Grizzly Giant. Sand for the mortar was obtained from Big Creek, and mixed with cement and water hauled from the vicinity of the museum. The guardrail is constructed with irregular courses of cut granite—from the same source as that used in the retaining wall.

Additional stone retaining walls with parapet guardrails support two lower lookout platforms--each designed to accommodate a half dozen people. These walls are constructed in the same manner as the parking lot wall—mortared granite rubble with a 24—inch-high guardrail on top. The northern most of the two is built upon a natural protuberance in the bedrock that outcrops below the cliff edge, and is integrated into a loop trail. From the north end of the parking lot, one segment of the trail leads down slope via a stone and concrete stair with a metal pipe railing to the overlook platform. (The concrete stairs and the metal pipe railing are not original design features.) Another leg of the trail (now bordered by a metal pile railing) continues south from the north lookout platform following the natural contour of the hill slope back to the base of the south edge of the parking lot retaining wall. The steep grade below

this trail segment required the application of riprap to stabilize the slope and prevent erosion of the trail. (The raw appearance of this slope, which characterized the area immediately after completion has been softened by the accumulation of duff and the regeneration of vegetation within the riprap.)

From the base of the south end of the parking lot, one can either ascend to the parking area by means of another set of stone stairs, or, proceed to the second (south) lookout platform. The south lookout platform is constructed on a relatively steep section of hillside and consequently required a more substantial retaining wall than the north platform. The area behind both of the lower retaining walls is back-filled (with material excavated from the parking lot), to form the lookout platform.

Other engineering mechanisms used to stabilize the land surface at Wawona Point include the application of riprap to the steep slope at the east edge of the parking area, between the two legs of the access road. Like the riprap applied below the trail to the north overlook, the area is now covered with duff and vegetation.

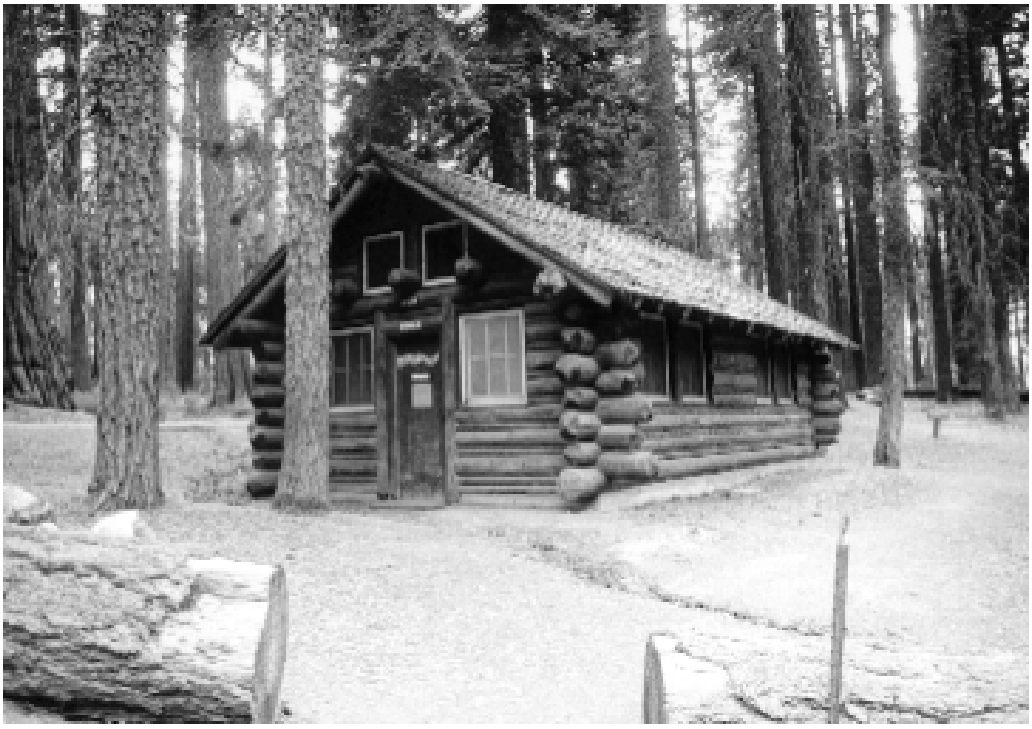
In addition to the engineering structures incorporated into the Wawona Point Lookout, there are two sections of battered, dry-laid stone retaining wall incorporated into the vehicular road. These are located within a prominent cut and fill section between the Clothespin Tree and the Mariposa Tree. These walls support the road prism by stabilizing the base of the fill below the road.

Summary:

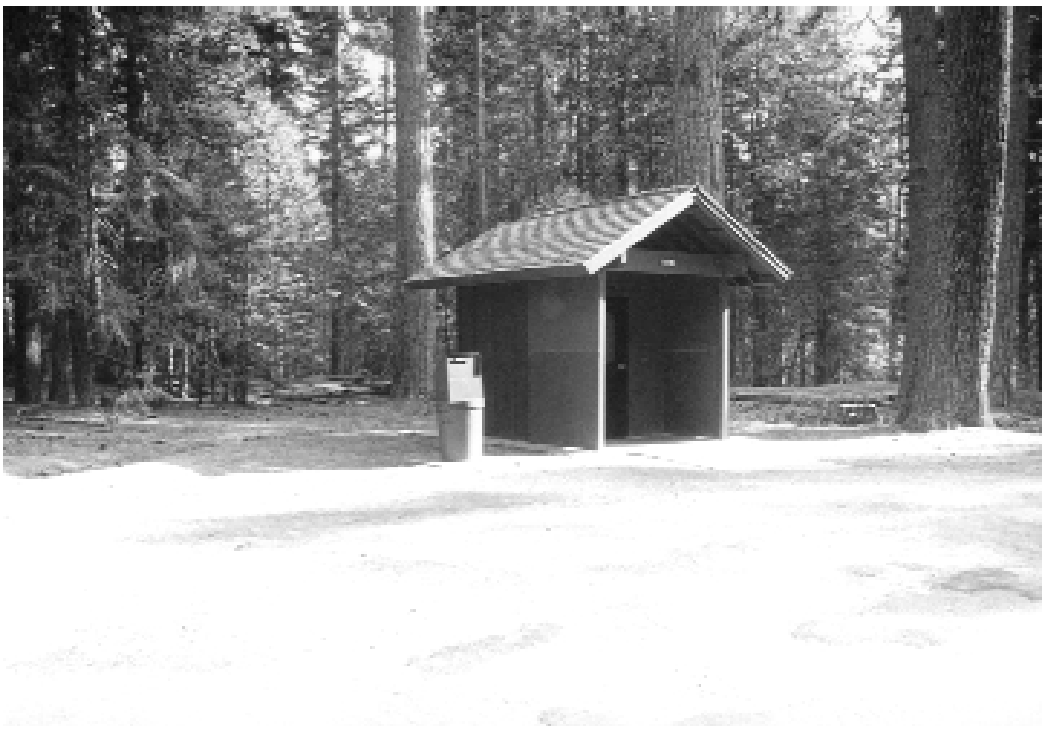
Historically, buildings and structures have represented a small but important element of the historic designed landscape within the grove. Those identified above possess historical integrity and contribute to the eligibility of the Mariposa Grove landscape. The modern buildings currently located within the grove, including the comfort station near the tram stop at the Grizzly Giant, and the gift shop, pit toilets, and ticket booth in the parking area at the entrance to the grove, should be counted as noncontributing (and non-compatible) features.

Historic buildings no longer present in the grove include those associated with the ranger station (a station/residence, barn and outhouse), two outhouses formerly located near the Grizzly Giant, and the concessioner's buildings associated with the two lodges formerly located in the "upper" grove.

Contemporary photo of Mariposa Grove Museum (WA04725), 11/1999, HRA.



Contemporary photograph of Mariposa Grove Comfort Station (WA04726), 11/1999, HRA.



Modern, non-contributing comfort station near the tram stop at the Grizzly Giant. 11/1999, HRA

Overview of mortared stone retaining wall at Wawona Point Lookout. 11/1999, HRA

Sairway to north lookout platform at Wawona Point Lookout. Note that original stone stairs have been replaced with concrete. HRA, 11/1999.

Stone stair to south lookout platform. Note original stone steps. HRA, 11/1999.

Parapet guardrail and stone-lined walk at Wawona Point. HRA, 11/1999

Dry-laid stone retaining wall stabilizing fill section in main vehicular road. HRA, 11/1999

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Mariposa Grove Comfort Station	Contributing	Mariposa Grove Comfort Station	55756	WA0476
Mariposa Grove Museum	Contributing	Mariposa Grove Museum	005806	WA04725
Stone retaining walls, stairs and overlook platforms at Wawona Point Lookout.	Contributing	Wawona Point Stone Features	339741	
Two sections of dry-laid stone retaining wall incorporated into road system.	Contributing	Mariposa Grover Dry-Laid Stone Retaining Walls	339727	
"Telephone" building at Wawona Point Lookout	Non-Contributing			
Comfort Stations at parking lot, entrance to grove.	Non-Contributing			
Concession gift/snack shop, entrance area.	Non-Contributing			
Modern Comfort Station at tram stop opposite Grizzly Giant	Non-Contributing			
Relay station at Wawona Point Lookout	Non-Contributing			
Timber crib retaining wall constructed in 1973, downslope side of Wawona Tunnel Tree.	Non-Contributing			

Circulation

The historical circulation system within the grove consists of several different components, vehicular roads, bridle paths, and trails. The paved route that is currently used for trams represents generally follows the alignment of the first wagon road constructed after the establishment of the state grant—the road paid for by the Washburn brothers, and improved during the later part of the 1800s by the state. The exact character of this first road is poorly documented in the historical record. However, it is evident that the basic alignment, including the loop in the upper portion of the grove and the spur road to Wawona Point, had been established early. As constructed, the road followed a series of compound curves from the grant boundary to the vicinity of the ranger station (where the parking lot is located now). From this point, the road bypassed the Fallen Monarch, followed a gradual ascent through the lower portion of the grove, past the base of the Grizzly Giant, through the California Tunnel Tree, and then along a steeper ascent to the "upper" grove. The route included the loop through the upper grove, with several "exit" routes—one-way paths designed to give travelers a way to exit the grove without completing the entire loop.

It was this road that the park service improved during its 1925 reconstruction project. The result was a slightly modified alignment with a 25-foot-wide grade from the entrance to the museum--sufficient to support a 16' "travelable" way with two, two-foot shoulders. The one-way loop in the upper portion of the grove had a 10-foot-wide traveled way, and the spur road to Wawona Point a 16-foot-wide traveled way—both oiled surfaces. As a result of the 1925 improvement, a steep, one-way wagon road, formerly used as an exit route, was abandoned for automobile traffic. (This route is currently used as a pedestrian trail.)

Drainage of surface water and ground water had long been a problem with regard to road maintenance and the 1925 reconstruction project did little to remedy it. The "customary" side drainage ditches did nothing to prevent groundwater from saturating the subgrade of the road, and in places, could not even accommodate the spring runoff.

A road project conducted during 1933 and 1934 contained work elements designed to address the drainage problems associated with the road, and to improve the appearance of the road corridor, through bank sloping, and, in appropriate areas, the transplanting of sequoia seedlings. This project also included some minor realigning of the road—especially the loop in the upper grove—in order to reduce damage to roots.

The proposed solution to the groundwater problem was to install under drains. In areas where saturation of the subgrade was a problem, construction workers dug 4-foot-deep ditches along the up-hill side of the road. They then laid porous terra cotta drain tile on a gravel base within the ditch and covered the tile on the sides and top with more gravel. The drainage tile channeled water down hill to culverts, which then discharged the water on the down-slope side of the grade. To solve the problem of surface drainage, it was proposed to pave the drainage ditches. However, there is no indication in the final construction report that the side ditches actually were paved along the entire length of the route.

After completion of this project, the road character had changed from that of the earlier "vernacular" wagon road, to a road that satisfied many of the concerns of the park service's Landscape Division. This is especially true of the loop segment in the upper grove, where the Landscape Division had recommended the use of an elevated grade in order to cushion the sequoia roots. Material recovered during bank sloping provided the fill material.

Two minor changes in alignment to the main road occurred during the middle 1930s. These include the

rerouting of the road away from the base of the Grizzly Giant—a project designed to reduce damage to that tree. The road was moved from 50 feet to 260 feet away from the base of the tree, and resulted in 2,172 feet of new road. The new road segment followed the natural contour of the hill slope. It proved to be rather expensive also, since the new alignment cut through an area of granite bedrock. Fearing that blasting would impact the Grizzly Giant, all of the material was removed by hand or with a tractor.

Another minor realignment occurred in 1932, with the completion of the Big Trees Lodge. In order to access the lodge, a new 700-foot segment of road was constructed, cutting off a segment of the original alignment.

In 1973, plans were produced to reconstruct the majority of the Mariposa Grove vehicular road. Improvements were to include reconstruction of deteriorated segments and repaving, plus the elimination of several asphalt parking areas. Similarly, the drainage system for the road, including the clay drainage tiles and under-road culverts were to have been upgraded and replaced. The existing condition of the road indicates that this project was not executedin its entirety. However some elements of the plan, notably the removal of asphalt parking areas in the vicinity of the museum and comfort station, and opposite the Grizzly Giant were removed. It also appears that at least some of the drainage structures have been replaced over the years.

Bridle Paths and Foot Trails

Bridle paths as a distinctive type of resource have been part of the historic circulation system within the grove since the mid-1930s. In 1934, the CCC constructed two new bridle paths including the approximately 6-mile-long path from Wawona to the grove. This path enters the original grant boundary from the north, contours mid-slope around the ridge that contains Wawona Point, then ascends the ridge via a series of steep switchbacks, before reaching the top near Sunset Point. This path connects with the "outer loop trail," a second bridle path built by the CCC in 1934, which encircles the upper portion of the grove. These paths vary in width between 3 and 6 feet. Today, these paths have a natural surface--as originally constructed. However, at times during the past, the surfaces have been surfaced with bituminous material or oiled. (Although horses are no longer allowed in the interior of the groves, they are still permitted on the outer loop trail.)

Another trail that dates to the historic period and that remains in use, is the trail to Biledo Meadow. This 6-foot-wide trail was constructed during the installation of the water system for the upper grove in order to facilitate hauling the water pipe from its off-loading point in the vicinity of the Wawona Tunnel Tree, about 2 miles, to the outtake point in Biledo Meadow. (The pipe was laid in a trench at the upper edge of the trail.) Approximately a mile of this trail lies within the boundary of the grove, where it follows a mid-slope contour below the south side of a westerly oriented ridge.

Several segments of abandoned wagon roads are now used as pedestrian paths. One of these is the short segment of road that formerly led from the Grizzly Giant northwest through the California Tunnel Tree. Another is an abandoned segment of a one-way exit road that passes in the vicinity of the Diamond Group (southwest of the comfort station), and descends southwest past the Clothespin Tree, continuing on to the parking area via a series of switchbacks. Although some of these trails are continue to be recognizable as wagon routes, they are currently maintained simply as pedestrian paths—leading to a loss of character in some areas.

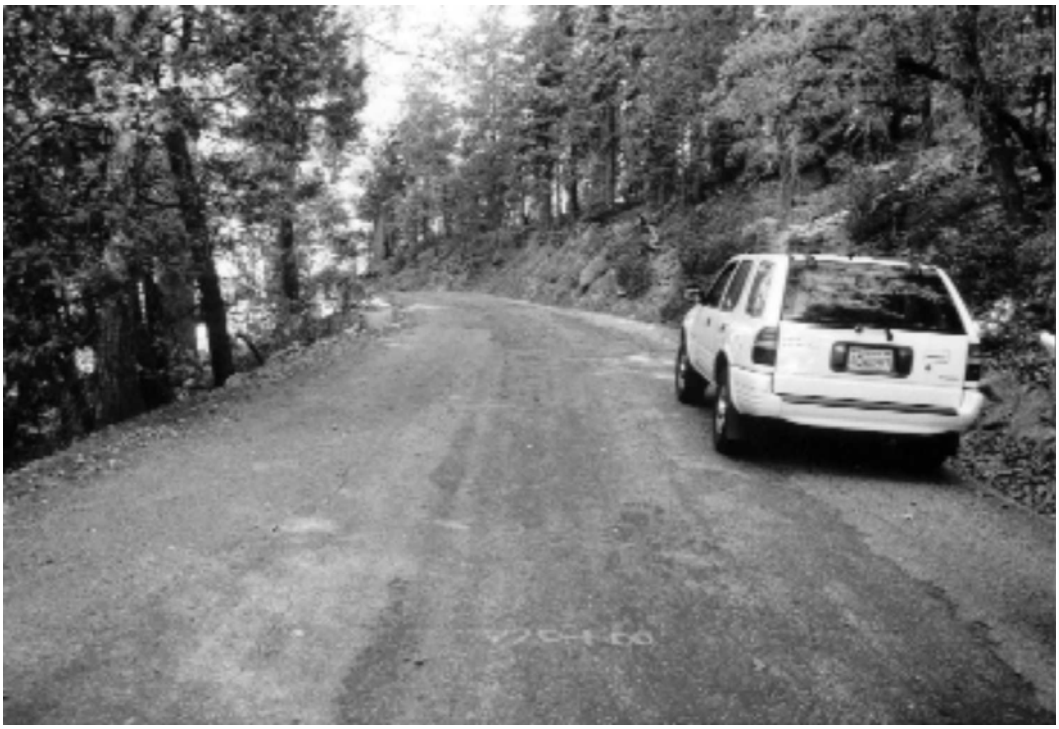
In 1986 and 1987, a substantial trail reconstruction project was undertaken in the vicinity of the parking area and near the Grizzly Giant. Rather than staying on the paths in these areas, pedestrians were simply taking the shortest route between two points, which resulted in large swaths of disturbance and erosion.

In order to prevent further damage to soils and vegetation, the trails crew constructed new elevated and lined paths (some with stone steps and bordered with split-rail fences), within the disturbance corridors. Near the parking lot, a new trailhead was constructed at the top of the passenger car parking lot. A raised grade trail leads from this point, past the Fallen Monarch and parallel to the vehicular road, then crosses the road and proceeds to the Grizzly Giant. This reroute cut off four of the switch-backs associated with a steep segment of the old wagon trail that formerly intersected the main road at the bottom of the passenger car parking loop. These new trail segments are noncontributing within the inventory unit.

Summary: Circulation is an important landscape characteristic within the Mariposa Grove. Contributing components of the system are the main vehicular road including the two-way section from the west grant boundary up to and including the one-way loop road through the upper grove, as well as the Wawona Point spur road with its loop through the parking area. The portion of the bridle path to Wawona that lies within the grant boundary and the outer loop bridle trail are also contributing features, as is the trail constructed in conjunction with the original water system to serve the upper grove. The abandoned one-way exit wagon roads, now used as pedestrian trails, also contribute to the eligibility of the site.

The landscaping accomplished along the road corridor during the 1934 construction project contributes to the current character of the road. There are no overhanging banks, no protruding root systems or stumps, and the slopes adjacent to the road have been reshaped to "conform to the surrounding scenery" (Thomson 1934 [Preliminary Report-Armor Coat Paving, Mariposa Grove Road]). Similarly, the differences in the width of the road between the two-way and one-way segments, reflects the historical pattern of development during the 1930s.

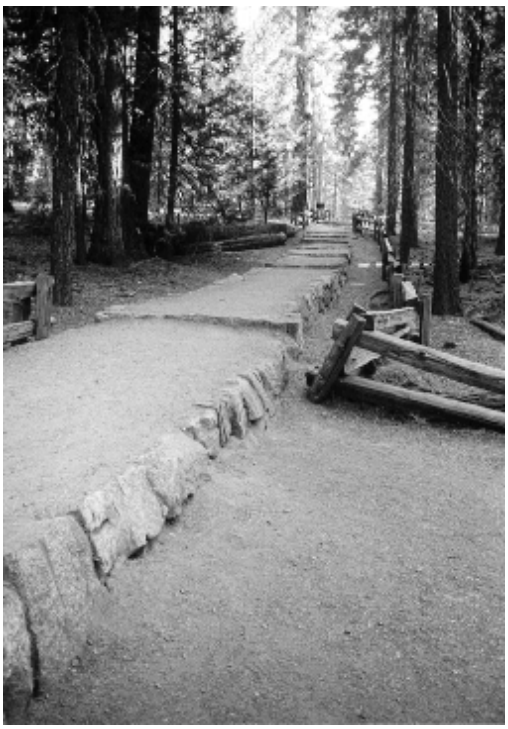
Drainage along the Mariposa Grove road continues to be a problem, especially during flood events. In some instances, attempts to halt erosion in road-side ditches have resulted in the application of inappropriate materials, which detract from the appearance of the road. An example of this is the light colored rip-rap laid in the road-side ditches during the 1997 flood.



Looking northwest along two-way segment of the Mariposa Grove Road. HRA, 11/1999.

Looking northeast along the one-way loop within the upper portion of the grove. Borrow pit to left of road in center of photo. HRA, 11/1999.

Looking southeast along road to museum. Note the raised grade in this vicinity, designed to cushion sequoia roots. Fencing is modern. HRA, 11/1999.



Looking northeast along the 1986 raised grade trail to the California Tree. These modern trails are noncontributing features. HRA, 11/ 1999

Example of riprap applied to ditches to prevent erosion during 1997 flood. HRA, 11/1999.

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Bridle Path to Wawona	Contributing	Mariposa Grove Bridle Paths	339748	
One-way wagon road abandoned for vehicular use in 1925 and currently used as a pedestrian path.	Contributing	Mariposa Grove Wagon Roads	339756	
Outer Loop Bridle Path	Contributing	Mariposa Grove Bridle Paths	339748	
Paved vehicular road, including the spur road to Wawona Point	Contributing	Mariposa Grove Historic Paved Roads	339758	
Remnants of the Mann Trail	Contributing	Mariposa Grove Historic Trail	339753	
Trail to Biledo Meadow	Contributing	Mariposa Grove Historic Trail	339753	
New pedestrian trail from trail head to juction with original trail alignment.	Non-Contributing			

New, raised grade trail from Grizzly Giant tram stop to California Tree.	Non-Contributing

Cluster Arrangement

Historically, the clustering of buildings and structures within the Mariposa Grove occurred in areas designated for specific functions including visitor services and administrative activities. There were three principal building clusters within the grove. With regard to visitor services, there were two lodge complexes located within the park, the first constructed in 1921, and the second constructed in 1932. Both were located in the "upper" grove in the vicinity of the museum. The centerpiece of the first lodge was an elevated platform sheltered by an open roof, constructed around the base of the Montana Tree. This building, located behind the museum, was constructed in a rustic style, with slabs of sequoia bark used to enclose the base of the platform; peeled log railings enclosed the open-sided eating area. Peeled logs were also used in the construction of the roof. In addition to this building, there were 14 "redwood" cabins, 3 canvas cabins, 2 canvas tents and ancillary structures, such as privys, a kitchen and a large 10,000 gallon water tank. The main building and most of the cabins collapsed under the weight of heavy snows during the winter of 1931/1932. The only indication of the former presence of the first Big Trees Lodge is a faint mark in the bark of the Montana Tree, indicating the place of attachment for the roof of the main lodge building.

The second Big Trees Lodge, also constructed by the Yosemite Park and Curry Company, was completed in 1932. The character of this lodge was quite different from the vernacular appearance of the original lodge. The new lodge consisted of a single primary building, designed by the Yosemite Park and Curry Company, and submitted to the park service for design review. Located about 1200' northwest of the original lodge, the irregularly shaped building was of frame construction with board siding and a shingle roof. Other new development associated with the lodge included the construction of two parking areas, one in front of the lodge and one down-slope to the west. The one opposite the lodge required the construction of a dry-laid stone retaining wall to create a level parking surface. The deliberate dismantling of this lodge in the mid-1980s, left few traces of development. Although the lodge was removed, one can still readily identify the locations of the two parking areas—especially the one in front of the lodge, where the stone retaining wall remains, although in poor condition.

The third cluster of buildings and structures within the grove during the historic period was the ranger station and campground, located at the west edge of the lower portion of the grove near the entrance. This complex contained government-constructed improvements to support both administrative and visitor services. The administrative buildings in this cluster (a log ranger station/residence and a frame horse barn) housed a park service ranger and sheltered government saddle stock. Seasonal employees were housed in tents. The adjacent campground could accommodate about 20 "camps," and after 1934, contained 10, raised frame tent platforms as well. A total of four pit toilets served both the park service staff and park visitors. The juxtaposition of the campground with the ranger station was likely deliberate, since one of the major management concerns of this time was controlling man-caused fire within the grove. The close proximity of the ranger station to the campground facilitated monitoring camper's activities.

Although the old ranger station/campground area continues to function as a cluster within the Mariposa Grove, the improvements located there do not date to the historic period. The park service administrative function has been completely removed. The majority of the improvements currently located in this area are associated with visitor services and include, separate paved parking areas for buses and passenger cars; a trail head; modern comfort stations, and a gift/snack shop operated by the concessioner (constructed during the mid-1980s).

Summary: The cluster arrangement of buildings was once an important landscape characteristic within the Mariposa Grove. However, two of the clusters no longer exist, as they were associated with obsolete

land uses. The third (the ranger station/campground) lacks integrity due to a change in land use during the modern era. Cluster arrangement can no longer be considered a landscape characteristic within the Mariposa Grove inventory unit.

Land Use

From 1864 to the present, the Mariposa Grove has been known for its scenic beauty and natural history, serving as a destination for people interested in seeking "relief from ordinary cares" through the "occasional contemplation of natural scenes of an impressive nature" (Olmsted report, p. 13). The grove has been used principally as a conservation area and as a public use facility. Public use of the grove has included day-use activities such as sightseeing and picnicking, and at times, lodging services and camping facilities have also been provided. Historically, the grove also contained administrative facilities in the form of the ranger station, formerly located in the vicinity of the current parking area. However, since the removal of the Big Trees Lodge (in 1983), and the elimination of the public campground in the late 1950s, the land use has more closely approximated that of the first five decades after establishment, when the principal activities within the grove consisted of day-use visitation.

The most extensive cultural feature associated with the principal historical use is the circulation system of roads and trails—one of the first improvements to be made in the grove. Since the completion of the road system, it has been subject to a number of fine-tunings, some related to the need to protect specific trees (e.g., the reroute to avoid the Grizzly Giant), and some related to changes in transportation technology and management policy.

The initial change from horse-drawn conveyances to automobiles probably had more effect on the road system than the later change from private automobile and buses to trams. The park service reconstruction of the road system in the late 1920s and early 1930s was completed in response to the increase in the amount of automobile traffic through the grove. The road was upgraded to meet Bureau of Public Roads standards, and eliminated many of the "unsightly" aspects of the earlier construction efforts (see discussion under circulation).

Although the banning of private automobiles from the roads within the grove changed the visitor experience, it had little effect on the structure of the road. However, it did create the need for a large parking and staging area—constructed near the entrance in the area previously used as the administrative site and campground. Currently, the concession-operated trams provide visitors with vehicular access to the grove. Additionally, from spring through the fall of the year, free shuttle buses provide transportation from the Wawona Hotel and from the South Entrance Station to the current parking area in the lower portion of the grove. During the height of the tourist season, the visitor parking lot in the lower grove fills quickly, requiring people to leave their cars at Wawona or the South Entrance, and take the shuttle to the grove.

More recently, with more people choosing to walk rather than take a tram, some historic trails have been rerouted (switchbacks eliminated) and new trail segments have been added. Similarly, although horses are still allowed on the Outer Loop Trail, and may access the grove via the bridle path from Wawona, they are no longer permitted on the interior bridle paths.

Several of the land uses historically associated with the grove are out-dated or obsolete. For example, the construction camp, located on the banks of Big Trees Creek was abandoned once the major construction projects of the New Deal era were completed. In addition, the manufacture of sugar-pine shakes has at times been permitted within the grove. However, this activity has not been allowed within the grove since the early 1960s. (Evidence of this land use, in the form of some sugar pine "bolts," can be found in the vicinity of the Galen Clark Tree.)

Summary:

From 1864 to the present there has been continuity in the principal land uses associated with the grove—conservation and day-use visitation, which contribute to the character and significance of the grove. For the most part, the early establishment of management priorities that err on the side of conservation, has assured that the land uses that have proved incompatible with the protection of the big trees have gradually been eliminated.

1999 photo of the Grizzly Giant, still one of the principal attractions for visitors to the Mariposa Grove. HRA, 11/1999.

Natural Systems And Features

By far the most significant natural system associated with the Mariposa Grove is the ecological structure that supports the stand of giant sequioa trees (Sequoiadendron giganteum). These magnificent trees have a long evolutionary history and a relatively restricted ecological distribution that is defined by a combination of topography, elevation, latitude, soil moisture, climate, hydrology, and fire regimes.

The giant sequoia is considered a relic species both geologically and successionally, surviving in isolated groves within the west slope of the Sierra Nevada Mountains. These groves are distributed across a 260-mile area between Placer and Tulare Counties, California. Although there are exceptions, most sequoia trees are concentrated at elevations between 5,000 and 7,000 feet above sea level; within the Mariposa Grove, the big trees are found at elevations of between 5600 and 6600 feet. The Mariposa Grove, is one of seventy-five recognized groves in California, and with approximately 500 trees, is the largest of three groves within the boundaries of Yosemite National Park.

All three groves in the park occur in isolated stands, interspersed with other tree species characteristic of the surrounding Sierra Mixed Coniferous Forest. In the Mariposa Grove these include white fir (Abies concolor), sugar pine (Pinus lambertiana), ponderosa pine (Pinus ponderosa), Douglas fir (Pseudotsuga menziesii) and incense cedar (Libocedrus decurrens), with white fir being the most common tree species. Deciduous trees include California black oak (Quercus kelloggii) and a few specimens of Pacific dogwood (Cornus nuttallii) (McIntyre 1955, map accompanying report). Common shrubs found in the Mariposa Grove include green-leaf manzanita (Arctostaphylos patula), mountain white thorn (Ceanothus condulatus), little-leaf ceanothus (Ceanothus parvifolius),bush chinquapin (Castanoposis sempervirens), and western azalea (Rhododendron occidentalis).

The distribution of sequoias within the Mariposa Grove corresponds to the comparatively flat to gently sloping area adjacent to the headwaters of two drainages, Big Trees Creek and its tributary stream, Rattlesnake Creek, both of which drain the south side of a lateral ridge extending from Mt. Raymond. Although the grove is considered one ecological “unit”, a break in the distribution of big trees, which corresponds to a relatively steep hill slope, has led, historically, to the use of the terms,“upper” and lower” groves.

Use and modification of the Mariposa Grove by humans is a relatively recent factor affecting the site’s ecological systems. Research has led many to believe that prior to human influence, the grove was more primeval in character, affected by naturally occurring fires and a set of environmental factors that provided ideal conditions for the growth of sequoia. In a study of spatial pattern and succession in a mixed conifer-sequoia forest, Bonnicksen (1975) concluded that the primeval sequoia forest was most likely mosaic in pattern, with open gaps and groups of even-age trees and shrubs, existing at different stages of development. Successionally, white fir, which is shade tolerant, was identified as the late stage tree, along with an understory of Ceonothus and Ribes. Smaller annuals and herbaceous materials may have been present, but quickly became shaded out, leaving a relatively open forest floor.

Research on sequoia groves indicates that the big trees require well-drained, yet consistently moist soils, generally sandy loams with a neutral pH. While the sandy soils are subject to rapid percolation, and tend to move moisture beyond the root zone, the near neutral pH allows optimum absorption of nutrients, which favors seedlings. Within the Mariposa Grove, soils are locally developed from the geological parent material, which consists mostly of granite.

Moist soils are critical to the ecology of the grove and studies indicate that while annual precipitation

varies considerably, the warm dry summers and relatively cold wet winters provide optimum conditions for the sequoia trees. The waters from Rattlesnake Creek and Big Trees Creek, and from the numerous underground springs in the grove, provide a balanced supply of water year-round for these giant trees.

Recent scientific investigations indicate that one of the most important factors in the ecological structure of a mixed conifer-sequoia forest is fire. Sequoia trees possess several critical adaptations to fire including:

1) Rapid growth. Up to 2 feet per year in young trees.
2) Thick bark that lacks pitch and burns poorly. Bark can exceed 1 foot in thickness near the base
3) Elevated canopy. Giant sequoias are shade intolerant and are known for the evanescent nature of their lower branches. These characteristics lead to an elevated canopy that in turn reduces the chance of crown fires and death of the tree even though the lower branches may be killed by fire.
4) The production of serotinous cones. Among other attributes, these cones release seeds when exposed to the high temperatures (such as those created during fire).

Along with these adaptations, fire as an agent reduces the amount of litter on the forest floor and permits the seedling trees to absorb nutrients. Fire further tends to eliminate the white fir, which also opens the canopy, allowing more light for young trees.

Summary

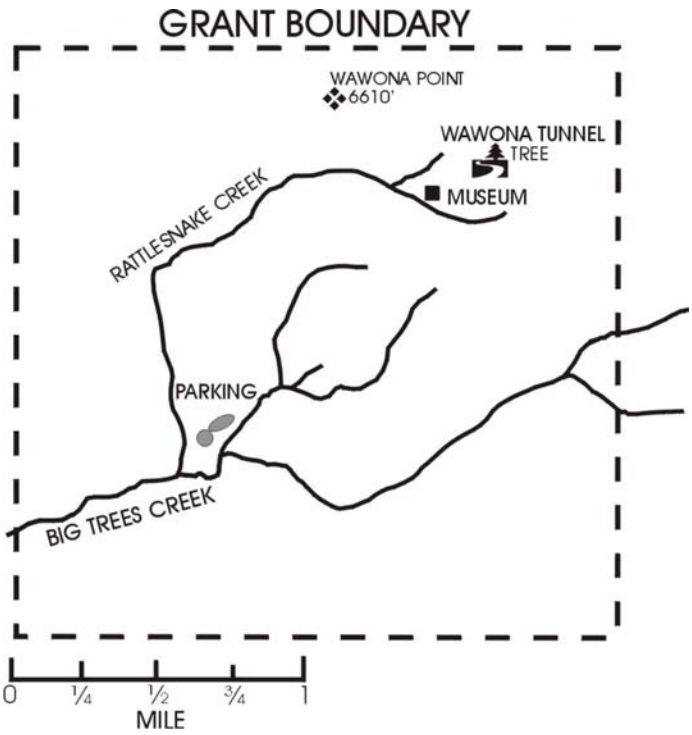
Given the enormous dimension of time that affects the ecology of the Mariposa Grove, it is not surprising that the 136 years of human intervention on these systems has evidenced relatively minimal change in structure or composition. Of the natural features and components that define the dynamics of this system, most persist and provide the envelope within which the giant sequoia can thrive. However, development and park service management of the grove has affected two systems of the grove's ecology: hydrology and fire regimes. These changes have, in turn, altered the vegetative character of the forest.

While the role of fire has been recognized as an important component of the forest ecology since the 1960s, it is only recently that fire has been reintegrated into management of the Mariposa Grove. Prior to the 1970s, fires were suppressed in the grove, allowing the formation of a denser canopy, large accumulations of fuels on the forest floor, an increase in the number of white fir, and a decrease in shrubs and herbs. Since the early 1970s, fire has been reintroduced into the ecosystem of the grove by the use of prescribed burns. While this change has improved conditions and mitigated the effects of fire suppression, the overall composition of vegetation in the grove is different than it was at the time of the state grant in 1864.

In addition, over the past 136 years, development within the grove such as the construction of roads and trails, parking areas, and the addition of buildings and visitor services, as well as other attempts to "manage" the site, have effected changes to the hydrological systems within the grove. For example, in situations where sequoia roots are covered by roads or buildings, trees demonstrate a more rapid rate of growth than trees not similarly affected. The apparent cause of this is that hard surfaces tend to collect and distribute water, which as run-off increases soil moisture, while limiting evaporation. The road surface can also serve to heat the soil beneath it, which increases water uptake. In addition, removal of vegetation as a result of construction reduces competition from other plants (Hartesveldt, 1964; Harvey, 1980). Conversely, sheet runoff from large paved surfaces has been cited as one of the factors that can increase erosion around the shallow sequoia roots (Barbee 1968). The character of the effect of human manipulation on the systems of the grove has tended to be site- or even tree-specific. Changes, which at first glance may seem to benefit individual trees (as in the first instance referenced above) may, in the

long run, adversely impact the grove as a whole.

Other than the obviously detrimental effects of some development on individual trees (e.g., cutting roots in order to construct roadways), the long-term effects of 136 years of human manipulation of the Mariposa Grove remain largely unknown. However, in spite of all of the changes that have been made, the natural systems that define the ecology of the sequoia grove, as well as the grove itself, endure. These natural systems and features—the soils, topography, hydrology, and fire regimes—are significant characteristics of the landscape.



Schematic drawing showing the major drainage systems within the Mariposa Grove.

Small Scale Features

A few small-scale features date to the historical period, retain integrity, and contribute to the character of the site—especially that of the upper grove. These include the remaining red fire hydrants (connected to 2-inch water line) and two of the three drinking fountains once located near the museum. (A fourth drinking fountain, located in the lower portion of the grove near the Grizzly Giant has also been removed.) Both the hydrants and the fountains were installed as part of the 1931 system for the upper grove.

The fire hydrants are purely functional, and appear as miniature versions of a standard city fire hydrant. When in use, a canvas hose with a nozzle would have been affixed to the hydrants. In contrast, the drinking fountains, which consist of small basins atop pedestals made of granite boulders with granite slabs for a base, are more than functional and reflect the rustic design standards characteristic of park service improvements of the 1920s and 30s. The fountain nearest the museum is in good condition. However, the fountain located mid-way between the museum and comfort station has been dismantled—leaving only the pedestal. The base is not visible beneath the dense vegetation at the bottom of the fountain.

Another historic small-scale feature located within the upper grove is the American Legion Memorial plaque. The plaque is mounted on a large granite boulder, set between the American Legion Tree and the edge of the road. It bears the seal of the American Legion and the words: “To the unknown dead of the World War/the American Legion, Department of California/Dedicates this Tree/ August 26, 1921/Presented by Yosemite Post 258.

In addition to the features noted in the upper grove, a brass cap boundary marker dating to the 1906 survey of the grant boundary is located adjacent to the north side of the entrance road. Located next to a large granite boulder above the road, the marker is almost obscured by brush.

One barrier wall, which is neither historic nor compatible, is the dry-laid stone wall constructed in front of the museum to prevent people from trampling the vegetation in front of the Sheridan and Grant Trees. This wall was constructed in 1994 or 1995.

Historic small-scale features no longer present within the grove include the numerous name signs affixed to the trees. The practice of naming trees was prominent from the 1860s through the first decade of the 1900s, and is representative of attitudes of the time. For a variety of reasons, the park service discontinued the practice, and followed this decision with the removal of all signs affixed directly to trees. Currently, a few of the most prominent trees are marked with modern routed wood signs, however, for the most part, the casual visitor to the grove is unaware of the historical names affixed to individual trees.

Other small-scale elements missing from the grove today include site furnishings, namely the log benches fashioned by CCC enrollees. These were placed in popular, high traffic areas, such as the vicinity of the Grizzly Giant.

In addition, the high traffic areas of the grove are filled with split rail barrier fences, designed to keep pedestrians away from the base of the trees and from areas where seedlings are regenerating. (For example, the fence around the Grizzly Giant was constructed in 1986.) Although these are not historic, they are compatible with the historic scene, and represent the latest in a series of barriers constructed to protect individual trees.

Summary:

One important category of small-scale features, the name signs formerly affixed to trees, has been completely eliminated from the grove. Therefore, the early historic-period tradition of naming trees is no longer represented visually to contemporary visitors. The historic small-scale features that do remain within the grove continue to add detail and richness to the designed landscape components within the grove. In some instances, they are the only visible representation of engineered systems (e.g. the domestic water system), in the grove.

Drinking fountain in upper portion of grove, near museum. HRA, 11/1999.

American Legion Plaque between road and American Legion Tree. HRA, 11/1999.

Fire hydrant located in upper portion of grove near site of Big Trees Lodge. HRA, 11/1999

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
1906 Survey marker	Contributing	Mariposa Grove 1906 Survey Marker	339765	
2 drinking fountains near Mariposa Grove Museum	Contributing	Mariposa Grove Drinking Fountains	339768	
American Legion Memorial Plaque	Contributing	Mariposa Grove American Legion Memorial Plaque	339770	
Fire hydrants in upper grove	Contributing	Mariposa Grove Fire Hydrants	339773	
Modern routed wood signage	Non-Contributing			
Split rail fencing throughout grove	Non-Contributing			

Spatial Organization

The basis of the spatial organization of visitor services and administrative functions within the grove is, to a large degree, based upon the distribution of the big trees. When Galen Clark built the first shelter within the grove he selected a site in the heart of the upper portion of the grove, near a meadow with a live stream and surrounded by the big trees. Clark's selection of this site established the area as the center for educational and interpretive efforts—a tradition that continues today. Although nothing remains of Clark's original building, it provided the template for the current park service-designed museum.

The next major piece of infrastructure to be developed within the grove was the road system. This wagon road was designed to bring visitors in close proximity to all of the large sequoia; in addition, it passed directly in front of Clark's Hospice. Since the completion of the road system in the 1800s until private automobiles were banned from the road 1969, the road shaped the visitor experience. Tourists did not venture far from their vehicles, but instead confined their activities to the area within 100' either side of the road. Since the road alignment was selected to provide access to the major tree attractions, it provided an almost continuous visual experience. The exception to this was the stretch of road along the steep hill slope that represents the break in the distribution of sequoia, and is the general boundary between the "lower" and "upper" portions of the grove.

One area where visitors did expand their use was in the vicinity of the Museum in the "upper" grove. As the need for visitor services expanded, the vicinity of the museum became the natural choice for the placement of new facilities. The first Big Trees Lodge was built directly behind the building in 1919. By 1930, the area in the vicinity of the museum had become heavily used as a picnic ground—prompting the park service to construct formal parking facilities at the museum, and provide a comfort station and several drinking fountains. Even after the destruction of the original lodge complex, the site for the second Big Trees Lodge was selected not far from the museum.

Within the lower portion of the grove, the Grizzly Giant represented the main attraction and focal point for park visitors. The vehicular road passed directly by the base of the tree; the area in its vicinity, like the area adjacent to the museum, was used as a picnic ground. The attraction of the tree, billed as the oldest tree in the grove, made it one of the most heavily used sites within the grove. The close proximity of the California Tunnel Tree, added to the attraction of the area. Even after the road was rerouted away from the base of the Grizzly Giant in the 1930s, the area continued to be heavily used, prompting the park service to add surfaced parking areas—in the hope that a more clearly defined space would reduce impact from vehicles.

Another important space within the grove historically, was the Wawona Point Lookout. This landscaped space offered travelers something decidedly different from the attractions within the grove—a panoramic view of the extensive public lands outside the original grant boundary. The lookout originated as a simple spur road, with a one-way loop at the end that skirted the edge of a cliff. An increase in the number of visitors created the need for a safer point from which to take in the view. The park service responded with a landscaping plan that incorporated vista clearing, naturalistic lookout platforms, and the use of native materials in the construction of the formal parking and viewing spaces. Other than the failed attempts at landscaping plantings in the vicinity of the Grizzly Giant, this is the only formally designed space within the grove.

One space that lacks integrity is the area of the current parking lot. Here, two paved parking areas—one for passenger cars and one for buses (completed in 1971)replaced the former ranger station and public campground.

Summary

The spatial organization of the grove retains historical integrity. The early patterns established by Galen Clark and by the early road builders, continue to the present. The vehicular road continues to structure the visitor experience, and to define the “lower” and “upper” portions of the grove. In addition, activity centers continue to mirror those of the historical period, with the vicinity of the Grizzly Giant in the lower portion of the grove, and the vicinity of the museum in the upper portion of the grove, serving as stopping points.

Vegetation

Within the cultural landscape of the Mariposa Grove, vegetation is defined and characterized by the magnificent stand of giant sequoia--Sequoiadendraon giganteum, along with the plant communities and associations that comprise the ecology of the mixed-conifer/sequoia forest. The Mariposa grove covers consists of approximately 500 trees and is the largest of the park's three sequoia groves, containing 86 percent of the documented sequoia trees in the park. The grove is one ecological system that is divided by natural topography into two clusters, generally referred to as the "lower" and "upper" groves. Many of the individual trees in the grove also have distinct status because of the size or character, such as the Grizzly Giant the Wawona Tunnel Tree, the California Tunnel Tree.

Today, some of the native vegetation typically associated with the mixed-conifer/sequoia forest is largely absent from the grove. Although studies indicate that a mature sequoia forest does not retain a dense cover on the floor, documentation suggests that historically the understory within the groves may have consisted of Ceonothus and Ribes. Smaller annuals and herbaceous materials may have been present, but quickly became shaded out, leaving a relatively open forest floor. While the annuals and herbaceous ground covers that were formerly associated with the grove no longer remain, the range of tree species characteristic of the mixed conifer zone (sugar pine, Ponderosa pine, white fir, etc.) are still found within the grove, although their density and distribution has changed.

Historically, in the early development of the grove, the NPS and others attempted to establish additional vegetation within the site for both functional and ornamental purposes. For example, twice during the historical period, attempts were made to landscape the base of the Grizzly Giant. The first plantings were added in 1930 to mask the barbed wire entanglement designed to prevent people from trampling the root zone at the base of the tree. Slightly later, in the mid-1930s, park managers once again tried to landscape the base of the Grizzly Giant. In this instance, they added native shrubs, including wild azalea and gooseberry, to the base of the tree. None of these ornamental plantings have survived. (Gooseberry, which serves as an intermediate host for blister rust, was subseqently the target of eradication efforts within the grove.)

Land uses and construction activities occurring within the grove over the past 100 years have generally had a negative impact on the integrity of native plant communities. These activities such as grading for road construction, paving trails and roads, and suppressing fire have lead to less than favorable growing conditions for the sequoia trees, leading to the failure of some specimens. Documentation suggests that the suppression of fire within the grove has probably done more to alter the character of native vegetation than any other management policy. Fire suppression creates conditions that benefit shade-tolerant tree species. The open canopy and park-like character of the grove characteristic of the early historic period, has been replaced in some areas with a more dense canopy of seedling and intermediate sized trees.

Summary

Although the complexity and cover of native species composition in the grove has diminished over the years, vegetation historically and ecologically associated with the Mariposa Grove, specifically the sequoia trees as a unit, contributes to the significance of the historic site. Although the sequoias are most significant collectively, two individual specimens have been culturally modified and may be significant as individual landscape features--the Wawona Tunnel tree, and the California Tunnel Tree. The Grizzly Giant may also be considered an individual landscape feature since it figures prominently in the iconography of the grove.

Looking northwest at the California Tunnel Tree. HRA, 11/1999.

Looking south towards the fallen Wawona Tunnel Tree. HRA, 11/1999.

Overview of the sequoias in the upper portion of the grove in the vicinity of the museum. HRA, 11/1999.

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
California Tunnel Tree	Contributing			
Grizzly Giant	Contributing			
Wawona Tunnel Tree	Contributing			

Views And Vistas

There are several important views associated with the grove that retain integrity, and that contribute to the eligibility of the district. The most important view is the panorama from Wawona Point, the only formally designed overlook within the grove. It is located atop the highest point within the grove (an elevation of 6810 feet), on a "small hill on a westerly ridge of Mt. Raymond with extensive views over the Wawona basin and South Fork of the Merced River with additional panoramas of the east and south." After completion of the Wawona Point development in 1932, the panorama included Mt. Raymond, Buena Vista Peak, Wawona Dome, Gale Peak, Pilot Peak, and Devil Peak. (Thomson 1932 [Final Report, Account No. 507.4] p.1).

Today, the east edge of the panorama is obscured by the forest canopy. However, the views to the west (including Devil Peak and a substantial portion of the Chowchilla Mountain Range to the north of that peak), the Wawona Basin, including the "peaceful" Wawona meadow and northward to the Wawona Dome, all remain visible from the overlook. The majority of the land incorporated by the view consists of federal lands administered either by the National Park Service or by the U.S. Forest Service.

Sunset Point is another viewpoint designated in early planning documents. Although not formally designed, both bridle and pedestrian paths formerly led near the point, which is located at the edge of the ridge south of Wawona Point. This point provides a westerly view of the valley of the South Fork of the Merced River as well as the Wawona Basin. The sound of the wind through the forest canopy is especially pleasing in this vicinity, as is the "rain" of needles from the upper branches of the trees.

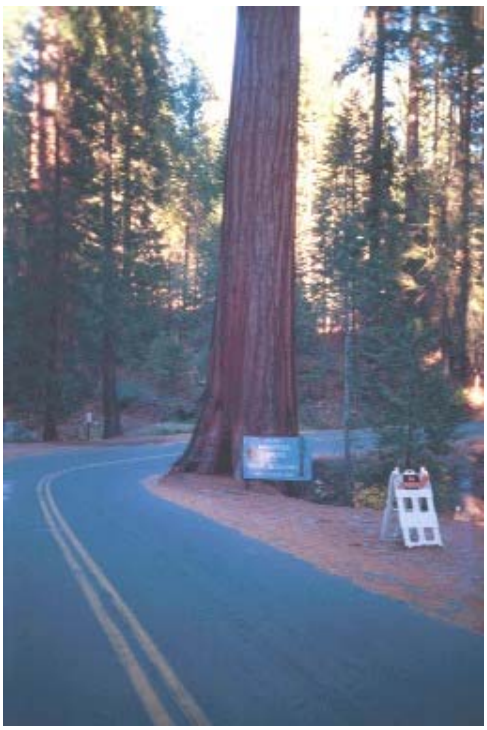
In addition to views from the interior of the grove to points outside, the interior of the grove is filled with middle-distance vistas that have achieved importance over time, and that have become representative of the grove. Of particular importance is the vista of the Grizzly Giant looking down the access trail from the tram stop east of the tree. This is a commonly captured image of the tree, reproduced in photographs, and other graphic representations.

Another important view is that of the Sentinels—the first glimpse of the big trees that one encounters upon entering the grove. Numerous other views of individual or groups of named trees also contribute to the historical qualities of the grove. To some degree, these interior views have been compromised by the consequences of fire suppression; they are obscured by the dense stands of pine and fir, which obscure the views of the individual big trees.

Summary: Some of the views historically associated with the Mariposa Grove retain integrity and contribute to the eligibility of the site. These include the formally presented views from inside the grove to the surrounding countryside. The degree to which interior views and vistas contribute varies with the character of the interior canopy. In many areas, the open, park-like character of the grove, incorporating views and vistas of the more prominent individual trees and tree groups, has been lost.

View to north of Wawona Dome from Wawona Point. HRA, 11/1999

View to northwest of Wawona Meadow (middle) and Devil Peak (on horizon). HRA 11/1999



Looking northwest- along the road to The Sentinels--the first glimpse of the sequoias entering the grove from the west. HRA, 11/1999.

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
First view of The Sentinels, from the west.	Contributing			
View of lands outside the grove from Wawona Point.	Contributing			
Vista of the Grizzly Giant	Contributing			

Management Information

Management Unit: Wawona District

Tract Numbers: N/A

State and County: Mariposa County, CA

Size (acres): 2,560.00

Boundary UTM

Boundary UTM(s):	Source	Type	Datum	Zone	Easting	Northing
	USGS Map 1:24,000	Point	NAD 27	11	268600	4152740
	USGS Map 1:24,000	Point	NAD 27	11	271800	4155700
	USGS Map 1:24,000	Point	NAD 27	11	271720	4152600
	USGS Map 1:24,000	Point	NAD 27	11	268630	4155890

GIS File Name:

GIS File Description:

National Register Information

National Register Documentation: No Documentation

Explanatory Narrative:
Prior to the initiation of the current Level II inventory the Mariposa Grove as a whole had not been evaluated for National Register eligibility. Only one individual resource--the Mariposa Grove Museum--has been previously listed in the National Register (in 1978). Within the context of the Mariposa Grove as a whole, this building will be counted as a contributing landscape feature

National Register Eligibility: Eligible -- SHPO Consensus Determination

Explanatory Narrative:
The California SHPO concurred with the findings of this CLI, particularly: that the proposed district is eligible for listing on the National Register, that the setting contributes to the significance, and that the list of contributing/non-contributing features is correct.

Date of Eligibility Determination: 8/25/2004

National Register Classification: District

Significance Level: National

Contributing/Individual: Individual

Significance Criteria: A -- Inventory Unit is associated with events that have made a significant contribution to the broad patterns of

our history

C -- Inventory Unit embodies distinctive characteristics of type/period/method of construction; or represents work of master; or possesses high artistic values; or represents significant/distinguishable entity whose components lack individual distinction

D -- Inventory Unit has yielded, or is likely to yield, information important to prehistory or history

Period Of Significance

Time Period: 1864 - 1950 AD

Historic Context Theme:	Transforming the Environment
Historic Context Subtheme:	Conservation of Natural Resources
Historic Context Facet:	Formation Of The Conservation Movement, 1870-1908

Area Of Significance:

Category:	Conservation
Priority:	1
Category:	Entertainment/Recreation
Priority:	2
Category:	Architecture
Priority:	3
Category:	Landscape Architecture
Priority:	3

National Historic Landmark Information

National Historic Landmark Status: No

World Heritage Site Information

World Heritage Site Status: No

Cultural Landscape Type and Use

Cultural Landscape Type: Historic Designed Landscape
Historic Site

Current and Historic Use/Function:

Use/Function Category:	Commerce/Trade
Use/Function:	Business
Detailed Use/Function:	Concession
Type Of Use/Function:	Both Current And Historic

Use/Function Category:	Landscape
Use/Function:	Natural Area
Detailed Use/Function:	Forest
Type Of Use/Function:	Both Current And Historic

Use/Function Category:	Recreation/Culture
Use/Function:	Outdoor Recreation
Detailed Use/Function:	Outdoor Recreation-Other
Type Of Use/Function:	Both Current And Historic

Ethnographic Information

Ethnographic Survey Conducted: No Survey Conducted

Associated Groups

Name of Peoples:	Southern Sierra Miwok
Type of Association:	Both Current And Historic

Significance Description:

This area is within the historic territory of the Southern Sierra Miwok. However, there may be conflicting claims from contemporary Western Mono and Chukchansi Yokuts peoples. A cultural affiliation study currently underway may clarify the issue of multiple claims to the Mariposa Grove by native peoples. Indigenous people are not known to have significantly impacted the resources within the grove. The main body of data indicate that the Mariposa Grove was representative of an ecosystem to avoid rather than to exploit.

Adjacent Lands Information

Do Adjacent Lands Contribute? Yes

Adjacent Lands Description:

National Park Service and National Forest Service lands to the west of the grove represent an important viewshed, as they are included in the view from Wawona Point. In addition, Biledo Meadows contains the source of the water supply for the grove.

General Management Information

Management Category: Must Be Preserved And Maintained

Management Category Date: 9/30/1998

Explanatory Narrative:

Condition Assessment And Impacts

The criteria for determining the condition of landscapes is consistent with the Resource Management Plan Guideline definitions (1994) and is decided with the concurrence of park management. Cultural landscape conditions are defined as follows:

Good: indicates the landscape shows no clear evidence of major negative disturbance and deterioration by natural and/or human forces. The landscape's cultural and natural values are as well preserved as can be expected under the given environmental conditions. No immediate corrective action is required to maintain its current condition.

Fair: indicates the landscape shows clear evidence of minor disturbances and deterioration by natural and/or human forces, and some degree of corrective action is needed within 3-5 years to prevent further harm to its cultural and/or natural values. If left to continue without the appropriate corrective action, the cumulative effect of the deterioration of many of the character-defining elements will cause the landscape to degrade to a poor condition.

Poor: indicates the landscape shows clear evidence of major disturbance and rapid deterioration by natural and/or human forces. Immediate corrective action is required to protect and preserve the remaining historical and natural values.

Undetermined: Not enough information available to make an evaluation.

Condition Assessment: Fair

Assessment Date: 09/30/1998

Date Recorded: 09/30/1998

Park Management Concurrence: Yes **Concurrence Date:** 2/3/2003

Level Of Impact Severity: Moderate

Stabilization Measures:

Impact:

Type of Impact: Deferred Maintenance

Internal/External: Internal

Description:

There is rot in the sill and spandrel logs in the comfort station. Replacement of the logs would serve to stabilize the building.

Type of Impact: Exposure To Elements

Internal/External: Internal

Description:

Some of the stone guard rails and retaining walls as well as the metal pile railings located at the Wawona Point lookout are in need of repair. (The damage to the pipe railings may be due to vandalism.)

Type of Impact: Flooding

Internal/External: Both Internal and External

Description:

Flooding from surface water runoff during the New Year's flood of 1997 caused damage to portions of the road system by eroding the roadside drainage ditches.

Type of Impact: Operations On Site

Internal/External: Internal

Description:

Continued use of the area for recreational purposes, inlcuding the construction of paved parking lots and pedestrian paths may be adversely affecting the health of the sequoia grove. Soil compaction caused by pedestrian traffic, and destruction of ground cover vegetation (which hastens erosion), have been determined to adversely affect the shallow root systems of the sequoias.

Agreements, Legal Interest, and Access

Management Agreement: Concession Contract

Expiration Date: 12/31/2001

Explanatory Narrative:

The park has an agreement with a concessioner (Yosemite Concession Services Corp.) to provide tram tours of the grove and to operate a small gift/snack shop. Tours of the grove require a staging area for the trams and a parking area for private vehicles.

NPS Legal Interest: Fee Simple

Explanatory Narrative:

Public Access: With Permission

Treatment

Approved Treatment: Undetermined

Approved Treatment Document:

Document Date:

Explanatory Narrative:

Approved Treatment Completed:

Approved Treatment Cost

LCS Structure Approved Treatment Cost: $0

Landscape Approved Treatment Cost: $0

Cost Date:

Level of Estimate:

Cost Estimator:

Explanatory Description: The LCS has not identified ultimate approved treatment costs for the buildings and structures and no landscape treatment costs have been identified in a park document.

Stabilization Costs

LCS Structure Stabilization Cost:

Landscape Stabilization Costs: $25,637

Cost Date: April 27, 2004

Level Of Estimate: C - Similar Facilities

Cost Estimator: Park

Explanatory Description: The above landscape stabilization cost is from the following PMIS statement.

PMIS 83378
Project Title: Mariposa Grove Comfort Station Log repair (LCS ID #055756) Building WA04726
This project will repair log decay and repair the roof of the comfort station located in the south sequioia big tree

grove of the park. Two log courses will be replaced on the south side of the structure and 4 log crowns repaired around the perimeter. The sugar pine shake roof needs repair due to limb damage.

Documentation Assessment and Checklist

Documentation Assessment: Poor

Documentation:

Document: General Management Plan
Year Of Document: 1980
Adequate Documentation: No
Explanatory Narrative:
The GMP discusses the South Entrance/Mariposa Grove as a single management unit. Some management recommendations are presented, however the impact of these recommendations is not discussed.

Document: Other
Year Of Document: 1978
Amplifying Details: Cultural Resource Management plan
Adequate Documentation: No
Explanatory Narrative:
This document, a component of the park's GMP, sets forth general policy with regard to cultural resources of all types. The document predates the consideration of cultural landscapes as a separate class of historic resource.

Document: Other
Year Of Document: 1987
Amplifying Details: Historic Resources Study
Adequate Documentation: No
Explanatory Narrative:
This study does not include specific information regarding cultural landscapes as property types.

Document: Vegetation Management Plan
Year Of Document: 1997
Adequate Documentation: Yes
Explanatory Narrative:
To the extent that this document recognizes the existance of "cultural landscapes," one could argue that the documentation is adequate.

Appendix

Bibliography

Citations:

Citation Title:	Cultural Resources Management and General Management Plan, Yosemite National Park, California
Source Name:	CRBIB
Citation Number:	012409
Citation Type:	Narrative
Citation Location:	Yosemite Research Library

Citation Title:	General Management Plan, Visitor Use/Park Operations/Development, Yosemite National Park, California
Source Name:	CRBIB
Citation Number:	015082

Citation Title:	Historic Resource Study, Yosemite: The Park and its Resources: A History of the Discovery, Management, and Physical Development of Yosemite National Park, California, Volume II
Source Name:	CRBIB
Citation Number:	013973

Citation Title:	Management of Giant Sequoias in the national Parks of the Sierra Nevada, California. In Proceedings of the workshop on Management of Giant Sequoia. U.S. Dept. of Agriculture Forest Service, General Technical Report.
Source Name:	CRBIB
Citation Type:	Both Graphic And Narrative

Citation Title:	The 1985 South Entrance and Mariposa Grove Archeological Excavations, Yosemite National Park
Source Name:	CRBIB
Citation Number:	016769

Citation Title:	The Yosemite Valley and the Mariposa Big Trees, A Preliminary Report (1865)
Source Name:	CRBIB
Citation Number:	016207
Citation Type:	Both Graphic And Narrative
Citation Location:	U.S. Department of the Interior, National Park Service

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Citation Title:	Galen Clark, Yosemite Guardian
Source Name:	Library Of Congress/Dewey Decimal
Citation Type:	Both Graphic And Narrative
Citation Location:	Flying Spur Press, Yosemite, CA

Citation Title:	Giant Sequoia Groves of the Sierra Nevada: A Reference Guide.
Source Name:	Library Of Congress/Dewey Decimal
Citation Type:	Both Graphic And Narrative
Citation Location:	(self published) Berkeley CA

Citation Title:	Stage to Yosemite Recollections of Wawona's Albert Gordon
Source Name:	Library Of Congress/Dewey Decimal
Citation Type:	Both Graphic And Narrative
Citation Location:	El Portal CA, Big Tree Books

Citation Title:	The Yosemite Book
Source Name:	Library Of Congress/Dewey Decimal
Citation Type:	Narrative
Citation Location:	New York, Julius Bien

Citation Title:	Tribes of California, Contributions to North American Ethnology 3
Source Name:	Library Of Congress/Dewey Decimal
Citation Type:	Both Graphic And Narrative
Citation Location:	US Geographical and Geological Survey of the Rocky Mountain Region. Washington D.C.

Citation Title:	Wilderness by Design
Source Name:	Library Of Congress/Dewey Decimal
Citation Type:	Both Graphic And Narrative
Citation Location:	USDI NPS

Citation Title:	Yosemite Place Names
Source Name:	Library Of Congress/Dewey Decimal
Citation Type:	Narrative
Citation Location:	Great West Books, Lafayette, CA.

Citation Title:	Yosemite's Historic Wawona
Source Name:	Library Of Congress/Dewey Decimal
Citation Type:	Both Graphic And Narrative
Citation Location:	Flying Spur Press, Yosemite, CA

Citation Title:	Yosemite, The Embattled Wilderness
Source Name:	Library Of Congress/Dewey Decimal
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Citation Location:	University of Nebraska Press, Lincoln, NE

Citation Title:	Park Structures and Facilities
Source Name:	National Park Service
Citation Type:	Both Graphic And Narrative
Citation Location:	USDI National Park Service, Washington DC.

Citation Title:	Fire Ecology of the Giant Sequoia
Source Name:	Periodical
Citation Type:	Both Graphic And Narrative
Citation Location:	NATURAL HISTORY, 1973.

Citation Title:	Completion Reports (Various) 1929-1971
Source Name:	Yosemite National Park
Citation Type:	Both Graphic And Narrative
Citation Location:	Chief of Maintenance Office, El Portal, CA

Citation Title:	Introduction to: Yosemite and the Mariposa Grove, A preliminary Report, 1865.
Source Name:	Yosemite National Park
Citation Type:	Narrative
Citation Location:	Yosemite Association

Citation Title:	A Photographic Study of the Grizzly Giant
Source Name:	Yosemite Research Library
Citation Number:	979.447 Y-35a
Citation Type:	Both Graphic And Narrative
Citation Location:	Vertical Files, Yosemite Research Library, YOSE.

Citation Title:	A Technical Report on the the Sequoia Gigantea of Mariposa Grove
Source Name:	Yosemite Research Library
Citation Number:	979.447 Y-35b
Citation Type:	Narrative
Citation Location:	Vertical Files, Yosemite Research Library, YOSE.

Citation Title:	Among the Big Trees in the Mariposa Grove
Source Name:	Yosemite Research Library
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Citation Type:	Both Graphic And Narrative
Citation Location:	Yosemite Nature Notes 8:4

Citation Title:	Biennial Reports of the Commissioners to Manage the Yosemite Valley and the Mariposa Big Tree Grove, 1867-1904
Source Name:	Yosemite Research Library
Citation Number:	979.447 Y-9
Citation Type:	Narrative
Citation Location:	State Printer, Sacramento

Citation Title:	Biennial Reports of the Commissioners to manage the Yosemite Valley and the Mariposa Big Tree Grove.
Source Name:	Yosemite Research Library
Citation Number:	979.447 Y-9
Citation Type:	Narrative
Citation Location:	State Printer, Sacramento

Citation Title:	Chronological History of the Mariposa Grove
Source Name:	Yosemite Research Library
Citation Type:	Narrative
Citation Location:	Yosemite Nature Notes 37:3

Citation Title:	File Name, "Landscaping General Files :601-15, 1931 to __."
Source Name:	Yosemite Research Library
Citation Type:	Narrative
Citation Location:	Vertical Files, Yosemite Research Library, YOSE, CA.

Citation Title:	File Name: Mariposa Grove of Big Trees, 1910-1939,
Source Name:	Yosemite Research Library
Citation Number:	979.447 Y-35
Citation Type:	Narrative
Citation Location:	File:701-01.42, Yosemite Research Library, YOSE

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Source Name:	Yosemite Research Library
Citation Number:	979.447 Y-35 #39
Citation Type:	Narrative
Citation Location:	Yosemite Nature Notes 8:4

Citation Title:	Insurance Appriasal Photo Album No. 9
Source Name:	Yosemite Research Library
Citation Type:	Both Graphic And Narrative
Citation Location:	Funny Notebooks, Yosemite Research Library (ask Linda)

Citation Title:	Landscaping General File 1929-1930
Source Name:	Yosemite Research Library
Citation Type:	Narrative
Citation Location:	File No. 601-15, Vertical Files, Yosemite Research Library, YOSE

Citation Title:	Letter to Stephen T. Mather
Source Name:	Yosemite Research Library
Citation Number:	979.447 Y-35 #12
Citation Type:	Narrative
Citation Location:	Box 979.447 Y-35 #12, Vertical Files OR, File 582, Sequoia--Mariposa Grove, Separate Files, Yosemite Research Library.

Citation Title:	Mariposa Grove Guide, Special Bulletin
Source Name:	Yosemite Research Library
Citation Number:	979.447 Y-35
Citation Type:	Both Graphic And Narrative
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Citation Title:	Mariposa Grove of Big Trees
Source Name:	Yosemite Research Library
Citation Type:	Graphic
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Citation Title:	Sequoia Grove Ecosystem Administrative Brief
Source Name:	Yosemite Research Library
Citation Number:	979.447 Y-35 #30
Citation Type:	Narrative
Citation Location:	Yosemite Research Library. YOSE.

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Source Name:	Yosemite Research Library
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Citation Title:	Superintendent's Annual Report, 1904 through 1961
Source Name:	Yosemite Research Library
Citation Type:	Narrative
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Source Name:	Yosemite Research Library
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Source Name:	Yosemite Research Library
Citation Number:	979.447 Y-5a
Citation Type:	Narrative
Citation Location:	Vertical Files, Yosemite Research Library, YOSE.

Citation Title:	Wawona "Tunnel" Tree
Source Name:	Yosemite Research Library
Citation Number:	File: 582 Sequoias - Mariposa Grove
Citation Type:	Narrative
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