Initial Study / Mitigated Negative Declaration

for the Proposed

Mountain Home Demonstration State Forest
2010 Management Plan Update

Tulare County, California

Prepared by:

The State of California
Board of Forestry and Fire Protection
The Lead Agency Pursuant to Section 21082.1 of the
The California Environmental Quality Act

CAL FIRE Mountain Home Demonstration State Forest
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Introduction and Regulatory Context

Stage of CEQA Document Development

☒ Administrative Draft. This CEQA document is in preparation by the Board of Forestry and Fire Protection (the Board).

☐ Public Document. This draft CEQA document will be filed with the Board at the State Clearinghouse and circulated for a 30-day agency and public review period. Instructions for submitting written comments are provided on page two of this document.

☐ Final CEQA Document. This Final CEQA document contains the changes made by the Department following consideration of comments received during the public and agency review period. The changes are displayed in strike-out text for deletions and underlined text for insertions. The CEQA administrative record supporting this document is on file at the Board's Sacramento Headquarters.

Introduction

This Initial Study/Mitigated Negative Declaration (IS/MND) describes the environmental impact analysis conducted for the proposed update of the 2003 management plan for Mountain Home Demonstration State Forest (Mountain Home). This document was prepared by the Lead Agency, the Board, with assistance from California Department of Forestry and Fire Protection (CAL FIRE) staff.

Pursuant to Section 21082.1 of the California Environmental Quality Act (CEQA), the Board has reviewed and analyzed the IS/MND and declares that the statements made in this document reflect the Board's independent judgment as Lead Agency pursuant to CEQA. The Board further finds that the proposed project, which includes revised activities and mitigation measures designed to minimize environmental impacts, will not result in significant adverse effects on the environment.

Regulatory Guidance

This IS/MND has been prepared by the Board to evaluate potential environmental effects which could result following approval and implementation of the proposed update of the 2003 management plan for Mountain Home Demonstration State Forest. The proposed project is located approximately 22 miles northeast of Porterville in Tulare County, California. This document has been prepared in accordance with current CEQA Statutes (Public Resources Code [PRC] §21000 et seq.) and CEQA Guidelines (California Code of Regulations [CCR] §15000 et seq.).

An Initial Study (IS) is prepared by a lead agency to determine if a project may have a significant effect on the environment (14 CCR § 15063[a]), and thus, to determine the appropriate environmental document. In accordance with CEQA Guidelines §15070, a "public agency shall prepare … a proposed negative declaration or mitigated negative declaration … when: (a) The Initial Study shows that there is no substantial evidence … that the project may have a significant impact upon the environment, or (b) The Initial Study identifies potentially significant effects but revisions to the project plans or proposal are agreed to by the applicant and such revisions will reduce potentially significant effects to a less-than-significant level." In this circumstance, the lead agency prepares a written statement describing its reasons for concluding that the proposed project will not have a significant effect on the environment and, therefore, does not require the preparation of an Environmental Impact Report (EIR). This IS/MND conforms to these requirements and to the content requirements of CEQA Guidelines Section 15071.

Purpose of the Initial Study

Because of its statutory authority for approving CAL FIRE Demonstration State Forest management plans, the Board is the lead agency for the proposed project under CEQA. CAL FIRE has primary authority for carrying out the proposed project. The purpose of this IS/MND is to present to the Board members and the public the environmental consequences of implementing the proposed project and describe the adjustments made to the project to avoid significant environmental effects or reduce them to a less-than-significant level. This disclosure document is being made available to the public for review and comment. The IS/MND is being circulated for public review and comment for a review period of 30 days. The beginning and ending dates of the 30-day public review period will be indicated on the Notice of Intent.

If submitted prior to the close of public comment, views and comments are welcomed from reviewing agencies or any member of the public on how the proposed project may affect the environment. Written comments must be postmarked or submitted on or prior to the date the public review period will close (as indicated on the NOI) for the Board's consideration. Written comments may also be submitted via email (using the email address which appears below) but comments sent via email must also be received on or prior to the close of the 30-day public comment period. Comments should be addressed to:

George Gentry, Executive Officer
State Board of Forestry and Fire Protection
P.O. Box 944246
Sacramento, CA 94244-2460
Phone: (916) 653-8007
Email: board.public.comments@fire.ca.gov

After comments are received from the public and reviewing agencies, the Board will consider those comments and may (1) adopt the Mitigated Negative Declaration and approve the proposed project; (2) undertake additional environmental studies; or (3) abandon the project. If the project is approved, CAL FIRE will be responsible for implementation of the project.

Project Description and Environmental Setting

Project Location

Mountain Home is located on the west slopes of the southern Sierra Nevadas, in eastern Tulare County, approximately twenty-two air miles north east of Porterville. As indicated in figure 1, forest land in this area of the State is predominantly federal lands, National Forests and National Parks. Mountain Home is situated in the drainages of the North Fork and the North Fork of the Middle Fork of the Tule River (figure 2). Mountain Home is located in Sections 25, 26 and 34-36, Township 19 South, Range 30 East; Sections 18 - 20 and 28 - 31, Township 19 South, Range 31 East and Sections 1, 2 and 12, Township 20 South, Range 30 East, Mount Diablo Base and Meridian. It ranges in elevation from 4,800 to 7,600 feet with all aspects present. The Forest comprises a total of 4,858 acres.

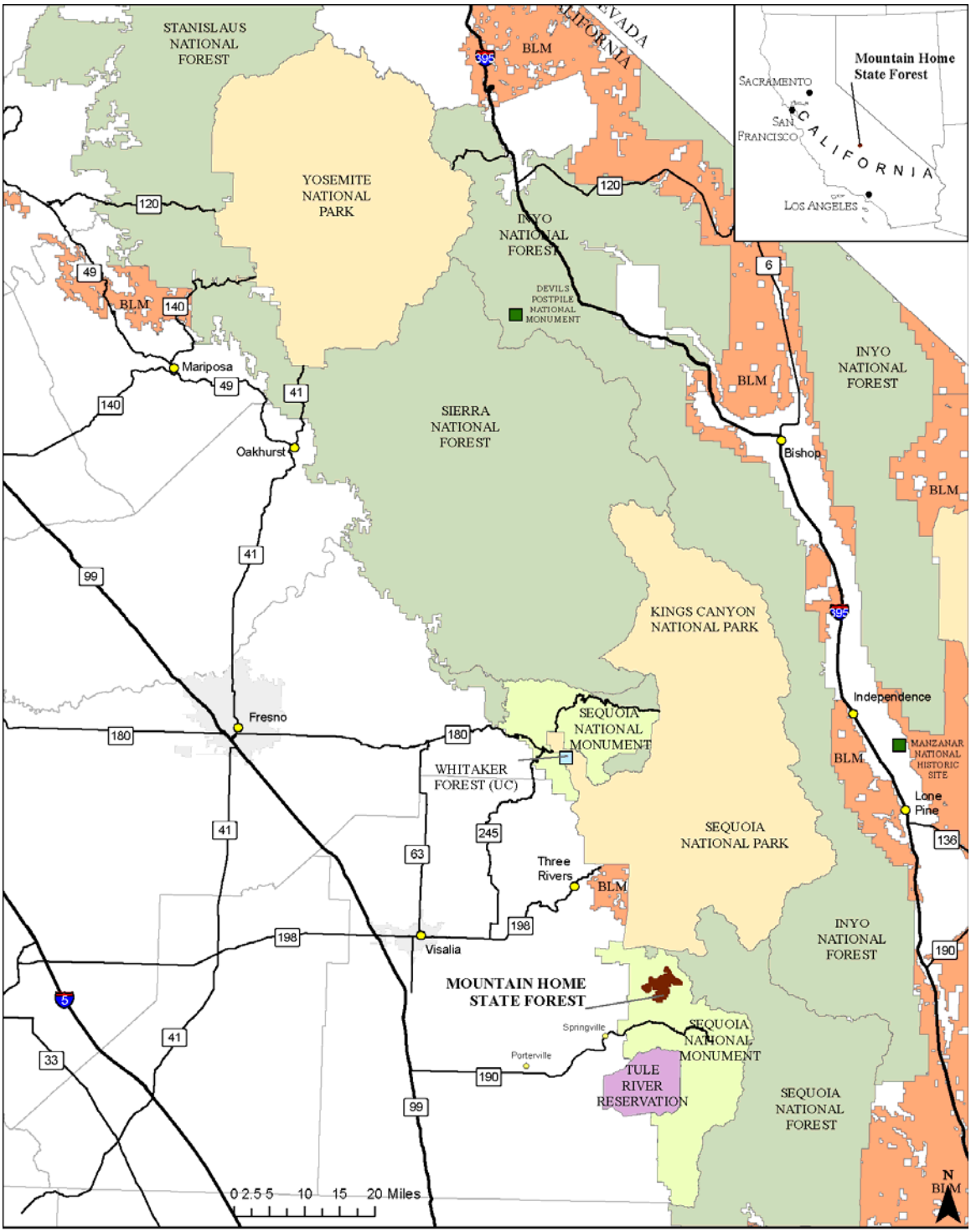

Figure 1. Location of Mountain Home Demonstration State Forest.

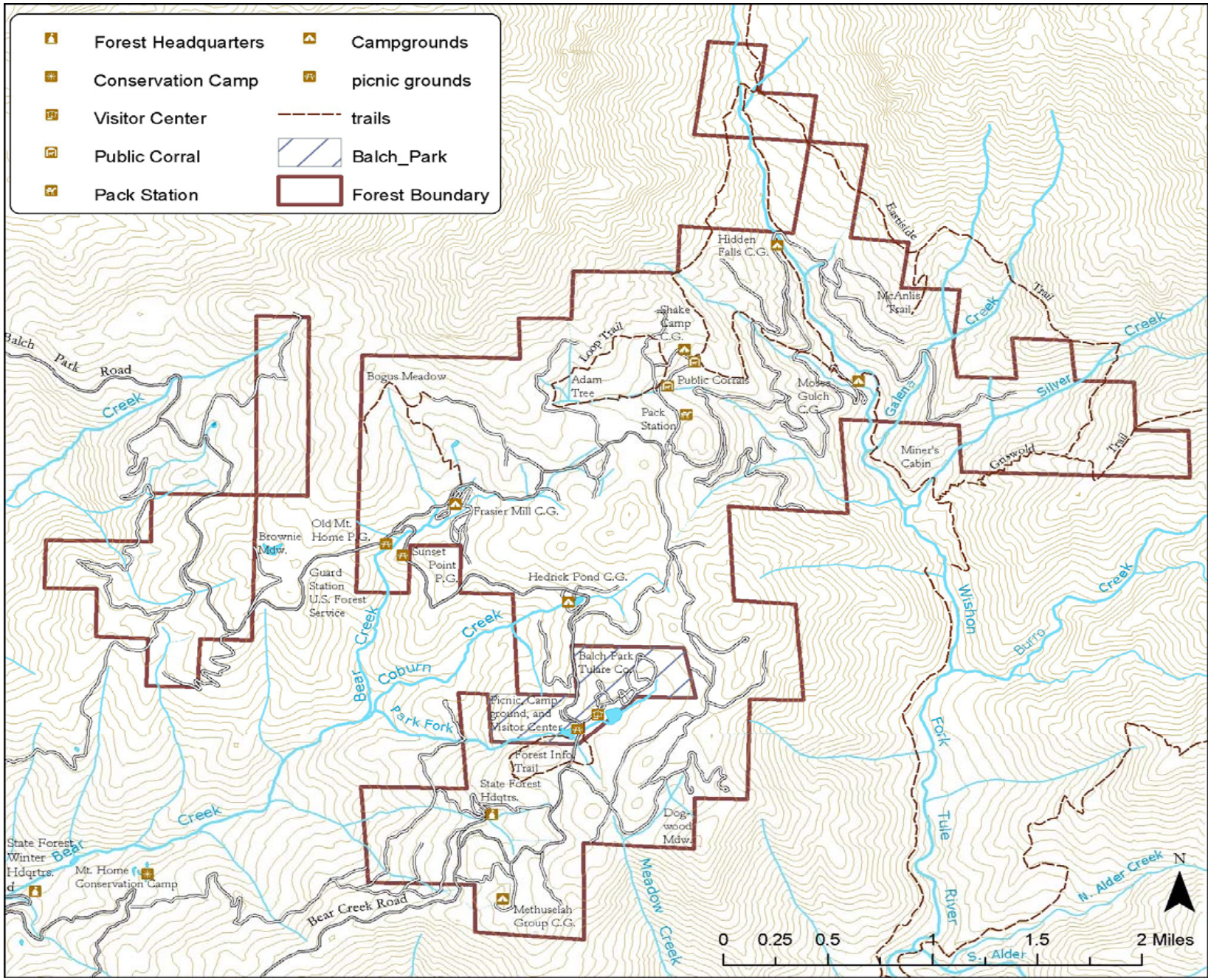

Figure 2. Mountain Home Demonstration State Forest ownership map.

Background and Need for the Project

The California Department of Forestry and Fire Protection (CAL FIRE) manages approximately 72,000 acres of Demonstration State Forests on behalf of the public. Mountain Home Demonstration State Forest, a 4,858-acre mixed conifer forest located in the southern Sierra Nevada in Tulare County, is 22 air miles northeast of Porterville, and is the third largest Demonstration State Forest.

The majority of public wildlands in California are set aside as reserves and parks to preserve rare ecosystems. Demonstration State Forests, by contrast, are public lands that by legislative mandate have a unique and distinctly different purpose from parks and wilderness areas. Demonstration State Forests are mandated by law to provide opportunities to conduct research, demonstration, and education on sustainable forestry practices. Given the often controversial role of forestry in California, the Demonstration State Forests play an important role in helping maintain California's leadership as an innovator in creating solutions to difficult and controversial forest management problems.

Mountain Home is unique among the Demonstration State Forests in that it contains old growth giant sequoia groves and individual trees. Old growth giant sequoia are protected from harvest. Recreation is the primary land use on Mountain Home.

The project consists of an update of the management plan for Mountain Home. The last management plan for Mountain Home was completed and approved by the Board in 2003. The management plan lays out the planned on-the-ground management on the Forest for the next five to ten years. It serves as a guide to Forest managers as well as a public disclosure of the management direction at Mountain Home.

Board policy states that management plans for the Demonstration State Forests shall be prepared by the Department (CAL FIRE), with appropriate public review, for approval by the Board. The Department shall present to the Board a thorough review of each existing plan at least every five years. After each review, the Board may direct the Department either to continue management under the existing plan, to prepare amendments to the plan, or to prepare a new plan for public review and Board approval. The Department shall submit the requested amendments or plan to the Board within one year after each request. The Department shall continue management under existing plans with appropriate consideration for changes in law or regulation, until amendments or new plans are approved by the Board.

Project Objectives

The primary objectives of Mountain Home management is to protect old growth giant sequoia trees, recruit replacement old growth trees from second growth, support recreation, practice sustainable forestry and conduct innovative demonstrations, experiments, and education in forest management.

The objective of the project is to facilitate meeting these Forest management objectives through an updated management plan that serves as a guide to Forest managers as well as a public disclosure of the management direction at Mountain Home.

Project Start Date

The earliest start date for the project will be in March 2010, after completion of the public review comment period and completion of the final CEQA document. Board policy however, provides that CAL FIRE continue to manage the Forest under existing plans with appropriate consideration for changes in law or regulation, until amendments or new plans are approved by the Board.

Project Description

The proposed project involves the update of the existing (2003) management plan for Mountain Home. The updated plan will incorporate new and updated information from natural resources surveys and databases, as well as new directions in management objectives and priorities.

Mountain Home is a 4,858-acres State-owned forest managed by CAL FIRE. The management plan for the Forest provides direction and guidance for the management of forest resources with an emphasis on recreation, protection of old growth giant sequoia trees (Public Resources Code 4631(e)), sustainable forestry, applied research, demonstration and education (Public Resources Code 4631(c)), and the demonstration of economical forest management (Public Resources Code 4631(d)). Mountain Home has been managed by CAL FIRE since 1946 through the implementation of a series of management plans approved by the Board.

Management activities that may be conducted under the guidance of this project include but are not limited to the following: silvicultural activities undertaken to protect old growth and candidate old growth giant sequoia trees, campground development and use, nature trail construction, road building, maintenance and improvements, culvert replacement or removal, research and demonstration projects, timber harvesting, biomass harvesting, prescribed burning, pre-commercial thinning, fire wood cutting, etc.

Environmental Setting of the Project Region

The proposed project is located in Tulare County, in the southern Sierra Nevada mixed conifer forest type. Mountain Home is approximately twenty-two air miles north east of Porterville. It is a high elevation Forest with ranges in elevation from 4,800 to 7,600 feet with all aspects present. The Forest comprises a total of 4,858 acres. A detailed description of the Forest can be found in the 2009 draft management plan (California Department of Forestry and Fire Protection 2009).

Mountain Home has a Mediterranean climate characterized by warm dry summers and cold, wet winters. Average precipitation is estimated to be 42 inches per year with the majority falling in the form of snow. With the exception of sporadic and infrequent summer thunderstorms, the typical rainy season extends from November through April. April 1 average water content of snow at the Old Enterprise Mill Snow Course, at 6,600 feet, is 15.3 inches with an average snow depth of approximately 36.9 inches. The minimum winter temperature recorded at Mountain Home is 1° F. The maximum summer temperature on record is 90° F.

Approximately two-thirds of the State Forest area is underlain by granite-granodiorite, most of which is decomposed at the surface. The remaining one-third of the area is underlain by metamorphic rocks including schists, quartzite, slate, metavolcanic rocks, lime/silicate hornfels and limestone. The main ridge between the North Fork and the North Fork of the Middle Fork of the Tule River forms the rough dividing line between these two basic parent materials, with the granitics lying to the west of the ridge and the metamorphics to the east.

Mountain Home is situated on the ridge that separates the North Fork of the Middle Fork of the Tule River (Wishon Fork) from the North Fork of the Tule River. The forest encompasses five Calwater watersheds: Rancheria, Upper North Bear, Hossack, Silver, and Burro Creeks. The North Fork of the Middle Fork of the Tule River passes through the forest for approximately 1.5 miles of its length. Tributaries to the North Fork of the Tule River, which drain out of the forest, include Rancheria, Bear, and Hossack Creeks.

Description of the Local Environment

There are two major vegetation types found on Mountain Home, mixed conifer and true fir[1]. The mixed conifer type is found at lower elevations on drier south and west facing slopes. The tree components of this type are giant sequoia (*Sequoiadendron giganteum*), ponderosa pine (*Pinus ponderosa*), sugar pine (*Pinus lambertiana*), white fir (*Abies concolor*) and incense-cedar (*Calocedrus decurrens*). Introduced Douglas-fir (*Pseudotsuga menziesii*) and some hybrid Jeffrey-Coulter pine occur in limited areas

[1] These vegetation categories are part of the MHDSF vegetation classification system. The mixed conifer and true fir vegetation classes are similar to the CWHR Sierran Mixed Conifer and White Fir types, respectively (Mayer and Laudenslayer 1988).

throughout the lower elevations of the forest. At the upper elevations Jeffrey pine (*Pinus jeffreyi*) replaces ponderosa and Shasta red fir (*Abies magnifica* var. *shastensis*) mixes with white fir. The major component of the mixed conifer type is white fir with second growth giant sequoia being a distant second.

The true fir type is found at the higher elevations particularly in the area of the old Enterprise Mill site. This type is characterized by almost pure even aged stands of white and red fir. Other species found in association with the true firs are sugar pine, Jeffrey pine and giant sequoia.

Small amounts of hardwoods found in association with these types include black oak (*Quercus kelloggii*), canyon live oak (*Quercus chrysolepsis*), interior live oak (*Quercus wislizenii*), white alder (*Alnus rhombifolia*), and Pacific dogwood (*Cornus nuttallii*).

Major components of the understory vegetation include mountain whitethorn (*Ceanothus cordulatus*), bearclover (*Chamaebatia foliolosa*), gooseberry (*Ribes roezlii*), currant (*Ribes nevadense*), California hazelnut (*Corylus cornuta* var. *californica*), bush chinquapin (*Castanopsis sempervirens*), dogwood (*Cornus nuttallii*), deerbrush (*Ceanothus integerrimus*), manzanita (*Arctostaphylos* spp.), bracken fern (*Pteridium aquilinum*), lotus (*Lotus* spp.), lupine (*Lupinus*. Spp.), snowberry (*Symphoricarpos albus*) and littleleaf ceanothus (*Ceanothus parvifolius*).

Mountain Home is famous for its old growth giant sequoia trees. Old growth giant sequoia greater than 40 inches in diameter occur on approximately 56 percent of the total acreage of the forest. Recent inventory data estimate the total number of old growth giant sequoia trees at about 4,000.

Current Land Use and Previous Impacts

Mountain Home is surrounded on the north, east and south by the southern section of the Giant Sequoia National Monument. The 328,000 acre Monument was created by President Clinton on April 15, 2000. It is administered by the United States Forest Service as part of the Sequoia National Forest and includes 38 of the 39 Giant Sequoia groves that are located in the Sequoia National Forest, about half of the sequoia groves currently in existence. The management objectives for the Monument focus on the protection and restoration of giant sequoia trees.

The Tule River Indian Reservation south of Mountain Home is managed as working forest land. Private ownerships on the west side of the Forest are managed for agriculture and forestry. Mountain Home's mandate is a working forest emphasizing giant sequoia protection and restoration, recreation, sustainable forestry, research and demonstration. These land uses have remained unchanged since the Forest was acquired by the State in 1946.

Mountain Home is zoned by the County as Timberland Production Zone (TPZ). Under TPZ zoning, the land is devoted to and used for growing and harvesting timber and compatible uses. Compatible use is defined as any use that does not significantly detract from the use of the land for, or inhibit, growing and harvesting timber. Compatible uses include watershed management, fish and wildlife habitat management, hunting, fishing, and grazing (Government Code §51104(h)). The Forest Practice Rules (14CCR 898) state that "On TPZ lands, the harvesting per se of trees shall not be presumed to have a significant adverse impact on the environment."

Young growth giant sequoia is present in dense stands ranging in age from 1-110 years. The origin of these stands can be traced back to historical site disturbances, mainly logging. Many of these stands average 100 years in age corresponding to early logging around 1900.

Conclusion of the Mitigated Negative Declaration

Environmental Permits

No environmental permits are required to approve this management plan. Subsequent projects carried out to implement this management plan may require the following environmental permits and CAL FIRE may be required to comply with the following State regulations:

1. CAL FIRE Timber Harvest Plan and Option A Plan.
2. Central Valley Regional Water Quality Control Board National Pollution Discharge Elimination System (NPDES) permit.
3. Department of Fish and Game stream crossing permit.
4. Tulare County Air Quality burning permits.
5. Tulare County Public Health campground facilities permits.
6. California Department of Pesticide Regulation.

Mitigation Measures

This Initial Study identified potentially significant environmental effects that could result from the proposed project; however, the Board revised its project plans and has developed mitigation measures which will eliminate impact or reduce environmental impacts to a less than significant level. The following four mitigation measures will be implemented by the Board to avoid or minimize environmental impacts associated with the storage, handling and use of hazardous materials. Implementation of these mitigation measures will reduce the environmental impacts of the proposed project to a less than significant level.

Mitigation Measure #1: To ensure that all material is properly used, stored, and transported, Material Safety Data Sheets (MSDS), material labels, and any additional handling and emergency instruction of the materials are kept on file at the Mountain Home Demonstration State Forest Office.

Mitigation Measure #2: Any state employee handling these materials will be made aware of the potential hazards, given proper training and instruction, and also made aware of the location of the MSDS, and any other documentation for the material.

Mitigation Measure #3: All contractors used in the application or use of these hazardous materials shall have the appropriate licenses and be able to read and understand the MSDS, labels, appropriate recommendations, and application instructions.

Mitigation Measure #4: The storage of potentially hazardous materials on Mountain Home is in accordance to the MSDS and any buildings that are used for storage will display appropriate placards.

Summary of Findings

This IS/MND has been prepared to assess the project's potential effects on the environment and an appraisal of the significance of those effects. Based on this IS/MND, it has been determined that the proposed project will not have any significant effects on the environment after implementation of mitigation measures. This conclusion is supported by the following findings:

1. The proposed project will have no effect related to agricultural resources, land use and planning, mineral resources, population and housing, and public services.

2. The proposed project will have a less than significant impact on aesthetics, air quality, biological resources, cultural resources, geology and soils, hydrology and water quality, noise, recreation, transportation and traffic, and utilities and service systems.

3. Mitigation is required to reduce potentially significant impacts related to hazards and hazardous materials.

The Initial Study/Environmental Checklist included in this document discusses the results of resource-specific environmental impact analyses which were conducted by the Board. This Initial Study revealed that potentially significant environmental effects could result from the proposed project; however, the Board revised its project plans and has developed mitigation measures which will eliminate impact or reduce environmental impacts to a less than significant level. The Board has found, in consideration of the entire record, that there is no substantial evidence that the proposed project as currently revised and mitigated would result in a significant effect upon the environment. The IS/MND is therefore the appropriate document for CEQA compliance.

II. Initial Study

Environmental Checklist

PROJECT INFORMATION	
1. Project Title:	Mountain Home Demonstration State Forest 2010 management plan update
2. Lead Agency Name:	California Board of Forestry and Fire Protection
3. Contact Person and Phone Number:	George Gentry, Board Executive Officer (916) 653-8007
4. Project Location:	Mountain Home Demonstration State Forest, Tulare County
5. Project Sponsor's Name and Address:	California Department of Forestry and Fire Protection (CAL FIRE), Mountain Home Demonstration State Forest PO Box 517 Springville, California 93265
6. General Plan Designation:	Public Land
7. Zoning:	TPZ - Timberland Production
8. Description of Project: see pages 5-6 of this document	
9. Surrounding Land Uses and Setting: see pages 6-7 of this document	
10. Other public agencies whose approval may be required: see page 7 of this document	

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐	Aesthetics	☐	Agriculture Resources	☐	Air Quality
☐	Biological Resources	☐	Cultural Resources	☐	Geology / Soils
☐	Hazards & Hazardous Materials	☐	Hydrology / Water Quality	☐	Land Use / Planning
☐	Mineral Resources	☐	Noise	☐	Population / Housing
☐	Public Services	☐	Recreation	☐	Transportation / Traffic
☐	Utilities / Service Systems	☐	Mandatory Findings of Significance	☒	None With Mitigation

Determination

DETERMINATION

On the basis of this initial evaluation:

I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** would be prepared. ☐

I find that although the proposed project **COULD** have a significant effect on the environment, there **WOULD NOT** be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** would be prepared. ☐

I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required. ☐

I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed. ☐

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required. ☐

George Gentry
Executive Officer to the California Board of Forestry

Date

Analysis of Potential Environmental Impacts

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Aesthetics. Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Discussion

Mountain Home has been subject to timber harvest and other associated activities since the late 1800's. In 1946, the State of California acquired the forest in an effort to conserve the giant sequoias that John Muir called "the finest in the Sierras". One of the stated management goals for the forest is to, "Protect old growth giant sequoia from fire, cutting, and logging damage…" The result has been the protection of more than 4,000 old-growth giant sequoias and sustainable management of the mixed conifer forest, including young growth giant sequoia, ponderosa and sugar pine, white and red fir, and incense cedar, that surrounds them.

Timber harvesting and prescribed burning are the management activities most likely to effect aesthetics. Timber harvesting operations at Mountain Home are subject to the restrictions of the following goal stated in the forest management plan: "Manage the forest to maintain an aesthetically pleasing forest environment for the recreational visitor. Harvest timber strategically to increase the visibility of old growth giant sequoias. Improve aesthetics in high use areas and along roads by controlling the density of leave stands, treating slash promptly, and promoting rapid regeneration."

The long term objectives identified in the Mountain Home management plan include conserving old growth giant sequoias and oaks, maintaining young growth trees in a safe and healthy condition, and protecting aesthetics into the future.

Prior to approval, timber harvest plans go through an interdisciplinary agency review and public comment period (THP review). The review process ensures that potential visual impacts which may result from timber harvest activities are minimized. Furthermore, visual effects are addressed by Title 14 of the California Code of Regulations, Forest Practice Rules (FPR), under "Board of Forestry Technical Rule Addendum No. 2, Appendix Technical Rule Addendum No. 2, Visual Resources". The visual assessment area is generally the harvesting area that is readily visible to a significant number of people who are no further than three miles from the timber

operations. Individual projects conducted under the guidance of this management plan will have additional visual assessments done utilizing site specific information.

The past management at Mountain Home has resulted in a landscape that has a mixture of different sizes and densities of trees. The planned management of Mountain Home and the utilization of both uneven-aged and even-aged logging methods will result in the continuation of the varied appearance of the forested landscape.

The principal road system is well developed, and no additional road clearing or building is proposed. Other projects such as campground and infrastructure development, may take place. Campgrounds and infrastructure facilities on MHDSF are designed to blend in with the landscape. Impacts on aesthetics from campground or infrastructure development are not expected.

Research and demonstration projects generally will have the same characteristics as timber harvest plans, discussed above. Research projects with features that could impact aesthetics, such as weather instruments, will address potential impacts to aesthetics on a project basis.

a) Would the project have a substantial adverse effect on a scenic vista?

Less than significant. Mountain Home utilizes silvicultural methods that will maintain the current natural appearance of the forested landscape. Mountain Home has several scenic vistas that are accessible to the public. Scenic overlooks of the foothills and valley can be found at Sunset Point, while brief glimpses of the Wishon Fork of the Tule River canyon can be seen from the Vantage Point Road.

Key scenic locations that are accessible to the public at Mountain Home include Sunset Point, Vantage Point Road, and Shake Camp (with views of Moses Mountain and Maggie Peak).

High use areas on the forest include the five multiple user camps, Frasier Mill, Hedrick Pond, Hidden Falls, Shake Camp, and Moses Gulch, as well as the Methuselah group campground. Picnic grounds are located at old Mountain Home and Sunset Point. There is also a pack station located near Shake Camp. Interpretive hiking trails are available at Balch Park and by the corrals. The trail system accesses various points throughout the forest, as well as leading into the adjacent Balch Park, Golden Trout Wilderness Area, the Sequoia National Forest, and Sequoia National Park. Between 40,000 and 60,000 people visit the forest each year.

Portions of Mountain Home are visible from Bear Creek Road between the south forest entrance and Camp Lena Road, and from several locations along the Balch Park Road, from the north entrance to Camp Lena Road. Brochures for a self-guided motor tour of the forest are available at the forest headquarters.

The appearance of the lands surrounding the forest varies, depending upon the landowners' objectives. The 160-acre Balch Park, owned and managed by the Tulare County Parks Department, is located adjacent to the southern end of the forest. The north, east, south, and most of the west side of Mountain Home are managed by the Giant Sequoia National Monument and Sequoia National Forest. Mountain Home's utilization of both uneven-aged and even-aged management will maintain the current varied appearance of the forested landscape.

The planned management activities described within the project are consistent with best management practices for maintaining and enhancing scenic vistas. No significant impact on any scenic vistas is anticipated.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less than significant. There are no designated state scenic highways in the project area or within the assessment area.

Stated management goals for the forest include conserving old growth giant sequoias, and protecting them from damage when near-by trees are harvested. Management of giant sequoias for commercial timber is restricted to second-growth or younger giant sequoia, and/or trees that have been planted, and that are outside of the naturally-occurring groves. Objectives for harvesting fir, pine, and incense cedar within giant sequoia groves include, “improve vistas of individual old growth giant sequoia” and , “enhance the aesthetic appearance of the forest for recreational visitors.” Retention of oaks on the forest is also identified as a management goal.

The 22 prehistoric and 14 historic sites recorded at Mountain Home attest to the long period of human occupancy there. The prehistoric sites consist of bedrock mortars and basins (these include the “Indian bathtubs”), lithic scatters, and combinations of the three. An interpretive exhibit at Sunset Point leads visitors through an archeological site with evidence of occupation dating back 8,000 years. Historic sites consist mainly of early sawmill remains and trees and stumps with historic markings.

These sites are extremely important forest resources. All known sites are protected during management activities, including road construction and logging. Please see Appendix A of the Mountain Home Management Plan for further discussion of mitigation measures designed to protect archeological and historical resources on the forest.

The planned management activities described within the project are not intensive and will have a less than significant effect on scenic resources.

c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Less than significant. Mountain Home has been subject to timber harvest and associated activities by the State of California since 1946. The past management at Mountain Home has resulted in a landscape that has a mixture of different sizes and densities of trees in the forest. The principal road system is well developed, and no additional road clearing or building is planned. The planned management of Mountain Home and the utilization of both uneven-aged and even-aged logging systems will result in the continuation of the varied appearance of the forested landscape. This appearance is consistent with the surrounding land use.

Portions of the forest are visible from Camp Nelson, which is located about seven miles to the southeast. Any future harvesting conducted on this side of the forest would utilize a selective logging method, and changes in the visual appearance of the stand are not expected to be visible from Camp Nelson.

The appearance of Mountain Home will not be substantially altered, nor will the scenic resources be substantially impacted by this project.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No impact. There are no planned activities that would create a light source or create any glare.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. Agricultural Resources.				
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland.				
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	☐	☐	☐	☒

Discussion

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No impact. Mountain Home is not farmland.

b) Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?

No impact. Mountain Home is zoned as Timberland Production (TPZ) and does not have a Williamson Act contract.

c) Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?

No impact. Mountain Home is not farmland.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. Air Quality.				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the following determinations.				
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Discussion

Activities on Mountain Home that may have an impact on air quality include open burning, road construction and maintenance, and the generation of dust and other pollutants by vehicular traffic. Thes impacts are expected to be insignificant.

Prescribed burning is used by many agencies managing giant sequoia stands to stimulate reproduction and reduce fuel loads. On the State Forest, prescribed burning (as well as timber harvesting) provide soil disturbance needed for giant sequoia reproduction. Prescribed burning also serves to improve aesthetics and reduce the fire hazard by cleaning up slash from harvested areas, as well as facilitating tree planting.

Road construction and maintenance is expected to conbtinue to be minor projects on the Forest, which is fully roaded. Constrcution and maintenance will be scheduled when weather conditions minimize the possibility of air quality impacts

Vehicular traffic in general has the potential to generate dust and other pollutants. Mountain Home is a destination rather than a way point for travelers on their way elsewhere. Almost all traffic consists of campers who travel to a camp site and then park their vehicles for the duration of their stay. Dust and pollutants from vehicle traffic, including off highway vehicle (OHV) recreation, is insignificant at Mountain Home.

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less than significant. Project burns conducted on Mountain Home that are greater than 10 acres in size, or have expected emissions greater than one ton, are required to have an approved Smoke Management Plan (SMP). Upon approval by Tulare County Air Quality Management District (AQMD) of the SMP, Mountain Home shall obtain an open burning permit from AQMD. Additionally burning shall only be conducted on "Burn Days" designated by Tulare County AQMD, unless a variance has been approved for specific burning criteria. Adherence to the SMP, burn permit and burning only on burn days unless a variance has been granted reduces any potential impact to air quality to less than significant and is in compliance with the State Implementation Plan for air quality.

Use of the dust abatement activities described within Mountain Home's road management plan during hauling, road construction and maintenance effectively controls dust generation from Mountain Home roads.

Activities proposed in the Mountain Home management plan are not expected to cause increased emissions of ozone or greenhouse gases.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less than significant. Tulare County does not approve "Burn Days" if open burning has the potential to decrease air quality to a level that would violate air quality standards. Adherence to the SMP, burn permit, and permissive burning only on burn days unless a variance is granted, reduces any potential impact to air quality to less than significant and is in compliance with the State Implementation Plan for air quality.

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less than significant. Tulare County does not approve "Burn Days" if open burning has the potential to decrease air quality to a level that would violate air quality standards. Adherence to the SMP, burn permit, and burning only on permissive burn days unless a variance is granted, reduces any potential impact to air quality to less than significant and is in compliance with the State Implementation Plan for air quality.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less than significant. Mountain Home is located approximately 22 miles northeast of the community of Porterville, 12 miles northeast of Springville and seven miles northwest of Camp Nelson. Smoke impacts to these communities are addressed in the SMPs. Smoke impacts to these communities are minimized and adequate smoke dispersal is obtained by the adherence to the SMP, burn permit, and permissive burning only on permissive burn days unless a variance is granted.

e) Would the project create objectionable odors affecting a substantial number of people?

Less than significant. Mountain Home is located approximately 22 miles northeast of the community of Porterville, 12 miles northeast of Springville and seven miles northwest of Camp Nelson. Adequate smoke dispersal and smoke impacts to these communities are minimized by the adherence to the SMP, burn permit, and burning only on burn days unless a variance is granted.

Mountain Home uses chemicals for dust abatement on Mountain Home roads. The chemicals

that have been used in the past have been resins or hygroscopic salts. These chemicals have a slight or no odor. The curing time for these chemicals is one to two days depending on weather and any odor dissipates once the chemical has cured.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. Biological Resources. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒
g) Contribute to climate change and greenhouse gas emissions?	☐	☐	☐	☒

Discussion

The major California Wildlife habitat Relationship (WHR) System habitat types on MHDSF are Sierran mixed conifer and white fir. Rock, brush or meadows cover approximately 0.5 percent of the total land base. MHDSF supports a variety of wildlife and their associated habitats. Timber harvest activities on the State Forest have the potential to adversely impact biological resources. We recognize the importance of these biological resources and work to maintain, restore, and enhance the occurrence of special habitat elements and unique habitats to promote species diversity and habitat quality. Measures to achieve this include:

1) Overstory and understory vegetation shall be retained in sufficient amounts within watercourse protection zones so that water temperatures will not increase, and to provide other biological benefits.

2) Deposition of any substances in streams or ponds that will degrade fish habitat shall be avoided.

3) Road crossings of fish bearing streams are designed to allow fish passage.

4) Allow for the natural recruitment of large woody debris to the stream channel to improve or maintain in-stream habitat quality and stream ecosystem function.

5) Minimize the number of temporary watercourse crossings.

6) Dredge Hedrick and Upper Balch Pond as needed to improve water depth, clarity, and oxygen content.

7. Retain oaks that produce quality mast.

8. Native grasses will be planted on landings and skid trails planned for re-use to provide an additional food source for wildlife.

9. Roads not needed for management access will be closed in certain areas to reduce wildlife disturbance.

10. Retain or enhance desirable brush species in the understory.

11. Enlarge meadows by removing encroaching trees and other vegetation.

12. Retain snags and down wood material as allowed by the Forest Practice Rules. Attempt to maintain a minimum of three snags and three dead and down logs per acre in recently harvested areas.

13. Maintain natural springs and ponds, and plan for additional pond construction where desirable.

14. Protect and restore riparian zones.

15. Design forest management activities based on a landscape scale perspective. Components to consider will include horizontal and vertical forest structure, vegetation density, edge effect, corridor size, and biological diversity.

16) Adopt measures to protect sensitive fauna and flora known to occur on the Forest.

17) As far as possible, utilize the existing road system thereby avoiding the need for new road construction.

Wildlife habitat improvement opportunities are identified during the planning and implementation of timber sales, demonstration and education activities, and recreational facilities. We will incorporate control or eradication of exotic plant species into management activities, as opportunities are identified.

Several management goals of MHDSF describe the need to maintain the widest possible diversity of managed forest stands in different successional stages, maintain or increase functional wildlife habitat, and provide research and demonstration opportunities for various biological resources. One of the goals of MHDSF is to balance sustained timber production with the long term biological productivity of the land and protection of public trust resources. The forest management program under the guidance of this plan is expected to produce a moderate perpetually sustainable harvest level. Because approximately 40 percent of the current standing inventory by volume is protected old growth giant sequoia, the need to maintain the widest possible range of successional stages for research, and the need to maintain an attractive recreation destination, it follows that timber harvest rates will be lower than that of most comparable managed timberlands.

The planned sustainable harvest level is based on the long term sustainability analysis in the MHDSF Option A plan (California Department of Forestry and Fire Protection 2009). The long-term sustained yield (LTSY) is 3.8 million board feet per year (784 board feet per acre per year). Current annual growth is 900 board feet per acre per year. The corresponding planned first decade sustainable harvest level is 3.0 million board feet per year (equivalent to an annual growth rate of 621 board feet per acre per year). This constitutes a harvest intensity of 1.1 percent of inventory. The potential unrestricted LTSY that can be realized if MHDSF were to be managed for optimal sustainable timber production, while still protecting old growth giant sequoia trees, is 5.8 – 6.7 million board feet per year, depending on the silvicultural methods used. Evidence of the sustainability of harvest levels on the Forest are supported by monitoring data. On average since 1950 approximately three million board feet have been harvested annually. During that time, growing stock of living biomass has increased by more than 30 percent.

Planned harvests will be designed to increase stand growth and productivity by implementing optimal stocking and spacing configurations in individual stands. The annual harvest is less than the LTSY due to the constraints on forest management activities imposed by other forest values as described above. In addition to the constraints placed on the calculation of the long term sustained yield in the harvest schedule, there are also discretionary commitments to planned management practices for non-timber resources. These commitments are in large part discretionary management practices which are necessary to maintain a healthy managed forest ecosystem and meet our recreation mandate. They are also necessary to avoid foreclosing on future management options. A goal of MHDSF is to have an active research program, which in turn depends on a diverse mix of forest structures, from early to late seral.

Watercourses will be provided protection measures that will meet or exceed the Forest Practice Rules. The buffer zones will assist in achieving the goals of MHDSF by providing filter strips for sediment and migration corridors for wildlife.

MHDSF staff individually mark all harvest or leave trees. MHDSF maintains a marking guide to assist personnel in the marking of timber for timber sales. This management measure ensures that all trees will be evaluated for the presence of nesting structures, potential snag and LWD recruitment, and the existence of any other special habitat elements. It is also CAL FIRE policy that all harvest trees or leave trees are to be marked.

As funding allows, MHDSF plans to continue to conduct various wildlife inventory studies to improve our knowledge of wildlife species habitat use and improve the detection of rare, threatened, or endangered species. All detections of rare, threatened, or endangered species will be documented and assessed to determine if these biological resources are being impacted by any projects conducted under the guidance of this Management Plan.

Initial Biological Scoping

The tools used to identify potentially occurring sensitive plant communities, or sensitive wildlife or plant species and their associated habitats within the vicinity of Mountain Home Demonstration State Forest (MHDSF) includes the California Natural Diversity Database, USFWS species lists, the California Native Plant Society database, the 2003 Mountain Home Management Plan species list, and the USFS Sierra National Forest biological resources database. A nine quadrangle query of the Natural Diversity Data Base was conducted which included the Camp Wishon 7.5 minute quad and the surrounding eight quads.

Table 1 identifies species that may occur at MHDSF, their listing status, habitat type, and whether they have been observed at MHDSF. A detailed discussion of species in table 1 that are formally listed or candidate listed and known to occur on MHDSF is provided below. It is the intent of MHDSF to avoid potential significant impacts by developing biological resource management strategies that are compatible with other management strategies identified for recreation and sustainable forestry.

Table 1. Potential Wildlife Species & Associated Habitats at Mountain Home.

Common Name	Species Name	Status	Habitat Types and Range	Species or Suitable Habitat Present
MAMMALS				
California wolverine	*Gulo gulo*	ST, FP	Generalist; remote, high elevation habitats; forest, meadow, rocky.	Historic occurrences nearby, suitable habitat present
Pacific fisher	*Martes pennanti*	FC	Mature forested habitats with hardwoods, snags, and LWD.	Known to occur, suitable habitat present
American (pine) marten	*Martes iparian sierra*	Native fur-bearer	Mature forested habitats with snags, rock outcrops, and LWD.	Known to occur, suitable habitat present
Southwestern river otter	*Lontra canadensis sonora*	SSC	Perennial streams with well-developed riparian and aquatic components (forage/denning)	Marginal habitat present
Sierra Nevada red fox	*Vulpes vulpes necator*	ST	Generalist; remote, high elevation habitats; forest, meadow, rocky.	Historic occurrences nearby, suitable habitat present
Mountain lion	*Felis concolor*	Protected	Generalist; remote, high elevation habitats; forest, meadow, rocky	Known to occur, suitable habitat present
Bobcat	*Felis rufus*	SSC	Boreal zone riparian, deciduous thickets; often near meadows	Known to occur, suitable habitat present
Black bear	*Ursus americanus*	Harvest	Mid-elevation shrubby/ forested habitats with rocky and iparian areas	Known to occur, suitable habitat present
Ring-tailed cat	*Bassariscus astutus*	FP	Dense forest & shrubby riparian habitats with friable soils; dens in burrows	Known to occur, suitable habitat present
Sierra Nevada snowshoe hare	*Lepus americanus tahoensis*	SSC	Generalist; caves and thickets used for denning	Known to occur, suitable habitat present
Townsend's big-eared bat	*Corynorhinus townsendii*	SSC	Mesic habitats; roosts/dens in mines, caves, or vacant buildings, maternity roosts sensitive	Known to occur, suitable habitat present
Spotted bat	*Euderma maculatum*	SSC	Deserts to forests; likely roosts in rock crevices, maternity roosts sensitive	Known to occur, suitable habitat present
Pallid bat	*Antrozous pallidus*	SSC	Low to mid-elevation riparian habitats; roosts in trees, bridges, buildings; maternity roosts senstive	Known to occur, suitable habitat present
Red Bat	*Lasiurus borealis*	SSC	Mature riparian hardwood forests; cottonwood; maternity roosts senstive	Known to occur, suitable habitat present
Long-legged myotis	*Myotis volans*	SSC 1998 proposed	Mixed conifer & giant sequoia forest habitats; tree & rock crevice roosts	Known to occur, suitable habitat present
Fringed bat	*Myotis thysanodes*	SSC 1998 proposed	Mixed conifer & giant sequoia forest habitats	Known to occur, suitable habitat present
Silver-haired bat	*Lasionycteris noctivagans*	1998 WL proposed	Mixed conifer habitats w/black oak component; roosts in crevices and snags	Known to occur, suitable habitat present

Hoary bat	*Lasiurus cinereus*	1998 WL proposed	Conifer and deciduous hardwood habitats; generally roosts in foliage	Known to occur, suitable habitat present
Long-eared myotis	*Myotis evotis*	1998 WL proposed	Mixed conifer habitats w/black oak component; roosts under bark, hollow trees, rock crevices & soil fissures.	Known to occur, suitable habitat present
Badger	*Taxidea taxus*	1998 WL proposed	Open areas and forest edges with porous soils for dens	Known to occur nearby, suitable habitat present
Black-tailed deer (migratory)	*Odocoileus hemionus columbianus*	Harvest	Generalist; Beds down in dense forest thickets, hollows, and retention areas	Known to occur, suitable habitat present
BIRDS				
California condor	*Gymnogyps californianus*	FE, SE	Rocky, shrub or mixed conifer habitats, cliff nesting sites & tall open-branched trees/snags for roosting	No suitable nesting habitat present
Great gray owl (nesting)	*Strix nebulosa*	SE	Forests near meadows; nests in broken-topped snags/trees.	Suitable habitat present
Golden eagle (nesting/wintering)	*Aquila chrysaetos*	BOF, SSC	Nests in large trees or cliffs near expansive open habitats.	Known to occur, suitable habitat present
Northern goshawk (nesting)	*Accipiter gentilis*	BOF, SSC	Nests in mature mixed conifer stands with an open understory.	Known to occur, suitable habitat present
Willow flycatcher (nesting)	*Empidonax traillii*	SE	Willow/alder thickets in wet meadows and along watercourses.	No suitable habitat present
Bank swallow		ST	Nests in sandy banks along streams	No suitable habitat present
Cooper's hawk (nesting)	*Accipiter cooperii*	WL	Nests in dense conifer stands, mixed forests, and riparian areas.	Known to occur, suitable habitat present
Sharp-shinned hawk (nesting)	*Accipiter striatus*	WL	Early to mid-seral forest and riparian zones.	Known to occur, suitable habitat present
American peregrine falcon (nesting)	*Falco peregrinum anatum*	FP, FD	Nests on cliffs and high ledges near open areas.	No suitable nesting habitat present
Flammulated owl (nesting)	*Otus flammeolus*	WL	Forests with snags and openings; nests in cavity in live or dead trees.	Known to occur, suitable habitat present
California spotted owl (nesting)	*Strix occidentalis occidentalis*	SSC	Mature conifer forests; nests in abandoned cavity/platform in trees.	Known to occur, suitable habitat present
Pileated woodpecker	*Dryocopus pileatus*	WL	Forested habitats with numerous large snags, logs, and stumps.	Known to occur, suitable habitat present

AMPHIBIANS				
California red-legged frog	*Rana draytonii*	FT, SSC	Ponds, marshes, and streams.	Extirpated from Tulare County
Sierra Madre yellow-legged frog	*Rana muscosa*	SSC	Mountain streams, lakes, and ponds above 5900' elevation.	Suitable habitat present
Foothill yellow-legged frog	*Rana boylii*	SSC	Streams and rivers, sea level to 5,800 feet.	Suitable habitat present
FISH				
Little Kern golden trout; critical habitat	*Oncorhynchus aguabonita whitei*	FT, FX	Perennial stream tributaries to the Little Kern River	No suitable habitat present
California (Volcano Creek) golden trout	*Oncorhynchus mykiss aguabonita*	SSC	Native to high elevation tributaries of the Kern River – also high elevation lakes of the Sierra Nevada Mts.	No suitable habitat present

FT = Federally Threatened; SE = State Endangered; ST = State Threatened; FC = Candidate for Federal listing as Threatened or Endangered; BOF = Board of Forestry Sensitive, Title 14 CCR 898.2(d); FP = Fully Protected (Title 14 CCR 3511or 4700; SSC = California Species of Special Concern. Federal listing refers to Central Valley ESU: Sacramento River and tributaries.

Wildlife Species of Concern

A nine quad search of processed CNDDB data centered on the Camp Wishon quad identified 3 bird, 6 mammal, 1 reptile, 2 amphibian, 2 fish and 3 insect species of concern. These include Sierra Madre (or Southern Mountain) yellow-legged frog *(Rana. muscosa*)(federal candidate in the southern Sierra Nevada), Foothill yellow-legged frog *(Rana boylii*)(CDFG Species of Special Concern), western pond turtle *(Actinemys marmorata)(*CDFG Species of Special Concern) and Pacific fisher *(Martes pennanti)*(state candidate threatened).

Other wildlife species of concern noted on the 9 quad CNDDB search include: Little Kern golden trout *(Oncorhynchus mykiss white)*(federal threatened), Black Swift *(Cypseloides niger)*(CDFG Species of Special Concern), Western mastiff bat *(Eumops perotis californicus)*(CDFG Species of Special Concern), palid bat *(Antrozous pallidus)*(CDFG Species of Special Concern), California wolverine *(Gulo gulo)*(State threatened), Sierra Nevada red fox *(Vulpes vulpes necator)*(State threatened). The American badger *(Taxidea taxus)*(CDFG Species of Special Concern) while not noted on the CNDDB query is expected to occur per the California Wildlife Habitat Relationships System (species life history note and distribution map).

The following is a discussion of the life history requirements and potential protection measures for species that occur or potentially could occur on the Forest. If, during implementation of individual projects such as timber harvest plans, other species than those discussed here are encountered, determination of specific habitat needs and protection measures on the Forest will be made in consultation with the Department of Fish and Game biologists.

California Spotted Owl:

The NDDB revealed the presence of two California spotted owl territories within the biological assessment area. The records indicate that the sightings were made in 1991 and 1992. Surveys conducted at MHDSF in 2003 yielded five spotted owl areas. Two of the sightings were in the biological assessment area within the Upper North Bear Creek watershed. The remaining occurrences were in the Rancheria Creek and Silver Creek watersheds and are over two miles from the project area outside of the biological assessment area. Only one of the Upper North Bear Creek occurrences is located closer than 1 mile of the project area. Carlson (2006) noted California spotted owls in the vicinity of Deer Ridge and Long Meadow on federal land adjacent to MHDSF.

Life history and habitat requirements: California spotted owls are an uncommon, permanent resident in suitable habitat. In this part of the Sierra Nevada it resides in dense, old-growth, multi-layered stands of mixed conifer, and oak-conifer habitats. This species requires mature forest stands with large trees and snags. It is very sensitive to habitat destruction and fragmentation.
The owl's breeding range extends west from the Cascades through the North Coast ranges, the Sierra Nevada, and in more localized areas of the Transverse and Peninsular Ranges. It may move downslope in winter along the eastern and western slopes of the Sierra Nevada.

The species breeds from early March through June. It produces one brood per year, with a clutch size of 1 to 4, usually 2. Young owls may not be sexually mature for 3 years. A pair may use the same breeding site for 5-10 years but may not breed each year. The species usually nests in tree or snag cavities, or in broken tops of large trees. Less frequently it will nest in large mistletoe clumps, abandoned raptor or raven nests, in caves or crevices, on cliffs or on theground. Mature, multi-layered forest stands are required for breeding. Nests are generally located 30 to 180 feet above the ground. It requires blocks of 100-600 acres of mature forest with permanent water and suitable nesting trees and snags. Tends to prefer narrow, steep-sided drainages with north aspects.

Protection measures: in the event this species is observed at MHDSF, Department of Fish and Game protection measures will be implemented for this species where it occurs.

Northern Goshawk:

Northern Goshawks breed in the North Coast Ranges, throughout the Sierra Nevada, Klamath, Cascade, and Warner mountains, and possibly in the San Jacinto, San Bernardino, and White Mountains. Northern Goshawks initiate breeding by mid-June in northern California. Nest construction can begin as early as two months before egg laying. Nests are constructed and many pairs will have two to four alternate nest areas within their home range. One nest may be used in sequential years, but often the pair switches to an alternate nest. The young fledge within 45 days and begin to hunt within 50 days. Only one brood per season is produced. After fledgling, the family group stays together and remains in the general vicinity of the nesting territory. This post-fledging area tends to be larger than the nesting territory. The diet of Goshawks consists mostly of birds (from robin to grouse in size), though small mammals such as ground and tree squirrels are also taken.

Throughout its range, the Northern Goshawk forages in diverse habitat, which can vary from open sagebrush to dense forests. However, in California mature and old growth forest with dbh greater than 20 inches (52 cm) and canopy closure greater 40 percent was used for foraging, and open habitats such as meadows and seedling or sapling stands were avoided. Carlson (2006) noted two Northern Goshawk nest sites on Mountain Home Demonstration State Forest in the vicinity of Hedrick Pond and within Section 34.

Department of Fish and Game protection measures for this species (California Department of Fish and Game 2009) will be implemented for this species where it occurs.

Golden Eagle:

Golden Eagles occur throughout California except in the Central Valley. Nesting by Golden Eagles typically occurs on cliffs or large trees in rugged open areas such as canyons and escarpments. Foraging occurs in open terrain such as grasslands, deserts, sage-juniper flats, and savannas, early successional stages of forest and shrub habitats, desert edges, farms, or ranches. Golden Eagles hunt over large open areas and feed on a variety of lagomorphs, other mammals, birds, reptiles, and occasionally carrion.

Although no cliffs occur on MHDSF, Golden Eagles could nest in older conifer and mixed conifer stands. Should the species occur on the State Forest consultation with federal and state wildlife agencies concerning appropriate protections would be initiated.

Pacific Fisher:

Pacific Fishers exhibit a discontinuous distribution in Washington, Oregon, and California from the more continuous populations of Canada and the eastern United States. Observations compiled between 1961 and 1982 show fishers occurring in the northwestern portion of the state and throughout the Sierra Nevada Mountains. Recent survey information indicates that the current distribution of fisher in California is now smaller with a gap between the northwestern population and the Sierra Nevada population (Zielinski et al. 1995). Currently, the primary threat to the Pacific fisher is the reduction and fragmentation of late-successional forests, and the associated loss of habitat components necessary for resting and denning.

Breeding, resting, and foraging habitat for Pacific fisher usually consists of old-growth or late successional coniferous forests with greater than 50 percent canopy closure. Denning and resting occur in live trees with cavities, snags, downed logs, and a variety of other cavities. Young are born between February and May. In northern California, natal and maternal dens have been found in medium to large (21 to 58 inches dbh) live trees and snags, and in a 39-inch downed log. Riparian areas serve as travel corridors for Pacific fishers. Although Pacific fishers tend to avoid open areas with less than or equal to 40 percent canopy cover, they are known to use heavily harvested riparian areas for travel.

Protection measures: in the event this species is observed at MHDSF, we will follow Department of Fish and Game guidelines for protection measures for this species (Department of Fish and Game 2009).

Foothill Yellow-legged Frog:

Range: Rana boylii is endemic to Oregon and California. Historically, foothill yellow-legged frogs ranged throughout the western slopes of the Sierra Nevada south to Kern County. They range from near sea level to 5,800 feet in California.

Foothill yellow-legged frogs have declined dramatically in the Sierra Nevada. Lanoo (2005) speculates that air-borne pesticides (that move east on the prevailing winds blowing across the highly agriculturalized Central Valley) are likely to be the primary threat to foothill yellow-legged frogs in the Sierra Nevada foothills. The populations of foothill yellow-legged frogs in greatest decline are all downwind of highly impacted (mostly agriculturalized) areas, while the largest, most robust frog populations are along the Pacific coast.

Life history and habitat requirements: In the southern Sierra Nevada populations, breeding may occur later after the snows melt from April to July. Foothill yellow-legged frogs mate and lay eggs exclusively in streams and rivers. Tadpoles typically transform after 3 to 4 months.

Foothill yellow-legged frogs are primarily stream dwelling. Stebbins (2003) describes foothill yellow-legged frogs as stream or river frogs found mostly near water with rocky substrate, as found in riffles, and on open, sunny banks. Critical habitat (i.e., habitat suitable for egg laying) is defined by Jennings and Hayes (1994a) as a stream with riffles containing cobble-sized (7.5 cm diameter) or larger rocks as substrate, which can be used as egg laying sites. These streams are generally small to mid sized with some shallow, flowing water.

Habitat Protection: This species may occur in suitable habitat at lower elevations on the Forest, but extant populations are unknown. Given this species' close association with streams and rivers, establishment of watercourse and lake protection zones as described in the Forest Practice Rules are expected to provide the necessary habitat protection. However, on identification of the species on the Mountain Home Demonstration State Forest site specific protection measures will be developed that potentially exceed those described in the Forest Practice Rules.

Sierra Madre (Southern Mountain) Yellow-legged Frog:

Rana muscosa is endemic to California, U.S.A. The Southern Mountain Yellow-legged Frog once ranged from Palomar Mountain in San Diego County through the San Jacinto, San Bernardino and San Gabriel

Mountains of Riverside, San Bernardino and Los Angeles counties in southern California. These formed four isolated clusters of montane populations. In addition the species occurred as an isolated cluster of populations on Breckenridge Mountain, south of the Kern River in Kern County, and in the Sierra Nevada mountains in Tulare, Inyo, and Fresno counties, extending north to Mather Pass. The distribution of Rana muscosa in the Sierra Nevada is bordered by the crest of Sierra Nevada. No populations occur east of the crest. The mountain ridges that separate the headwaters of the South Fork Kings River from the Middle Fork Kings River, from Mather Pass on the John Muir Trail to the Monarch Divide, form the northern border of the range. R. muscosa is extinct on Palomar and Breckenridge mountains.

This amphibian species complex including Rana muscosa and Rana sierrae was once the most common vertebrate in the high elevation Sierra Nevada. Rana muscosa have declined dramatically despite the fact that most of the habitat is protected in National Parks and National Forest lands. A study that compared recent surveys (1995-2005) to historical localities (1899-1994; specimens from the Museum of Vertebrate Zoology and the California Academy of Sciences) found that 96.2% of populations had gone extinct, with only 3 remaining out of 79 resurveyed sites (Vredenburg et al. 2007). The two most important factors leading to declines in R. muscosa are introduced predators and disease.

Life History and Habitat Requirements: In the southern Sierra Nevada populations, breeding may occur later after the snows melt from May to July. Fertilization is external. A cluster of eggs is laid in shallow water and is left unattached in still waters, but may be attached to vegetation in streams. Tadpoles in the Sierras may overwinter, possibly taking as many as 3 or 4 summers before they transform.

The species inhabits lakes, meadow streams, isolated pools and sunny riverbanks in the Sierra Nevada. Open stream and lake edges with a gentle slope up to a depth of 5-8 cm. seem to be preferred that range in elevation of 984 ft. to over 12,000 ft. (370 - 3,660 m.). In the Sierra Nevada, adult mountain yellow-legged frogs occupy wet meadows, streams, and lakes; adults typically are found sitting on rocks along the shoreline, usually where there is little or no vegetation. In the Sierra Nevada, most frogs are seen on a wet substrate within 1 m of the water's edge. Both adults and larvae are found most frequently in areas with shallow and warmer water.

Although unlikely, the Mountain Home Demonstration State Forest may support a population of this now uncommon species. The California Natural Diversity Database notes two occurrences from 1904 in Sequoia/Kings Canyon National Park at the Middle Fork Tule River and Summitt Lake. Given this species' close association with wet areas, establishment of watercourse and lake protection zones as described in the Forest Practice Rules are expected to provide the necessary habitat protection. However, on identification of the species on the Mountain Home Demonstration State Forest site specific protection measures will be developed that potentially exceed those described in the Forest Practice Rules.

Sierra Nevada Red Fox:

The Sierra Nevada Red Fox (Vulpes vulpes necator) is a State Threatened species. Range: Grinnell (1937) described the distribution of the red fox as occupying "high elevations throughout the Sierra Nevada from Tulare County to Sierra County, and the vicinities around Mt. Lassen and Mt. Shasta. The current range and distribution of red fox is unknown. The only known current population is in the vicinity of Lassen Peak, with periodic sightings by inexperienced observers throughout its historic range.

It is highly unlikely that the distribution of the Sierra Nevada red fox would include Mountain Home Demonstration State Forest. However, should the species occur on the State Forest consultation with federal and State wildlife agencies concerning appropriate protections would be initiated.

Wolverine:

The wolwerine is a State Threatened species. Verifiable wolverine sightings in California are very rare. California wolverine sightings within the 9 quadrangle CNDDB search area are no more recent than 1973 where one occurrence is noted on Blue Ridge within the Dennison Peak quadrangle near the Milo Fire Station. Earlier sighting include an observation in 1970 at the Quinn Ranger Station in Sequoia/Kings

Canyon National Park; a 1962 observation on the Sequoia National Forest (T19S R31E Section 27); and a 1907 observation of wolverine sign by Grinnell at Grouse Flat 8 miles southeast of Lake Kaweah. In February 2008 a remote camera captured the image of a wolverine on the Tahoe National Forest, an area from which the species was believed to be extirpated since 1922. Genetic studies of this individual indicate that it is most closely related to Rocky Mountain populations, the nearest being 600 miles away in the Sawtooth Range of Idaho.

Should the species occur on the State Forest consultation with federal and state wildlife agencies concerning appropriate protections would be initiated.

California Condor:

The California Condor *(Gymnogyps californianus)* is State and federal endangered. Mountain Home is within the range of the California Condor, and the species has been known to historically occupy giant sequoia (Snyder et al 1986), however tree nesting by the species is thought unlikely given present numbers and habitat utilized. All recent California Condor nest sites have been located on public lands within the Los Padres, Angeles, and Sequoia National Forests.

California Condor are not known from Mountain Home Demonstration State Forest. The California Natural Diversity Database does note however an important roosting area typically utilized from April through September on Blue Ridge within the Frazier quadrangle west of the State Forest. Should the species occur on the State Forest, consultation with federal and State wildlife agencies concerning appropriate protections would be initiated.

Terrestrial Vertebrate Species Richness

The California Natural Diversity Data Base (CNDDB) and the Spotted Owl Database are based on actual observations of rare plant and animal species and communities statewide with the goal of providing the most current information available on the state's most imperiled elements of natural diversity. Consequently the data provided does not represent an exhaustive and comprehensive inventory.

In order to assess the likelihood of additional terrestrial vertebrate species of concern occupying habitats present within the Mountain Home Demonstration State Forest, the California Wildlife Habitat Relationships System was queried[2]. Types and extent of CWHR types on MHDSF are shown in table 2 below. Inclusion of other uncommon habitat conditions on the forest such as pond, emergent wetland, chaparral brush etc. would add to the species list. The CWHR query yielded a total of 12 amphibian, 20 reptile, 127 bird and 68 mammal species.

Table 2. Mountain Home Demonstration State Forest CWHR habitat types and extent.

CWHR Type	Acres
MC5M	2771
MC5P	61
MHC4D	206
MHW4D	346
MHW5D	164
WFR4P	103
WFR5M	1177

Mountain Home is a research and demonstration forest, and we plan to continue to add to our knowledge of biological resources over time, and incorporate that knowledge into our management practices. An essential part of this adaptive management process is to collaborate with, and draw upon knowledge from neighboring landowners (Axtell and Terrell 2009).

Plant Species of Concern

A plant scoping assessment for the area including MHDSF is included in Appendix 1. A nine quad search of processed CNDDB data centered on the Camp Wishon quad and Mountain Home State Forest, identified 26 plant species. One plant species is listed as federal threatened and state endangered (*Clarkia springvillensis*) and one state endangered (*Brodiaea insignis*). Twenty other species are considered CNPS List 1B species independent of the state or federal listings described above. While it is unlikely that all or even most of these species would find suitable habitat on Mountain Home, the number of species provide a rough indicator of extent of plant species of concern in the general vicinity of the Forest. Additional survey effort for currently undocumented species may add to this list or make additional adjustments specific to species occurring on Mountain Home.

[2] The California Wildlife Habitat Relationships System (CWHR) is the principal model used to predict species occurrence and change in habitat capability. Habitat capability in this context is an acreage weighted numerical expression derived from the arithmetic mean of habitat values for breeding, feeding, and cover for each species in each CWHR habitat stage. The CWHR System (http://www.dfg.ca.gov/whdab/html/cwhr.html) contains life history, management, and habitat relationships information on 675 species of amphibians, reptiles, birds, and mammals known to occur in California. The model was developed to predict species occurrence and abundance response to habitat alteration. Species prediction accuracy varies based on habitat types, taxonomic class, presence or absence of special habitat elements, and level of habitat relationship model validation. CWHR Version 8.2 was used.

Two plant species of concern are currently known from the southwest corner of the Mountain Home Demonstration State Forest (California Natural Diversity Data Base, accessed October 13, 2009). A botanical survey of MHDSF (Trayler and Mallory 1999) resulted in the discovery of Keil's daisy and Greenhorn fritillary. Both plant species are listed as California Native Plant Society List 1B.3 (California Native Plant Society 2009). The plants on List 1B are rare throughout their range with the majority endemic to California. Most of the plants have declined significantly over the last century. List 1B plants constitute the majority of the plants in CNPS' Inventory with more than 1,000 plants assigned to this category of rarity.

Fritillaria brandegeei - greenhorn fritillary. A perennial herb found only in California in lower montane coniferous forest on granitic soils and at an elevation of 5000-7000 feet. The species exhibits a blooming period of April-June.

Erigeron inornatus var. keilii - Keil's daisy. A perennial herb found only in California in lower montane coniferous forest within meadows or near seeps and at an elevation of 5900-7200 feet. The species exhibits a blooming period of June-September.

Protection Measures: surveys for plant species of concern will be conducted prior to implementation of individual projects. If any of the above species are encountered, a 50 feet no entry buffer will be flagged. No heavy equipment or herbicides will be used within the buffer. Directional falling away from the buffer will be implemented. The same protection measures will be used if other plant species of concern are encountered on individual projects.

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?

Less than significant impact. The past management of Mountain Home has resulted in a forested landscape that is varied and has a mixture of timber stand types and wildlife characteristics. The Project proposes no substantial changes to the management of Mountain Home that would result in significant changes in the current forest structure or wildlife habitat. The planned utilization of a wide range of management tools will continue to maintain a landscape that is varied and has a mixture of various wildlife habitats.

The development of Mountain Home as a multiple aged forest, including old growth giant sequoia, will provide for a more biologically diverse habitat than is found in a predominantly young managed forest. The single tree selection, group selection, and sanitation-salvage harvesting will improve the forest habitat by developing and maintaining a variety of crown levels, stand densities, and small openings in the forest. Group selection openings will provide habitat for wildlife species that prefer edge conditions. The variable density of the crown canopy and effect on availability of light will determine the amount and types of vegetation which may grow on the forest floor.

A goal of the Mountain Home management plan is to maintain, restore, and enhance the occurrence of special habitat elements and unique habitats to promote species diversity and habitat quality. It is anticipated that potential project impacts will be less than significant on species identified as a candidate, sensitive, or special status species.

Individual projects conducted under the guidance of this management plan will require a separate biological assessment based upon site-specific conditions. If during the project assessment, survey or project layout, species identified as candidate, sensitive, or special status or their habitats are identified, the management plan specifies that protection measures will be

incorporated into the project. Protection measures will be developed in consultation with appropriate State or federal wildlife agencies.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?

Less than significant impact. The management plan recognizes the importance of riparian habitats and other sensitive natural communities and it describes measures to maintain, restore, and enhance the occurrence of special habitat elements and unique habitats. It is anticipated that any potential project impacts will be less than significant to riparian habitat and other sensitive natural communities. All projects conducted under the guidance of this management plan will incorporate protection measures for all riparian areas or other sensitive natural communities.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less than significant impact. The management plan recognizes the importance of wetlands and the habitats values associated with them. It describes measures to maintain all vernal pools and springs and measures for riparian zone protection and restoration. All projects conducted under the guidance of this management plan will incorporate the protection measures specified in the management plan for all wetlands, springs, watercourses, meadows, and vernal pools.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than significant impact. The past management of Mountain Home has created a forested landscape that is varied and has a mixture of timber types and wildlife characteristics. The project proposes no substantial changes to the management of Mountain Home that would result in significant changes to current forest structure or wildlife habitat. Additionally, management activities are seasonal and generally occur on less than three percent of the total Forest area annually. Watercourse protection measures, habitat retention areas, and large woody debris retention will assist in the maintenance and enhancement of wildlife migration corridors.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No impact. The project does not conflict with any policies or ordinances protecting biological resources. The California Public Resources Code sections 4721 to 4727 state that it is the policy of the State to preserve as far as possible the giant sequoia species. Destroying a giant sequoia tree over 16 feet in diameter is a misdemeanor in the County of Tulare in which the project is located. The project fully complies with this legislation and in fact exceeds requirements by recruiting, over time, replacement old growth giant sequoia from second growth trees.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No impact. The project fully complies with the State and federal endangered species acts. All sensitive, threatened and endangered species will be protected. There is no known Natural Community Conservation Plan in the vicinity of Mountain Home that would be affected by actions taken under the project (Department of Fish and Game, 2009a). There are no known habitat conservation plans in the vicinity of Mountain Home that would be affected by actions taken under the project.

The giant sequoia region consists of the natural range of giant sequoia along the western slopes of the Sierra Nevada, from the American River to southern Tulare County. The majority of the region is dominated by unmanaged giant sequoia reserves and a preponderance of large old trees. Mountain Home is surrounded by the Giant Sequoia National Monument, which is managed for preservation and restoration of giant sequoia and associated communities. This project is consistent with the management of the Giant Sequoia National Monument as defined in legislation and the scoping process for the Monument management plan. In addition to protection of old growth giant sequoia, Mountain Home also emphasizes research, demonstration and management in young growth giant sequoia stands to perpetuate resource values and our understanding of this tree species.

g) Would the project exacerbate climate change or increase greenhouse gas emissions?

No impact. This analysis evaluates whether climate change and greenhouse gas (GHG) issues related to management of Mountain Home have the potential to be a significant environmental effect, either on a project basis or cumulatively. Table 3 below summarizes estimated net carbon dioxide sequestration levels under proposed management at Mountain Home over a 100-year planning interval. A 100-year outlook is necessary in forested ecosystems where trees can take more than 50 years to reach maturity. The 100-year planning interval allows a minimum period necessary to evaluate the long-term behavior of forested ecosystems while not exceeding the range of applicability of mathematical simulation models. The analysis shows substantial positive carbon sequestration benefits. Proposed management at Mountain Home will sequester a net CO2 equivalent of 765,500 tons of carbon at the end of 100 years.

Table 3. Estimated carbon sequestration at Mountain Home over the next 100 years.

1	2	3	4	5	6	7
Current standing inventory	CO2 stored in current standing timber	Standing inventory at end of 100-year planning interval	CO2 stored in standing timber at end of 100-year planning interval	Total harvest over 100-year planning interval	Total CO2 sequestered in forest products at end of 100-year planning interval	Total net CO2 sequestered at end of 100-year planning interval (4-2+6)
*MBF	Tons	MBF	Tons	MBF	Tons	Tons
271,487	525,942	386,572	748,892	280,060	542,550	765,500

*MBF is thousand board feet.

Emissions from the Forest include vehicles and buildings used by the Department that are associated with management. It also includes emissions from harvesting and manufacturing. Downstream accounting was the approach chosen for this analysis. This is the most conservative accounting approach because it does not include the negative substitution effect that occurs when alternative higher-GHG-impact building materials such as steel and concrete are used instead of wood products. Emissions from vehicles and buildings are estimated as follows:

Vehicles: 10 tons per year x 100-year planning horizon = 1,000 tons

Buildings: 0.03 tons per year x 100-year planning horizon = 3 tons

Total emissions add up to 1,003 tons for the 100-year planning interval.

Harvesting emissions include in-woods emissions from equipment and vehicles and transportation to a mill. Mill emissions estimates from processing are included because long-term storage of wood products is included in the analysis. Mill emissions include sawing, drying, energy generation, and planing. Transport to final destination is also included. The entire life cycle for green-dried lumber is included (Puettmann and Wilson, 2005). This results in a total emission estimate of 0.13 metric tons CO2 equivalent per thousand board feet (MBF).

Given the total harvest of 280,060 MBF over the 100-year planning interval in Table 3, this equates to 36,408 tons of CO2 equivalent from harvesting emissions. Including vehicle and building emissions, the total GHG emissions estimate for Mountain Home is 37,411 tons of CO2 equivalents. These harvesting emissions including full life-cycle of wood, vehicle, and building emissions, represent 4.9 percent of the total carbon sequestered (column 7 in Table 3).

The conclusion from the above analysis is that there is a substantial positive carbon sequestration benefit, or a net negative emission of GHGs at Mountain Home under the guidance of the project. The management plan proposes to harvest less biomass (and to emit less CO2) than is being accumulated and sequestered through growth.

Climate change science is still in its infancy. There are likely wide error bars around the above estimates, given the general level of the analysis and the relatively new estimation equations in the literature. For example, estimates of carbon sequestered in table 3 above were based only on the bole volume of trees and did not include carbon contained in roots, crowns and the forest floor. This results in an underestimate of carbon sequestered during the planning interval because of the increase in biomass on the Forest during the planning interval.

The result that positive sequestration benefits exceed emissions by orders of magnitude however, lends support to the conclusion that sequestration will be much greater than emissions. Our conclusion is also supported by estimates from the Air Resources Board, which indicate that forest land use in California results in a net decrease in atmospheric carbon, not an increase (http://www.arb.ca.gov/cc/inventory/data/tables/net_co2_flux_2007-11-19.pdf).

Since the net amount of carbon that would be sequestered under the project is greatly higher than the amount of carbon that will be released by Mountain Home management activities, there are no potential significant adverse environmental impacts, single or cumulative. In fact, significant beneficial impacts of net carbon sequestration will occur.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. Cultural Resources. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Discussion

Numerous archaeological surveys as well as excavations have been conducted on Mountain Home. These surveys have been extensive and the forest has over 95% coverage as a result of the surveys. Several reports and articles pertaining to the archaeology of the forest are posted on the CAL FIRE website. In addition, two reports, described below, contain a summary of earlier State Forest archeological surveys.

The report titled: *The Prehistory of Mountain Home State Forest: A Region of Seasonal Occupation and Exploitation* by William J. Wallace, Edith Wallace, and Virgil Meeker, CDF Archaeological Reports Number 4, March 1989, summarizes earlier archeological surveys, their revisiting 22 sites, and test excavation at 5 sites.

A second report: *Excavations at the Sunset Point Site (CA-TUL-1052) Mountain Home Demonstration State Forest, Tulare County, California* by Brian D. Dillon, Ph.D., Consulting Archeologist in association with the California State University Bakersfield, Foundation, for the California Department of Forestry and Fire Protection, CDF Archeological Reports #11, September 1992, provides an in depth discussion of the prehistory of the area, previous research at the forest, the results of scientific excavation at the site as well as management recommendations.

There are no known archaeological resources that would be impacted by Mountain Home management activities. The management plan requires that prior to any ground disturbing activities (timber harvest, road building, prescribed burns, construction of new campsites, etc), potentially affected areas will be surveyed for archaeological resources. If any unrecorded sites are discovered during surveys or management activities, a CAL FIRE archaeologist will be contacted to determine the appropriate protection measures. Archaeological surveys will be conducted by professional archaeologists or Mountain Home staff who are trained to conduct archaeological surveys, under the guidance of a staff professional archaeologist (Foster, 2006).

Mountain Home's cultural resources management procedures are based on CAL FIRE's statewide *Management Plan for Historic Buildings and Archaeological Sites* (Foster and Thornton, 2001) and its accompanying Environmental Impact Report (Foster and Sosa, 2001) which prescribe general measures for identifying, evaluating, and managing heritage resources on CAL FIRE lands statewide including Mountain Home. This management plan was initiated in 1991 pursuant to Executive Order W-26-92, CEQA and PRC Section 5020 et seq., in

coordination with the SHPO and in consideration of comments from the interested public and Native American Tribes and organizations. For each of CAL FIRE's properties, including Mountain Home, the plan summarizes the inventory of recorded historic buildings and prehistoric and historic archaeological sites; identifies those buildings and sites determined to be significant per National and State Registers criteria in consultation with SHPO; establishes decision making criteria for managing its historic buildings and identifies those targeted for preservation; describes CAL FIRE's archaeology program, role in fire protection, Native American gathering policy, and artifact collections; and establishes specific management objectives and measures.

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

All known historic resources have been recorded and protection measures developed. CAL FIRE's primary approach to managing significant heritage resources is to preserve them through avoidance of project related impacts. As prescribed by the management plan, if any unrecorded sites are discovered during surveys or management activities, a CAL FIRE archaeologist will be contacted to determine the appropriate protection measures. Procedures described in Foster (2006) will be used to avoid impacts. It is therefore determined that projects planned and implemented at Mountain Home would have a *less than significant* impact to cause a substantial adverse change in the significance of a historical resource.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

All known archaeological resources have been recorded and protection measures developed. CAL FIRE's primary approach to managing significant heritage resources is to preserve them through avoidance of project related impacts. As prescribed by the management plan, if any unrecorded sites are discovered during surveys or management activities, a CAL FIRE archaeologist will be contacted to determine the appropriate protection measures. Procedures described in Foster (2006) will be used to avoid impacts. It is therefore determined that projects planned and implemented at Mountain Home would have a *less than significant* impact to cause a substantial adverse change in the significance of a historical resource.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

There are no known paleontological resources or sites existing at Mountain Home. Haughton's cave, also known as Crystal 67, is one of the best examples of a limestone cavern in the western states. Crystal 67 is a destination spot for many spelunkers and because of its unique geologic features, is visited relatively frequently. The cave has many precipitous drops leading into its rooms and chambers and therefore poses a safety threat to the general public.

Due to the inherent threat that the cave presents to the inexperienced caver and the potential for the limestone features within the cave to be damaged or stolen, the entrance to the cave remain locked. User groups are welcome to explore the cave by making a reservation and signing a waiver of liability and code of conduct. Albeit, there is some remote chance that a user could cause damage to a cave feature, it is unlikely because of the high accountability and conduct standards placed on the user groups. These measures have adequately protected the cave and its features, and will continue to do so for years to come. It is therefore determined that projects planned and implemented at Mountain Home would have a *less than significant* impact on paleontological or geologic features.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries?

There are no known cemeteries or human remains existing on Mountain Home. No human remains or associated grave goods were encountered during the archaeological survey work on Mountain Home and human remains or grave goods are not likely to be encountered during project activities. However, the slight possibility exists for human remains to occur within the project area. If human remains were unearthed, but not protected in accordance with procedures in state law (see below), this could be a potentially significant impact. Mountain Home will follow the California Health and Safety Code and California Public Resources Code Section 5097.

The management plan requires that the following procedures be followed for discovery of human remains: In accordance with the California Health and Safety Code (CHSC) 7050.5(b), if human remains are discovered during ground-disturbing activities, CAL FIRE and/or the project contractor(s) shall immediately halt potentially damaging excavation in the area of the burial and notify the Tulare County Coroner and the CAL FIRE archaeologist to determine the nature and significance of the remains. The coroner is required to examine all discoveries of human remains with 48 hours of receiving notice of a discovery on private or state lands. If the remains are determined by the coroner to be Native American, he or she must contact by telephone, within 24 hours, the Native American Heritage Commission (NAHC) per CHSC 7050.5(c). The NAHC will in turn immediately identify and notify the Most Likely Descendent (MLD) in accordance with PRC 5097.98(a). CAL FIRE shall continue to protect the discovery area from damage or disturbance, per PRC 5097.98(b), until staff has discussed and conferred with the MLD regarding their recommendations for treatment of the discovery.

(1) The MLD preferences for treatment of the discovery may include the following:

a) The nondestructive removal and analysis of human remains and items associated with Native American human remains.
b) Preservation of Native American human remains and associated items in place.
c) Relinquishment of Native American human remains and associated items to the descendents for treatment.
d) Other culturally appropriate treatment.

(2) The parties may also mutually agree to extend discussions, taking into account the possibility that additional or multiple Native American human remains, as defined in PRC 5097, are located in the project area providing a basis for additional treatment measures.

It is therefore determined that projects planned and implemented at Mountain Home will have a *less than significant* impact in regard to disturbance of any human remains, including those interred outside formal cemeteries.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Geology and Soils. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)

No impact. Review of California Geological Survey Special Publication 42 (Fault-rupture-Hazard zones in California) and Geologic Data Map #4B (Fault Activity Map of California and Adjacent Areas) found no active faults or faults with historic movement mapped within or immediately adjacent to Mountain Home. No surface rupture from fault activity is expected to occur on Mountain Home.

ii) Strong seismic ground shaking?

No impact. Strong seismic shaking on Mountain Home is not likely. The California Geological Survey Probabilistic Seismic Hazards Ground Motion map indicates that Mountain Home and immediate vicinity has a less than 10% percent probability of exceeding a maximum peak ground acceleration of 30 to 40 percent g* in 50 years. No areas in Mountain Home or immediate vicinity are known to have been damaged by historic earthquakes (historic means 1800 to present day).

* The unit g is the acceleration of gravity.

iii) Seismic-related ground failure, including liquefaction?

No impact. Seismic-related ground failure is feasible. Such failure would most likely consist of rock fall from steep outcrops that could be hazardous to people downslope of such outcrops. The combination of soil types, groundwater conditions, and seismic shaking intensity necessary for liquefaction does not appear present in Mountain Home, therefore the probability of seismic-induced liquefaction is very low.

iv) Landslides?

Less than significant impact. The few deep-seated landslides known to exist along the slopes leading into the North Fork of the Middle Fork of the Tule River are primarily due to saturated soils above a bedrock contact zone. The canyon is remote and infrequently used by the public during the wet season. During the winter period, physical barricades are placed on both County roads that access Mountain Home to prevent public use. Gates located on the single access road to the Tule River canyon are under the control of Mountain Home and they are locked during the winter period in the event that someone drives through the County barricades. With this in mind, it would be highly unlikely to expose people to potentially substantial adverse effects from landslides. There are no buildings located in areas likely to be affected by any deep-seated landslides. Proposed operations under the Management Plan, including timber harvest, vehicle traffic and recreation activities, would be unlikely to affect the natural potential for existing deep-seated landslides to adversely affect the public.

Individual projects conducted under the guidance of this Management Plan, which have the potential to affect soil stability (e.g. timber harvest, road building) are subject to multiagency THP review and comment or other CEQA review. This review would minimize the likelihood of destabilizing operations being conducted. The California Geology Survey (CGS) is part of the multiagency review team that provides comments as well as expertise during the review of THPs. CGS staff has a Certified Engineering Geologists (CEG) that participates in field review of individual projects, including THPs.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less than significant impact. Forest roads are a source of soil erosion and are considered a major contributing source to stream sediment. Much of this sediment originates from points at or near watercourse crossings. The most serious erosion observed on Mountain Home is associated with the inside ditch network draining the roads. Inside ditch erosion has been shown to be a significant source of sediment delivery into stream systems.

Mountain Home routinely maintains all drainage facilities located on the forest to ensure that blockages that could prompt a road failure are minimized. The Mountain Home Management Plan provides for routine maintenance to ensure that the design, reconstruction, use, maintenance, and surfacing of Mountain Home's roads, road landings, and road crossings will

avoid, minimize, or mitigate adverse impacts to the aquatic habitats supporting fish, amphibians, and other aquatic organisms. An additional benefit may be the long-term reduction in the costs of repairs as a result of problem avoidance. Roads and watercourse crossings are inspected annually to prevent adverse impacts to the watershed and water quality. Active harvest operations are inspected regularly for compliance with the Forest Practice Rules (FPR) and waste discharge requirements. Soil erosion from Mountain Home roads will be minimized and impacts to water quality will be reduced to *less than significant* with the on-going inspection and maintenance program.

All crossings associated with timber harvesting that do not occur on an existing road are planned for temporary use. Temporary crossings are only used when watercourses are dry or otherwise mitigated on a site-specific basis when wet. Once crossing use is complete, the crossings are removed and any exposed soil resulting from the use and removal of said crossing is stabilized by a variety of methods. These projects are planned and implemented in THP's and are subject to interagency review by members of the Regional Water Quality Control Board (RWQCB), California Geologic Survey (CGS), Department of Fish and Game (DFG) and CDF. Any permanent crossing proposed at Mountain Home shall be sized to permit passage of a 100-year flood event.

Timber harvest activities are another potential source of soil erosion and sediment delivery to watercourses. The FPR, which regulate timber harvest activities, provide several rules for the protection of water quality and reduction of soil erosion. These rules include; the implementation of Watercourse and Lake Protection Zones, installation and maintenance of erosion control features, scattering and lopping of slash, appropriate stream crossing design and construction, and the implementation of a water drafting plan.

All timber operations are required to adhere to a waiver of waste discharge that is obtained from the Regional Water Quality Control Board (RWQCB). Included in the waiver is the requirement for effectiveness monitoring. The monitoring will provide early detection of any erosion issues requiring immediate correction. Where required, Mountain Home shall obtain a 1600 permit from the DFG for the installation or repair of watercourse crossings.

Additionally, the majority of Mountain Home is managed in an uneven-aged fashion. Such harvesting maintains vegetative cover, rain drop interception, evapotranspiration, and a source for needle cast, thereby reducing the potential for soil erosion by providing a means to reduce particle displacement from falling rain and runoff.

The adherence to the FPR, RWQCB waiver, 1600 agreements and the implementation of well designed silvicultural systems will ensure the potential project impacts to soil erosion and topsoil loss are *less than significant*.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less than significant impact. Although it is conceivable that operations carried out under the Management Plan could feasibly destabilize soils within Mountain Home, such projects are subject to THP review or other CEQA review and comment. This process would minimize the likelihood of destabilizing operations occurring as a result of proposed projects.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?

No impact. Expansive soils as defined in the Uniform Building Code are not located on Mountain Home and no construction of major new structures are planned.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No impact. There are five septic systems in use at Mountain Home. Four are located within the bounds of Mountain Home proper, and the remaining system is located at the Mountain Home winter office located approximately seven miles west of the forest. The forest facilities with septic systems are “the house that Jack built”, summer barracks, summer office, and pack station. These systems have been in place since the late 1940’s and no known problems have occurred. No other septic systems are planned to be installed on Mountain Home. The toilets located at the campgrounds are self-contained and require pumping for removal of the waste. Licensed contractors dispose of the waste.

ENVIRONMENTAL ISSUES		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. Hazards and Hazardous Materials. Would the project:					
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h)	Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Discussion

Potentially hazardous materials located on Mountain Home or used on Mountain Home for management activities include equipment fuel and oil, petroleum and propane storage tanks, dust palliatives, pesticides, marking paint, and incendiary and firing devices. Proper use, storage, and transportation of these chemicals should not result in any potential significant impacts to the environment. Potential significant impacts could occur by accidental spilling of the material. The following four mitigation measures will be used to avoid significant impacts to the environment:

1. To insure that all material is properly used, stored, and transported, Material Safety Data Sheets (MSDS), material labels, and any additional handing and emergency instruction of the materials are kept on file at the Mountain Home Forest Office.

2. Any state employee handling these materials will be made aware of the potential hazards, given proper training and instruction, and also made aware of the location of the MSDS, and any other documentation for the material.

3. All contractors used in the application or use of these hazardous materials shall have the appropriate licenses and be able to read and understand the MSDS, labels, appropriate recommendations, and application instructions.

4. The storage of potentially hazardous materials on Mountain Home is in accordance to the MSDS and any buildings that are used for storage will display appropriate placards.

Small amounts of equipment fuel, oils and burn mix are stored in petroleum approved containers in a placarded outbuilding at the headquarters. A 1,000 gallon gas vault, 450 gallon propane at headquarters, 400 gallon propane at the Pack Station, saw mix in 1 gallon and 5 gallon spill-proof containers, motor oil and saw mix (all loose containers) are locked in a concrete building tanks are above ground and access is restricted to CAL FIRE employees.

Firing and incendiary devices are stored in accordance to the MSDS with ignition devices and fuel stored separately. These devices are only used by properly trained CAL FIRE employees. Storage buildings display the appropriate placard.

The types of dust palliatives that may be used on Mountain Home are hygroscopic salts and resins, which are considered to be non-hazardous as per MSDS information provided to Mountain Home. These materials are non-flammable, non-combustible, and are considered to be low or non-toxic to aquatic organisms. When these materials are utilized on Mountain Home, they will be applied under ideal weather conditions to allow for rapid curing. Potential hazards associated with the proper delivery and application of these products is very unlikely. By controlling the application process, using only licensed applicators and adhering to the MSDS, product labels and application recommendations, accidental spills are minimized, eliminated, and controlled if they occur. Additionally over 90% of dust abatement on Mountain Home is accomplished by use of water and water trucks.

Pesticides have been used on MDSF for demonstration, research and for the establishment, survival and improved growth of new forest stands. Proposed future use will be for the same objectives and to maintain fuel breaks. Herbicides may be used for the periodic control of invasive or noxious weeds. The use of pesticides as a tool to control vegetation is determined by the vegetation present on site, by the vegetation targeted for control and the level of control needed to accomplish the goals of the project. These factors, as well as local weather patterns, soil types, topography, and the presence of threatened or endangered species are used to determine if herbicides will be used. The specific recommendation for the type of pesticide, application rate, timing, and application method will be determined by the site specific conditions and made by a Licensed Pest Control Advisor (PCA).

The main brush species targeted for control on Mountain Home are manzanita, whitethorn, cherry and bearclover. Other species that may be targeted in specific situations are gooseberry, currant, bitter cherry and various grasses. Past application methods have been typically been backpack application, no aerial applications have been conducted. Individual pesticide applications are based on label and MSDS restrictions, and written recommendations by PCA, that provide CEQA equivalency. The recommendations build upon the pesticide, surfactant, and adjuvant labels and MSDS's which provide information potential for movement and toxicity. The PCA recommendations consider site specific information such as vegetation present on site, targeted species, restrictions on chemical use, current and forecasted weather, soil types,

topography, and the presence of threatened or endangered species. These recommendations also evaluate proximity to schools, apiaries, neighbors, domestic water systems, presence of wetlands, watercourses, amphibians, and fish. If necessary these recommendations will include mitigations to reduce the impacts to apiaries, humans, and/or biological resources. Mitigation examples include but are not limited to drift control measures, buffers, avoidance, weather restrictions, and timing.

Specific pesticide use depends on the nature of the vegetation and site conditions and may change based on availability from the manufacturer, registration status, feasible treatment alternatives and the recommendations of the PCA. Active ingredients in pesticides used historically on Mountain Home included, 2-4D, Asulam and possibly other products. There have been no herbicide applications in the last decade at the forest (Frank Spandler, personal communication). Future applications may consider the use of glyphosate, imazapyr or triclopyr. New products, formulations, and application techniques may provide better control and improved environmental toxicology profiles.

Information on some of the more common herbicides proposed for use are included below. These summaries are not intended to be exhaustive reviews of the herbicides that may be used on Mountain Home. Other pesticides may also be used on the Forest. The summaries below include an introduction to the respective products and a summary of some attributes.

The California Environmental Protection Agency, Department of Pesticide Regulation, maintains a web site with information (www.cdpr.ca.gov/docs/label/m4.htm) as does the National Pesticide Information Center (http://npic.orst.edu/) and the Extension Toxicology Network (http://extoxnet.orst.edu/). The UDSA Forest Service has technical risk assessments at http://www.fs.fed.us/foresthealth/pesticide/risk.shtml.

Glyphosate is widely used as the proprietary product Roundup®. There are now other glyphosate formulations registered for use in California including labels for aquatic use and formulations with different adjutants. Glyphosate is used to control grasses, herbaceous plants including deep-rooted perennial weeds, brush, and some broadleaf trees and shrubs. Timing of application is critical for effectiveness on some broadleaf woody plants and conifers. It is applied to foliage and rapidly moves through the plant. It acts by preventing the plant from producing an essential amino acid. It also may be used as a cut stump, injection, or frill application directed to the cambium. The potential for leaching into groundwater is low as it is strongly adsorbed by soil particles. The half-life in water is 7 days. The half-life of glyphosate in soil can range from 2 to 174 days. The surfactant in Roundup® has a soil half-life of less than one week. It does not evaporate easily. Roundup® has no known effect on soil microorganisms (SERA 2003a).

Glyphosate's aquatic toxicity varies with the formulation. Accord® and Rodeo® are rated respectively as slightly toxic to practically nontoxic for aquatic organisms. Roundup® Pro is slightly toxic to aquatic invertebrates and moderately toxic to fish. Neither formulation bioaccumulates in fish. SERA (2003) summarized studies that showed with regard to pH, the toxicity of glyphosate decreases and the toxicity of the surfactant increases with increasing pH. It also noted two studies indicate that POEA (a component of surfactant additive of Roundup) is substantially more toxic than glyphosate and that POEA surfactant is the primary toxic agent of concern for fish (SERA 1997). The aquatic Rodeo® formulation does not contain surfactant. Glyphosate is practically non-toxic to birds, mammals and bees.

Glyphosate was a slight eye irritant in Category III (Table 1 Eye Irritation). Glyphosate dermal rating is essentially non-irritating, Category IV (Table 1). Inhalation test results placed it in practically non-toxic, Category IV. For acute oral ingestion the results were practically non-toxic, Category IV. The EPA has concluded that glyphosate should be classified as a compound with evidence of non-carcinogenicity for humans. Based on the results of animal studies, glyphosate does not cause genetic damage or birth defects, and has little or no effect on fertility, reproduction, or development of offspring.

Glyphosate's widespread use worldwide has resulted in more data available on deliberate or accidental human exposures than the other compounds discussed here. Most short-term incidents in humans have involved skin or eye irritation or nausea and dizziness in workers after exposure during mixing, loading, or application. Swallowing the Roundup® formulation caused mouth and throat irritation, stomach pain, vomiting, low blood pressure and in some cases, death. These effects have occurred when the concentrate was accidentally or intentionally swallowed in amounts averaging about half a cup and not as a result of the proper use of Roundup® (SERA, 2003a).

The EPA approved labels for Roundup® Pro, Accord® and Rodeo® all carry the signal word CAUTION. The precautionary statements vary slightly by product. They include: "Hazard to Humans and Domestic Animals. Causes Eye Irritation. Harmful if Inhaled".

Imazapyr is sold under several trade names including Chopper and Habitat in California. This product can be applied by air, but primarily is applied by low-volume hand-held spray equipment as a foliar, basal stem treatment, cut stump treatment, tree injection, or frill. It controls plant growth by preventing the synthesis of amino acids. Action is slower than some other herbicides and can take several months or longer. Imazapyr can remain active in the soil for 6 months to 2 years. It is strongly adsorbed in soil and usually found only in the top few inches. Imazapyr is degraded in soils primarily by microbial action. It is soluble in water. It has a low potential for leaching into ground water. Like other herbicides the potential for movement into streams via stormflow can be reduced by utilizing a no-application streamside management zone. The half-life of imazapyr in water is about 4 days (SERA 1999b).

Imazapyr is practically nontoxic to fish and invertebrates (Table 1, Ecotoxicological Categories). EPA has approved an aquatic label in some states. Imazapyr is not expected to accumulate or build up in aquatic animals (I.V. 1995). Imazapyr is considered practically non-toxic to mammals and birds (Category IV, Table 1). Its toxicity to bees is believed to be similar to mammals. Risk to non-target plants may be slightly higher than other herbicides because of its soil activity.

Imazapyr has been tested to be not irritating to eyes (Category IV, Table 1). Skin tests showed that it was moderately irritating, Category III. Acute oral ingestion test results placed it in Category IV. Lab studies with Imazapyr in rats indicated no evidence of teratology and tests were negative for mutagenicity.

The EPA approved labels for Chopper® or Arsenal® both carry the signal word CAUTION. The precautionary statements vary slightly by product. Chopper's label includes the most precautions including: "Hazard to Humans and Domestic Animals. Harmful if inhaled or absorbed though skin. Avoid breathing spray mist. Avoid contact with skin, eyes or clothing. Prolonged or frequent repeated skin contact may cause allergic reactions in some individuals".

Triclopyr is known commercially in forestry applications primarily in two forms; the triethylamine salt (Garlon® 3A) and the butoxyethyl ester (Garlon® 4). There are almost 40 other triclopyr-containing products that are labeled for use in California, many of which are marketed for turf, but some also list forestry uses as well. It is used to control woody plants and broadleaf weeds on rights-of-way, non-crop areas, forests, wildlife openings, and other areas. Triclopyr is applied by ground or aerial foliage spray, basal bark and stem treatment, cut surface treatment, and tree injection. Triclopyr acts by disturbing plant growth. Triclopyr's solubility in water is moderate to low. Sunlight rapidly breaks down triclopyr in water. The half-life in water is less than 24 hours. The potential for leaching depends on the soil type, acidity and rainfall conditions. Triclopyr should not be a leaching problem under normal conditions since it binds to clay and organic matter in soil. The ester formulation has lower water solubility and higher affinity for soils. Microorganisms degrade triclopyr rapidly; the average half-life in soil is 46 days. Triclopyr is slightly toxic to practically non-toxic to soil microorganisms.

Triclopyr varies in toxicity depending on the formulation. The ester form of triclopyr, found in Garlon® 4, is considerably more toxic to salmonids than Garlon® 3A. For Garlon® 4 the test results rate it highly toxic for aquatic organisms (Table 1, Ecotoxicological Categories). Under normal conditions in water, Garlon® 4 rapidly breaks down to a less toxic form. Garlon® 3A is slightly toxic to aquatic invertebrates and practically non-toxic to fish (Table 1). Triclopyr does not accumulate in fish. Garlon 3A and Garlon 4 have been specifically tested for malformations in the frog embryo teratogenesis assay and no statistically significant effects were noted. Amphibian toxicity appears to be similar to that of fish (Berrell et al. 1994). Triclopyr is slightly toxic to birds (Table 1). Triclopyr is moderately to slightly toxic to mammals. In mammals, most triclopyr is excreted, unchanged, in the urine. Triclopyr is nontoxic to bees (SERA, 2003b.)

The toxicology also varies by formulation for eye and skin tests. Garlon® 4 tests resulted in a rating as a slight eye irritant, Toxicity Category III, (Table 1, Eye irritation) and the dermal results were Toxicity Category III, (Table 1, Dermal). Garlon® 3A is classified as a severe eye irritant (Category I) and a skin irritant (Category IV). California Department of Pesticide Regulation notes it may cause a skin sensitization reaction. For both formulations one-hour inhalation the laboratory test resulted in a rating of Toxicity Category III, (Table 1, Inhalation). For both formulations the acute oral rating was Toxicity Category III, (Table 1, Oral). Based on the results of animal studies, triclopyr does not cause birth defects and has little or no effect on fertility, or reproduction. Triclopyr is mildly fetotoxic. The majority of the studies of carcinogenicity and mutagenicity were negative. However two studies provide conflicting information about tumors. The EPA has classified Triclopyr as a Group D chemical, not classifiable as to human carcinogenicity. The label notes that “If the material is handled in accordance with proper industrial handling, exposures should not pose a carcinogenic risk to man.”

The EPA approved labels for the two Triclopyr products differ. Garlon® 4 carries the signal word CAUTION. The precautionary statements for this ester formulation include: “Hazards to Humans and Domestic Animals. Harmful if Swallowed, Inhaled or Absorbed Through Skin. Avoid Contact With Eyes, Skin, or Clothing. Avoid Breathing Spray Mists or Vapors. Avoid Contaminating Food.” Garlon® 3A carries a higher level of concern signal word, WARNING. Its precautionary statements include: “Hazards to Humans and Domestic Animals. Corrosive. Causes Irreversible Eye Damage. Harmful if Swallowed or Absorbed Though Skin. Prolonged or Frequently Repeated Skin Contact May Cause Allergic Reaction in Some Individuals.”

The Tulare County Agricultural Commissioner has responsibility for compliance and enforcement actions, registration of businesses that perform pest control in Tulare County, issuing Restricted Materials Permits and Operator identification numbers and other regulatory responsibilities. The Regional Water Quality Control Board does not require notification for herbicide application that is applied in accordance to the product labels.

When pesticides are used on individual projects conducted under the guidance of this Management Plan, Mountain Home will review the recommended pesticides, surfactants, and adjuvants intended use and the possible environmental effects of each. Mountain Home will work with the PCA to determine whether the proposed use would be consistent with the label and the registration limitations.

Details of pesticide, surfactant and adjuvant chemistry, including mode of action and break down products as well as manufactures formulations are evaluated in depth by Environmental Protection Agency and the Department of Pesticide Regulation (DPR) during both the registration process and periodic reviews. In addition to the label and MSDS the following source should be reviewed for information relevant to the project; National Pesticide Information Center http://npic.orst.edu/ .

Mountain Home will also research significant new information showing changes in circumstances or available information that would require new environmental analysis. Significant new

information will be referred to DPR for that department's analysis as part of its ongoing evaluation program.

Accidental spills can be minimized, avoided or controlled, by adherence to the PCA's recommendation, and instructions on the product label. Additionally when pesticides are used on Mountain Home all pesticide containers must be secured when transported and all empty containers must be triple rinsed and disposed of properly off-site, with rinse water being put into the mixing tank. Any pesticide work conducted by contractors shall be closely monitored by Mountain Home staff. When pesticides are handled and applied according to the product label instruction, PCA recommendations, and the MSDS, significant adverse impacts to people, wildlife, water resources and the environment are not anticipated. The measures described above will insure that no significant adverse environmental or human health occurs as a result of pesticide application.

Cumulative impacts are unlikely because pesticide uses related to different control projects are separated in time and distance so that their individual effects do not reinforce or interact with each other. Pesticide use under the plan is neither widespread nor frequent. Pesticide may be used for demonstration, research and for the establishment, survival and improved growth of forest stands. Forestry pesticide uses are substantially less, in both frequency and amount, than in agricultural or urban settings.

Other pesticides, including rodenticides and fungicides, will not be routinely used. Because bark beetle infestations can be serious in this region, there may be limited use of pheromones (attractants and repellants) which are classified as insecticides. As part of measures to minimize the effects of root diseases, a borax compound (Soprax) may be used on stump surfaces. Any future use for these purposes would be carefully evaluated in Pest Control Recommendations and associated CEQA documents. There may be future proposals to treat the algae blooms that degrade fish habitat in ponds at Mountain Home. Any proposal for pond treatment shall be evaluated appropriately for both aquatic and terrestrial impacts and comply with appropriate water quality standards and the policies and regulations noted above.

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Adherence to the mitigation measures discussed above reduces the probability of any potential impacts from the use, transport, and storage of hazardous materials to less than significant.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?

Adherence to the mitigation measures discussed above reduces the probability of any potential impacts from the use, transport, and storage of hazardous materials to less than significant.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. The nearest school is located approximately 6.5 miles away in Springville. Impacts are less than significant.

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Mountain Home is not on any list of hazardous material sites. The project will have no impacts

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

Mountain Home is not located within two miles of an airport. The project will have no impacts

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

Mountain Home is not located within the vicinity of a private airstrip. The project will have no impacts

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Timber operations have the potential to temporarily block roads with downed timber. The Forest Practice Rules (14 CCR 938.3) requires all logging roads remain passable during fire season for fire truck travel. To maintain compliance with 14 CCR 938.3, in the event that timber will block emergency response equipment, all timber operators are required to have equipment available on site to open the road immediately for emergency response equipment and to permit public access to and from Mountain Home. Impacts will be less than significant.

h) Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The forest is surrounded by the Sequoia National Monument, and a few neighboring private landowners to the west. The chance of the project exposing people or structures to a significant risk of loss, injury, or death involving wildland fires, is therefore very low. Several management activities have varying levels of risk to cause a wildfire. These activities are timber operations, road maintenance, campgrounds, and prescribed burning.

The Public Resources Code regulates all timber operations, road construction and maintenance, and site preparation activities conducted during the fire season. These activities are required to have appropriate fire suppression equipment on sight and maintained in a serviceable condition to aide in the suppression and control of any fires caused by the operations.

Campfires are only permitted in designated campsites and the campers are required to register thereby informing them of the rules on the State Forest. Additionally the campgrounds are maintained in a manner to lessen the potential of fire escape. Accumulation of dead vegetation is removed, trees pruned, and the fire rings are maintained.

In order to reduce the risk of wildfire, Mountain Home has plans to create shaded fuel breaks along the heavily used roads and a fuels reduction program throughout the forest. The primary methods of fuels reduction is through timber harvest and prescribed burning. All prescribed burning is conducted under specific meteorological conditions with the appropriate number of CAL FIRE personnel and equipment to maintain control. Impacts will be less than significant.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. Hydrology and Water Quality. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion

Soil erosion and resultant sediment delivery to watercourses has the highest potential to degrade water quality on Mountain Home. Forest roads, campgrounds, prescribed burning, recreational trails and timber harvest activities are the primary sources of soil erosion caused by Mountain Home management activities and users. Research conducted in the central Sierra Nevada has shown that, other than intense wildfire, forest roads generally produce the most

impacts from sediment on water quality (MacDonald et al. 2004). In the southern Sierra Nevada, native and mixed surface roads were reported to produce more sediment than gravel surfaced roads (Korte and MacDoald 2007). Newer roads or roads upgraded to current Forest Service and State Forest Practice Rule standards have been found to perform better than older roads (Coe 2006, Cafferata et al. 2007).

Harvest units in the Sierra Nevada generally do not adversely impact water quality (Litschert and MacDonald in press). Litschert and MacDonald reported that timber harvest alone rarely initiated large amounts of runoff and surface erosion, particularly when newer harvest practices were utilized. Research conducted on prescribed burning in the Sierra Nevada has shown that the best strategy from a soil erosion and water quality perspective is to use fuel reduction treatments, such as prescribed fire and/or mechanical harvest, to lower wildfire potential (Miller et al. 2006). Stephens et al. (2005) reported that prescribed fire in the Lake Tahoe basin had no effect on soluble reactive phosphate and only minimal effects on nitrate in stream-waters. MacDonald et al. (2004) reported that prescribed fire produced sediment yields that were approximately the same as those produced without disturbance.

a) Would the project violate any water quality standards or waste discharge requirements?

Regional Water Quality Control Boards set standards for water quality and waste discharge. The water quality control plan for the Tulare Lake Basin (California Regional Water Quality Control Board Central Valley Region 2004) sets the following standards for the area including Mountain Home:

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits:

Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU. Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent. Where natural turbidity is equal to or between 50 and 100 NTUs, increases shall not exceed 10 NTUs. Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.

Projects that could potentially result in violations of water quality standards or waste discharge requirements include, but are not limited to, the following:

Timber Harvesting Plans (THPs)

THPs, particularly those that include timber operations on steep ground, are in close proximity to watercourses, involve new road construction, include winter operation plans, or site preparation, could result in accelerated down-slope soil movement that could deliver to watercourses. All THPs at Mountain Home are designed to include Best Management Practices (BMPs) and comply with the California Forest Practice Rules (FPRs), Regional Water Quality Control Board (RWQCB) waivers of waste discharge, Department of Fish and Game (DFG) Stream Alteration Agreements (1600) and the Mountain Home Management Plan. THPs are subject to review by an interagency Review Team (RT) that is generally comprised of representatives from DFG, RWQCB, California Geological Survey (CGS), and the California Department of Forestry and Fire Protection (CAL FIRE), lead agency for CEQA analysis. Once THPs have been reviewed by the RT, recommendations are made and changes to the THP are performed resulting in a document that, once approved, has been determined to have a *less than significant* impact on water quality standards and waste discharge requirements.

Forest Roads

There are 31.6 miles of forest roads that make up almost 50 acres of the land base at Mountain Home. Unmaintained roads or roads that lack adequate drainage facilities can be a significant source of erosion and sediment delivery (Coe 2006). Approximately 10 miles of road are surfaced by means of rock, pavement or oil. The remaining roads manifest a native soil running surface. Many of these unsurfaced roads remain closed to public use while the Forest is seasonally open. Tulare County closes both roads that access Mountain Home during the winter period, which prevents road damage during periods of saturated soil conditions as defined in FPR 14 CCR §895.1. Routine annual inspections of road crossings and other drainage structures (waterbars, rolling dips, ditches and cross drains) identifies potential drainage and erosion issues. Hand crews from Mountain Home Conservation Camp (MHCC) are then tasked with cleaning culvert inlets, correcting ditch diversions, installing waterbars and placing energy dissipaters at those locations identified during the annual inspection. CAL FIRE HFEOs perform road surface grading, drainage realignment, and rolling dip construction as determined by the annual inspection and Forest Manager. Culverts are currently used for the majority of the road watercourse crossings found at Mountain Home. As these structures eventually succumb to time and the elements, they will either be replaced with maintenance free structures, such as rocked or vented fords, or have new culverts installed that are sized for 100 year storm events (Cafferata et al. 2004). These management strategies and site specific mitigation measures, when properly implemented, will result in impacts to water quality standards and waste discharge requirements that will be *less than significant.*

Road dust impacts to water quality are negligible on Mountain Home. We plan to harvest a relatively modest amount of timber annually in keeping with our legal mandate (Public Resources Code section). Planned harvest will be at most 3,800 MBF of timber per year, a low management intensity compared to other managed timber lands. Roads will be treated to control dust during periods of peak recreational and operational use.

Campgrounds

Campgrounds are a potential source of erosion and sediment delivery. There are currently 92 campsites in the five campgrounds located at Mountain Home, as well as the Methuselah group campground. The construction of up to ten additional campsites are reasonably foreseeable in the Shake Camp area to permit equestrian user camping. Use of Mountain Home campgrounds results in forest duff being raked away from campfire and cooking areas to prevent wildfire. Human trampling and vehicles keep the roads and parking areas compacted, thus slowing permeability and increasing surface runoff. Management strategies that reduce the effects of erosion and subsequent delivery of sediment to watercourses include the maintenance of natural vegetation filters in and adjacent to watercourses, maintenance of forest duff adjacent to watercourses, and rock surfacing of roads and parking areas that access the campgrounds. Bumpers and barricades that prohibit vehicular access to sensitive areas are strategically placed throughout the forest, particularly in the campgrounds and day use areas. These management strategies and site specific mitigation measures, when properly implemented, will result in impacts to water quality standards and waste discharge requirements that will be *less than significant.*

Trails

There are approximately 14 miles of recreational trails make up approximately 4.25 acres of the Mountain Home land base. These trails are a potential source of erosion and sediment delivery into watercourses. Over time, years of use have resulted in the trails taking on a trough shape that effectively intercepts and collects surface flows, transporting storm waters and sediment towards watercourses. The trails are routinely inspected for safety hazards and active erosion areas that have potential to deliver to watercourses. The erosion areas are identified and flagged in the field and MHCC crews are then tasked to install waterbars, energy dissipaters, and re-grade trails to drain into forest litter away from watercourses. These management strategies and site specific mitigation measures, when properly implemented, will result in

impacts to water quality standards and waste discharge requirements that will be *less than significant.*

Prescribed Fire

Prescribed fire is utilized at Mountain Home to accomplish a number of management objectives. It is used to reduce forest fuels, prepare seed beds, and provide heat to open giant sequoia cones, among other things. Prescribed fire can create a potential source of erosion and subsequent sediment delivery into watercourses, particularly when prescribed burns escape planned containment and produce catastrophic wildfires. This can occur as a result of the loss of forest duff and vegetative matter, as well as through the creation of hydrophobic soil. Typically, control burns at Mountain Home are done under a burn plan with tight prescriptions for air temperature, relative humidity, and wind speed, and they planned away from watercourses where the potential for these types of soil disturbance is minimized. Burn plans are developed by the Forest Manager in cooperation with the Unit pre-fire engineer. However, it is reasonably foreseeable that a research project to study the effects of fire inside the standard width of a watercourse protection zone (14 CCR §956.5) could be performed within the next 10 years. However, such a project would be subject to its own CEQA analysis, as it is outside the scope of general management activities that take place at Mountain Home. These management strategies and site specific management practices, when properly implemented, will result in impacts to water quality standards and waste discharge requirements that will be *less than significant.*

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

The campgrounds at Mountain Home, as well as the pack station, “the house that Jack built”, the public corrals, and the Forest Administration buildings are equipped with potable water. Two “fire fill” stations are also supplied by these systems. These waters originate from a series of four shallow horizontal wells and one spring that feed water tanks ranging from 1,000 to 15,000 gallons. Shallow horizontal wells, like springs, bring water to the surface by gravity flow. Consequently, overdraft is commonly not a problem with shallow horizontal wells. They function very similarly to springs. The advantage of horizontal wells over springs is the reduce risk of contamination of potable water sources at the surface. The tanks provide head pressure and all facilities are then supplied via gravity. All water that is used at Mountain Home essentially remains in a closed system. That is, it does not leave the Forest but rather, is returned back to the ground and becomes soil water which is used by the trees and other vegetation in the forest, in the same manner as the undiverted water from springs flowing onto the forest floor. The nearest well that could be impacted from Mountain Homes use of these systems is located over 1 mile from the Mountain Home well. There is a major granite batholith between Mountain Home and the neighboring well that greatly reduces the probability that the wells are located in the same aquifer. Furthermore, the water source for the Mountain Home well is a small spring that occurs adjacent to the well. Since the water that is used at Mountain Home remains in a closed system and the nearest neighboring well is likely located in a different aquifer, it is concluded that any project proposed at Mountain Home that impacts groundwater is *less than significant.*

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?

Road construction, road maintenance, installation of erosion control structures, installation and repair of watercourse crossings, and construction of temporary or permanent impoundments have the potential to alter the existing drainage patterns and cause substantial on or off site erosion.

Roads, Crossings and Drainage Facilities

There are 31.6 miles of forest roads that make up almost 50 acres of the land base at Mountain Home. Unmaintained roads or roads that lack adequate drainage facilities can be a significant source of erosion and sediment delivery (Coe 2006). Approximately 10 miles of road are surfaced by means of rock, pavement or oil. The remaining roads manifest a native soil running surface. Many of these unsurfaced roads remain closed to public use while the Forest is seasonally open. Tulare County closes both roads that access Mountain Home during the winter period, which prevents road damage during periods of saturated soil conditions as defined in FPR 14 CCR §895.1. Routine annual inspections of road crossings and other drainage structures (waterbars, rolling dips, ditches and cross drains) identifies potential drainage and erosion issues. Hand crews from Mountain Home Conservation Camp (MHCC) are then tasked with cleaning culvert inlets, correcting ditch diversions, installing waterbars and placing energy dissipaters at those locations identified during the annual inspection. CAL FIRE HFEOs perform road surface grading, drainage realignment and rolling dip construction as determined by the annual inspection and Forest Manager. Culverts are currently used for the majority of the road watercourse crossings found at Mountain Home. As these structures eventually succumb to time and the elements, they will either be replaced with maintenance free structures such as rocked or vented fords, or have new culverts installed that are sized for 100 year storm events (Cafferata et al. 2004). These management strategies and site specific management practices, when properly implemented, will result in impacts that do not substantially alter the existing drainage pattern of a site or area, do not alter the course of a stream or river, or result in substantial on- or off-site erosion or siltation. It is so determined that any such project that is planned and implemented at Mountain Home will be *less than significant.*

Impoundments

Impoundment of a natural watercourse could be deemed necessary to provide for wildlife habitat, fisheries, erosion control and/or fire suppression. However, this is not a reasonably foreseeable project. Any project of this type would be outside of the scope of the management activities of the Mountain Home Management Plan and would therefore be subject to its own CEQA analysis. An impoundment project would have to be permitted, at a minimum, through the DFG Stream Alteration Agreement process (1600) and would likely require engineering and geologic studies as well. Any such impoundment project would be planned to drain into the respective watercourse once the impoundment was at capacity. This would result in natural drainage patterns remaining unchanged both above and below the impoundment. Considering that the impoundment of a natural watercourse would not necessarily alter the existing drainage pattern of the site or area, or alter the course of a stream or river in a manner which would result in substantial on- or off-site erosion or siltation, it is determined that such an impact would be *less than significant.*

d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?

Road construction, road maintenance, installation of erosion control structures, installation and repair of watercourse crossings, and construction of temporary or permanent impoundments have the potential to alter the existing drainage patterns and cause substantial on- or off-site flooding.

Roads, Crossings & Drainage Facilities

There are 31.6 miles of forest roads that make up almost 50 acres of the land base at Mountain Home. Unmaintained roads or roads that lack adequate drainage facilities can be a significant source of erosion and sediment delivery (Coe 2006). Approximately 10 miles of road are surfaced by means of rock, pavement or oil. The remaining roads manifest a native soil running surface. Many of these unsurfaced roads remain closed to public use while the Forest is seasonally open. Tulare County closes both roads that access Mountain Home during the winter period which prevents road damage during periods of saturated soil conditions as defined in FPR 14 CCR §895.1. Routine annual inspections of road crossings and other drainage structures (waterbars, rolling dips, ditches and cross drains) identifies potential drainage and erosion issues. Hand crews from Mountain Home Conservation Camp (MHCC)are then tasked with cleaning culvert inlets, correcting ditch diversions, installing waterbars and placing energy dissipaters at those locations identified during the annual inspection. CAL FIRE HFEOs perform road surface grading, drainage realignment and rolling dip construction as determined by the annual inspection and Forest Manager. Culverts are currently used for the majority of the road watercourse crossings found at Mountain Home. As these structures eventually succumb to time and the elements, they will either be replaced with maintenance free structures such as rocked or vented fords, or have new culverts installed that are sized for 100 year storm events (Cafferata et al. 2004). These management strategies and site specific mitigation measures, when properly implemented, will result in impacts that do not substantially alter the existing drainage pattern of a site or area, do not alter the course of a stream or river, or result in substantial on- or off-site flooding. It is so determined that any such project that is planned and implemented at Mountain Home will be *less than significant.*

Impoundments

Impoundment of a natural watercourse could be deemed necessary to provide for wildlife habitat, fisheries, erosion control and/or fire suppression. However, this is not a reasonably foreseeable project. Any project of this type would be outside of the scope of the management activities of the Mountain Home Management Plan and would therefore be subject to its own CEQA analysis. An impoundment project would have to be permitted, at a minimum, through the DFG Stream Alteration Agreement process (1600) and would likely require engineering and geologic studies as well. These separate studies and environmental analyses account for seismic activity, soil stability, peak flows, and other potential stressors that may result in an impoundment failure. Should the analysis determine that there is a significant risk of failure, the project would not be implemented, thus eliminating the risk of flooding. Any such impoundment project would be planned to drain into the respective watercourse once the impoundment is at capacity. This would result in natural drainage patterns remaining unchanged both above and below the impoundment. Considering that the impoundment of a natural watercourse would not necessarily alter the existing drainage pattern of the site or area, or alter the course of a stream or river in a manner which would result in substantial on- or off-flooding, it is determined that such an impact would be *less than significant.*

e) Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

There are no stormwater drainage systems located on or down stream of Mountain Home. Therefore, it is concluded that any project proposed at Mountain Home would not contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff and will have *no impact* .

f) Would the project otherwise substantially degrade water quality?

Projects at Mountain Home that have the potential to substantially degrade water quality include timber marking, timber harvesting, road construction and maintenance, recreational and managerial driving, camping, equestrian use, prescribed burning and herbicide applications. Off-road vehicle use is restricted to public roads and designated trails where impacts on water quality is negligible.

Timber Marking

Timber marking involves the use of petroleum based products to designate trees for harvest or retention. These products have the potential to degrade water quality should they enter into a watercourse. Timber marking that takes place at Mountain Home is done with self contained aerosol paint, so there is no threat of accidental spillage into a watercourse. In the event that non-aerosol paint is used, the Forest Manager shall instruct the crew to stay at least 50 feet from a watercourse when they are filling their paint guns. All timber marking that occurs at Mountain Home is conducted under the supervision and direction of the Forest Manager, so any potential to substantially degrade water quality is determined to be *less than significant*.

Timber Harvesting

Timber harvesting involves the use of petroleum products for combustion and lubrication purposes. These products have the potential to degrade water quality should they enter into a watercourse. THPs are designed to restrict fueling and servicing of equipment in landings or other areas located away from watercourses. All timber harvest projects implemented at Mountain Home are regularly inspected to ensure compliance with both the THP and the Timber Sale Contract. It is therefore concluded that timber harvest projects conducted at Mountain Home that could substantially degrade water quality will have a *less than significant impact*.

Road Construction and Maintenance

Road construction and maintenance involves the use petroleum products for combustion and lubrication purposes. These products have the potential to degrade water quality should they enter into a watercourse. Road construction projects shall only take place in accordance with an approved THP, so it will be subject to review and inspection as outlined above. Road maintenance work that occurs outside of a THP, is done by Department HFEOs under the supervision and direction of the Forest Manager. They shall be directed to fuel and service heavy equipment in landings or other areas located away from watercourses.

Dust abatement activities that occasionally occur at Mountain Home, particularly during log hauling, involves the use of water. No chemical treatments are anticipated nor are they anticipated. Road surfacing with tack oil has been done historically at Mountain Home, as it provides for a dust-free, wet weather road. It is anticipated that this practice will continue during future timber sales. When roads are scheduled for oil surfacing, they are closed to public use for a period of 2 to 5 days to prevent damage to the new surface while it cures. Treatment done in close proximity to a watercourse where it has the potential to deliver, shall be done under the direct supervision of the Forest Manager to ensure that the oil does not creep into the watercourse. Shovels and absorbent materials shall be on-site to prevent any accidental spillage or down-slope movement of the surfacing oil. Once this product cures it does not move off site.

All road construction and maintenance projects implemented at Mountain Home are regularly inspected to ensure compliance with either a THP or the forest management plan. It is therefore concluded that road construction and maintenance projects conducted at Mountain Home that could substantially degrade water quality will have a *less than significant impact*.

Recreational and Managerial Driving

Driving on Mountain Home roads has the potential to degrade water quality. The potential impacts stem from leaking fluid reservoirs, hoses and lines that supply various fluids to

operational components of the vehicles. It may also occur as the result of a traffic accident that ruptures a reservoir, hose or line. Accidents at Mountain Home are uncommon and leaky fluid occurrences are rare. All CAL FIRE vehicles are inspected and serviced regularly. Leaky vehicles belonging to the visitors of Mountain Home cannot feasibly be mitigated. Due to the rarity of occurrence and limited volumes of fluid being accidentally spilled, it is determined that driving motor vehicles on forest roads cannot substantially degrade water quality and any potential impact is *less than significant*.

Camping

Camping use has the potential to degrade water quality. The potential impacts associated with camping include laundering of clothing, dish washing, deposition of food stuffs, deposition of human wastes, detergents and potentially hazardous materials such as batteries, cooking fuel, and oil, into natural water bodies that provide aquatic habitat for fish and non-fish species. Copies of the State Forest Rules are posted at each toilet throughout the Mountain Home. These rules include the following section: 14 CCR §1422- POLLUTING WATERS. Allowing any substance into Forest waters that is harmful to fish or aquatic plants (includes bathing) is prohibited. Violations of State Forest Rules are misdemeanor offenses and punishable by up to a $1,000.00 fine. Furthermore, Mountain Home staff conduct weekend patrols of the campgrounds to inform users of the rules and enforce them as needed. Based on observed violations and camper behavior, it is determined that camping at Mountain Home does not substantially degrade water quality and any potential impact is *less than significant*.

Equestrian Use

Equestrian use at Mountain Home has the potential to degrade water quality. The potential impact associated with equestrian use is the deposition of feces directly into a watercourse. However, this is a natural, non-toxic substance and those streams in Mountain Home where trails are located do not provide domestic water. It is therefore determined that equestrian use at Mountain Home does not substantially degrade water quality and impact to water quality as a result of equestrian use is *less than significant.*

Prescribed Burning

Prescribed burning has the potential to degrade water quality. The potential impacts associated with prescribed burning include the accidental deposition of burn fuel and the down-slope movement of forest resins and by-products into a watercourse. The accidental deposition of burn fuel can occur when drip-torches are refueled, if the containers used for transporting fuel are leaking, or if refueling is done carelessly and subsequently spilled. These potential threats are exacerbated if burning is done while it is raining. The movement of forest resins and by-products can occur if a burn is conducted too close to a watercourse. Heavy rains can cause ash and resins to become displaced and eventually deliver to a watercourse. Typically, control burns at Mountain Home are planned away from watercourses where the potential for potentially degrading materials cannot feasibly enter a watercourse. All fueling of drip torches and vehicles used to transport fuel shall be done away from watercourses. All burning at Mountain Home is done under the supervision of the Forest Manager in compliance with an approved burn plan. Burn plans are developed by the Forest Manager in cooperation with the Unit pre-fire engineer. However, it is reasonably foreseeable that a research project to study the effects of fire inside the standard width of a watercourse protection zone (14 CCR §956.5) could be performed within the next 10 years. However, such a project would be subject to its own CEQA analysis as it is outside the scope of general management activities that take place at Mountain Home. These management strategies and site specific mitigation measures, when properly implemented, will result in impacts that will not substantially degrade water quality and will be *less than significant.*

Fire Fighting

Ammonium-based fire retardants are important in managing wildfires, but their use can adversely affect water quality (Norris and Webb 1989). Direct application to the stream surface

is most likely to cause fish mortality. Applications in the riparian zone mayaffect water quality, but not to the point of causing major toxic effects. Potential impacts on downstream eutrophication need to be considered (Norris and Webb 1989). To reduce impacts, it is important to identify stream sections that need to be protected, and to develop retardant application plans to minimize adverse effects on streams (Norris and Webb 1989).

The use of fire retardants involve a tradeoff between possible direct impacts of retardant on watercourses versus the beneficial effect of retardants in terms of arresting wildfire progress and preventing erosion and siltation effects of uncontrolled wildfires. CAL FIRE has adopted firefighting practices that minimize the probability of fire retardant drift into watercourses. To the extent feasible, firefighters will consult with meteorologists, Forest staff and resource experts on firefighting tactics that will minimize impacts on watercourses. Impacts are expected to be less than significant.

g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No reasonably foreseeable projects are anticipated that would place housing within a 100-year flood hazard area nor is there suitable ground at Mountain Home where such housing could be done. It is therefore determined that management of Mountain Home will have *no impact* on housing within a 100-year flood plain.

h) Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows?

The construction of an impoundment to provide for wildlife habitat, fisheries, erosion control and/or fire suppression would have the potential to impede or redirect 100-year flood flows. However, this is not a reasonably foreseeable project. Any project of this type would be outside of the scope of the management activities of the Mountain Home Management Plan and would therefore be subject to its own CEQA analysis. An impoundment project would have to be permitted, at a minimum, through the DFG Stream Alteration Agreement process (1600) and would likely require engineering and geologic studies as well. These separate studies and environmental analyses account for seismic activity, soil stability, flood flows, and other potential stressors that may result in an impoundment failure. Should the analysis determine that there is a significant risk of failure, the project would not be implemented, thus eliminating the risk of flooding. Any such impoundment project would be planned to drain into the respective watercourse once the impoundment is at capacity. This would result in natural drainage patterns remaining unchanged both above and below the impoundment. Considering that the impoundment of a natural watercourse would not necessarily result in impeding or redirecting a 100-year flood flow, it is determined that such an impact would be *less than significant.*

i) Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

The construction of an impoundment to provide for wildlife habitat, fisheries, erosion control and/or fire suppression would have the potential to expose people of structures to a significant risk of loss, injury, or death, including flooding as a result of a dam failure. However, this is not a reasonably foreseeable project. Any project of this type would be outside of the scope of the management activities of the Mountain Home Management Plan and would therefore be subject to its own CEQA analysis. An impoundment project would have to be permitted, at a minimum, through the DFG Stream Alteration Agreement process (1600) and would likely require engineering and geologic studies as well. These separate studies and environmental analyses

account for seismic activity, soil stability, flood flows, and other potential stressors that may result in an impoundment failure. Should the analysis determine that there is a significant risk of failure, the project would not be implemented, thus eliminating the risk of flooding or loss to people or property. Any such impoundment project would be planned to drain into the respective watercourse once the impoundment is at capacity. This would result in natural drainage patterns remaining unchanged both above and below the impoundment. Considering that the impoundment of a natural watercourse would not necessarily result in significant loss, injury or death involving flooding as a result of a dam failure, it is determined that such an impact would be *less than significant.*

j) Would the project result in inundation by seiche, tsunami, or mudflow?

The Mountain Home area is located at an elevation ranging from 4,800 to 7,600 feet. It is further located on the west slope of the Sierra Nevada Mountain Range east of the Central Valley. Any projects proposed at Mountain Home will have *no impact* regarding inundation by seiche, tsunami, or mudflow.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. Land Use and Planning. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

a) Would the project physically divide an established community?

The project will not divide an established community. The nearest community to Mountain Home is Camp Nelson, located seven miles southeast of the forest. The project will have no impact.

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Mountain Home is pubic land and is zoned TPZ. The project is compatible with the zoning and is required pursuant to Public Resources Code (PRC) §4645 and Article 8 of the California Board of Forestry and Fire Protection (Board) policy. The Board also establishes policy, which governs Mountain Home. Board policy states that the primary purpose of the state forest program is to conduct innovative demonstrations, experiments, and education in forest management. The project will provide guidance to Mountain Home staff and the policies of the Board are met by many of the management practices described within. The project will have no impact.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

Most of the forestlands adjacent to Mountain Home, are managed by the Giant Sequoia National Monument and Sequoia National Forest under a variety of land management documents. The project does not conflict with any of these documents. The project will have no impact.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. Mineral Resources. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

The project will not result in the loss of availability of known mineral resources. Mountain Home has several rock sources that have been quarried for road rock and watercourse crossing armament. The rock sources are not commercial and the rock is only utilized on Mountain Home. The project will have no impact.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Mountain Home is not designated in any plan as having locally important mineral resources. Minor amounts of gold, as well as copper and other non-precious metals are believed to occur on the property. The project will have no impact.

ENVIRONMENTAL ISSUES		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. Noise. Would the project result in:					
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	☐	☐	☒	☐
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

Mountain Home is located in a rural setting in which there are no permanent residents who would be exposed to the seasonal increase in noise levels associated with timber operations, road construction and maintenance. Timber operations and roadwork activities typically occur between the first of June and the end of October.

Visitors to Mountain Home who utilize the campgrounds will be exposed to equipment noise if timber operations are occurring in the vicinity of the campgrounds. The majority of campground use occurs on the weekends. Timber operations and roadwork will be conducted during the weekdays, to the extent feasible, to minimize the impact to forest visitors.

a) Would the project create exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?

The project as proposed will not have an increase in noise over historical levels. As defined in the Tulare County General Plan, Section 5.5, there are no “noise sensitive areas and uses” in the vicinity of Mountain Home. There are no known noise ordinances in the vicinity of Mountain Home. Restricting timber operations and road construction to week days will reduce conflicts with forest visitors and historical use shows noise impacts will be less than significant.

b) Would the project create exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

The project as proposed will not have an increase in noise over historical levels. Campers and day-users may experience a temporary increase to ground vibrations resulting from road maintenance activities. Restricting timber operations and road construction to week days will reduce conflicts with forest visitors and historical use shows noise and vibration impacts will be less than significant.

c) Would the project create a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

The project as proposed will not have an increase in noise over historical levels. The project will result in no impact.

d) Would the project create a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

The project as proposed will not have an increase in noise over historical levels. Restricting timber operations and road construction to week days will reduce conflicts with forest visitors and historical use shows noise and vibration impacts will be less than significant.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The project is not located within two miles of an airport. The project will result in no impact.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

There are no known private airstrips within 20 miles of Mountain Home. The project will result in no impact.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. Population and Housing. Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The project will not increase population growth. Mountain Home and the surround forestlands are zoned TPZ and no developments in homes, businesses, or infrastructure is planned.

b) Would the project displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?

The project will not displace any residences.

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

The project will not displace any persons.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. Public Services. Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Discussion

There are no substantial changes in this project from the Mountain Home 2003 management plan. The response times from emergency services will not be affected by management activities. CAL FIRE manages Mountain Home, and forest staff are available to assist with emergency response. The project does not conflict with, but rather assists with emergency response to incidents.

By Board policy one of Mountain Home's primary purposes is education in forest management. Mountain Home currently participates in several tours and presentations, including annual tours for colleges and universities. The nearest school is Springville School, approximately eight miles to the southwest of Mountain Home. The project will not impact school access to the Forest, or any school facilities. Mountain Home is public land and the project does not limit public access to Mountain Home.

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection? The project will have no impact.

Police protection? The project will have no impact.

Schools? The project will have no impact.

Parks? The project will have no impact.

Other Public Facilities? The project will have no impact.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. Recreation. Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☒	☐

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The primary recreational uses on Mountain Home are hiking, mountain bike riding, horseback riding, hunting, recreational driving, and camping. Projects that may cause an increase of use to existing neighborhood or regional parks or other recreational facilities include campground closures or the imposition of a camping fee. During the summer period when recreational use peaks it is unlikely that campgrounds would be closed. An exception would be if the campground had to be closed to eliminate a hazard or repair a facility. If such a closure occurred, it would be short-lived and the campground would reopen was the issue was resolved. A camping fee may increase camping at Balch Park, a neighboring campground operated by Tulare County. However, Balch Park already charges camping fees so the effect would most likely remain neutral. Temporary closures or the collection of fees would have a *less than significant* impact on increasing the use of neighborhood or regional parks.

b) Would the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

As a result of the increasing use of horseback riding, Mountain Home is currently reviewing ideas of constructing up to ten additional campsites to accommodate equestrian users. The necessary improvements would be consistent with the other campgrounds at Mountain Home. The project would involve the construction of a short access road and the installation of a self-contained toilet, benches, bear-proof food lockers, campfire rings and trash receptacles. The campground would be located on flat, stable ground in an area where no natural watercourses occur. Additional projects that are reasonably foreseeable is the continual maintenance and replacement of campground improvements as they succumb to time and/or vandalism. Any projects requiring construction or expansion of recreational facilities will have a *less than significant* impact on the environment.

ENVIRONMENTAL ISSUES		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. Transportation/Traffic. Would the project:					
a)	Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
b)	Exceed, individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d)	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e)	Result in inadequate emergency access?	☐	☐	☒	☐
f)	Result in inadequate parking capacity?	☐	☐	☐	☒
g)	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

a) Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

The project will result in no increase in traffic levels above historical use. An increase in truck traffic on Mountain Home and the access roads occurs during logging operations. Log hauling typically occurs between the first of June and the end of October. Timber sales on Mountain Home vary significantly in volume resulting in a range from 12 to as many as 16 loads per day moving on the access routes. The seasonal increases in truck traffic are typical for the local area and the local residents are accustomed to this traffic. Access roads to Mountain Home are designed to handle these and higher levels of truck traffic. Additionally during hauling operations the timber operators are required to maintain the seasonal roads in serviceable condition. The impact is less than significant.

b) Would the project exceed, individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

Logging truck traffic leaves Mountain Home by traveling down either Blach Park or Bear Creek Roads. The logging truck traffic originating from Mountain Home does not result in a significant increase in traffic on these roadways. The level of service to the roads should not be impacted. There will be no impact.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The project will have no influence on any existing air traffic patterns.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

There are no known design features, along the access roads to Mountain Home, which are considered hazardous. There is no expected increase in hazards associated with Mountain Home traffic. The local residents are accustomed to logging truck traffic and there is no history of conflict with incompatible uses along the access roads to neither Mountain Home, nor are any expected. The project will have no impact.

e) Would the project result in inadequate emergency access?

Timber operations have the potential to temporarily block roads with downed timber. California Forest Practice Rules (FPRs) 14 CCR 938.3 requires that all logging roads must be kept passable during the fire season for fire truck travel. To maintain compliance with 14 CCR 938.3 in the event that timber will block emergency response equipment, all timber operators are required to have equipment available on site to open the road immediately for emergency response equipment. The impact on emergency access will be less than significant.

f) Would the project result in inadequate parking capacity?

At present, there is adequate parking at Mountain Home Headquarters to accommodate Mountain Home staff and visitors. The campgrounds can also accommodate several vehicles per campsite. The project has no potential impact on parking capacity.

g) Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

The project has no potential to impact alternative transportation programs.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. Utilities and Service Systems. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion

There are four septic systems for administrative sites and 25 self-contained pit toilets and septic systems located at campgrounds at Mountain Home.

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No impact. The septic system at Mountain Home Headquarters is adequate for the facilities and use. The toilet facilities at the campgrounds can accommodate the campground use. The project will not exceed wastewater treatment requirements of WQ.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No impact. The existing facilities at the campgrounds will be able to accommodate the additional planned campsites.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less than significant. There are no storm water facilities associated with this project. The installation of new drainage features (watercourse crossings and road drainage) and the replacement of old features shall adhere to the FPRs, WQ waiver, DFG permits. The replacement and installation of drainage features will have a less than significant impact on the environment.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No impact. The existing water on Mountain Home and the Mountain Home water rights are sufficient to accommodate the project.

e) Would the project result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?

No impact. The existing facilities on Mountain Home will not be impacted by the project.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

No impact. The Project will not increase the production of solid waste generated on Mountain Home and should not exceed the capacities of the county landfill.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

No impact. The project will not violate any federal, state, or local statutes regulating solid waste.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Mandatory Findings of Significance.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c) Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Authority: Public Resources Code Sections 21083 and 21087.
Reference: Public Resources Code Sections 21080(c), 21080.1, 21080.3, 21082.1, 21083, 21083.3, 21093, 21094, 21151; *Sundstrom v. County of Mendocino*, 202 Cal.App.3d 296 (1988); *Leonoff v. Monterey Board of Supervisors*, 222 Cal.App.3d 1337 (1990).

a) Would the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

The project has the potential to significantly impact Hazards and Hazardous Materials. Implementation of mitigation measures 1 through 4 will reduce these impacts to a level of less than significant.

The development of projects under the guidance of this management plan will have separate analyses conducted based on the project's specifications and site-specific information. Potential impacts will be less than significant with the adherence to all applicable laws and regulations. See also the discussion above under Item IV, Biological Resources, and Item VIII Hydrology and Water Quality.

The implementation of this management plan will have a less than significant impact on cultural resources. Archeological surveys have been conducted throughout Mountain Home. Historical and cultural sites have been recorded and management measures developed. Any projects conducted under the guidance of this management plan that would cause ground disturbance,

will require an archeological survey. See also the discussion above under Item V, Cultural Resources.

b) Would the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Assessment Area

The cumulative effects assessment area was established based on the planning watersheds that contain Mountain Home. This assessment area is used because the primary cumulative impact issues related to forest management typically express themselves at the scale of planning watersheds or a subset of the planning watershed area. As shown in figure 1, landowners within this assessment area include MHDSF and the Giant Sequoia National Monument.

Land Use Activities

The dominant land use under the management plan that could potentially cause cumulative impacts include recreation, forest management and research and demonstration.

The management plan will not cause adverse cumulative impacts from recreation. Recreation on Mountain Home is dispersed and occurs at levels that have been shown to have negligible impacts on the environment (McNally, 1990). The management plan does not propose any significant changes in the recreation pattern or intensity. Recreation in the Giant Sequoia National Monument is strictly regulated so as not to jeopardize the mandated protection of old growth giant sequoia trees. Motorized recreation is prohibited in the Monument.

The primary factor associated with forest management that is likely to cause cumulative impacts is timber harvesting. The management plan will not cause significant adverse cumulative impacts related to timber harvesting. The 100-year projections of forest habitat conditions for the management plan show that the acreage of different habitat types on Mountain Home will not diminish over time. Mountain Home's forest management activities will continue to provide a diversity of forest stands and habitat types of various seral stages and provide connectivity of these habitats within the assessment area. The planned harvests at Mountain Home will be separated in time and distance. Standing biomass is expected to continue to increase over the planning interval, as the planned harvest level in the management plan is substantially less than annual growth. Timber harvest is statutorily prohibited within the Giant Sequoia National Monument. The management plan related impacts when added to the other projects in the vicinity of Mountain Home will therefore not result in significant adverse cumulative impacts.

Other activities associated with forest management include site preparation, burning, planting, vegetation control possibly using pesticides, precommercial thinning and road maintenance. The project will not cause adverse cumulative impacts from road maintenance. The Mountain Home management plan contains a systematic protocol for avoiding road related cumulative impacts over time and distance. Road construction and maintenance in the Giant Sequoia National Monument is minimal.

The project will not cause significant cumulative impacts from the use of pesticides. Pesticides uses related to different control projects are separated in time and distance so that their individual effects do not reinforce or interact with each other. Forestry pesticide uses on Mountain Home are substantially less in both frequency and amount than in agricultural or urban settings. Pesticide use under the Plan is neither widespread nor frequent. Pesticide use may be used for demonstration or research purposes, or for the establishment, survival, and improved

growth of forest stands. Due to the prohibition of timber harvest in the Giant Sequoia National Monument, pesticide use is expected to be negligible.

Given the low intensity and dispersed nature of site preparation, burning, planting, vegetation control and precommercial thinning activities both at MHDSF and in the Giant Sequoia National Monument, significant cumulative impacts would not occur.

The project will not cause significant cumulative impacts from research and demonstration studies. Research and demonstration installations are most often non-interventional and of a size and density that they will not likely create a significant adverse environmental impact. Research and demonstration activities in the Giant Sequoia National Monument are expected to be negligible.

Discussion and Conclusions

Cumulative impacts resulting from the project will be less than significant. The above analysis of resource values illustrate how the assessment area watersheds are stable landscapes, and land management activities continue to be conservative and dispersed over time and space for both landowners within the assessment area. Forest management activities at Mountain Home over the last several decades have not resulted in significant adverse cumulative impacts. The proposed project proposes no substantial changes in the management of Mountain Home. The planned silviculture will continue to maintain a landscape that is varied and has a mixture of various timber stand types and wildlife habitats. The conservation emphasis of the Giant Sequoia National Monument will result in maintenance of existing ecosystem characteristics for the foreseeable future.

Possible site specific impacts are addressed on a project by project basis. The development of THPs or other CEQA projects under the guidance of this management plan are subject to separate cumulative effects analysis consistent with CEQA. The analysis is conducted based on the project's specifications and current or reasonably foreseeable future projects within the assessment area.

c) Would the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?

Less than significant. No project related environmental effects were identified that would cause a substantial adverse effect on humans. As described herein, the proposed project has the potential to impact hazardous materials. However, with the adherence to all applicable laws and regulations, obtaining the appropriate permits, and the implementation of mitigations described herein, these impacts would be reduced to a less than significant level.

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Appendix 1

Mountain Home State Forest Plant Scoping Assessment: December 9, 2009
4807 Acres, Moses Mtn, Camp Wishon, Camp Nelson, Quinn Peak Quads
CAL FIRE Forester (Jim Kral #2588)
T 19N R30E Sections 25, 26, 34, 35 & 36
T 19N R31E Sections 18, 19, 20, 28, 29, 30, & 31
T 20N R30E Sections 1, 2, & 12
Elevation 4800-7600 feet (1500 – 2375 meters)

Summary Assessment: CNPS 16-quad scoping for the proposed THP identified 40 special status plant species (CEQA Section 15380) that have the potential to occur within the project area (Table 1). Analysis of available data on habitat types and soil types (Tables 2 and 3) that are present or may be present within the MHDSF indicate that suitable habitat for 26 species may be present within the project area (Table 4).

Summary of Rare Species observed on site: Yes – CNDDB occurrence of *Erigeron inornatus spp. keilii, Fritillaria bradegeei* and *Calochortus westonii* in or immediately adjacent to MHDSF, *Clarkia springvillensis, Erythronium pusaterii,* and *Oreonana purparescens* are adjacent to MHDSF.

Site Summary: The Mountain Home Demonstration State Forest (MHDSF) is in an area of high native plant diversity. A 12 quadrangle search centered on the MHDSF determined that 40 CNPS List 1B, List 2 and listed species are found in the region. Suitable habitats include meadows, seeps, riparian, and coniferous forest – often on granitic soils – between 1500 and 2375 meters in elevation.

Table 1. Special Status Plants from a 9-quad search centered on the above listed quad (CNPS, CNDDB)

1	Scientific/Common/Rank	Life Form	Bloom	Communities	Elev
Y	Northern spleenwort *Asplenium septentrionale* List 2.3	Per. herb	Jul-Aug	•Chaparral •Subalpine coniferous forest •Lower/Upper montane coniferous forest /rocky, granitic	1615 - 3350 m
n	Kern Plateau milk-vetch *Astragalus lentiginosus var. kernensis* List 1B.2	Per. herb	Jun-Jul	•Meadows and seeps •Subalpine coniferous forest /sandy	2240 - 2750 m
y	Shevock's milk-vetch *Astragalus shevockii* List 1B.3	Per. herb	Jun-Jul	•Upper montane coniferous forest (granitic, sandy)	1890 - 1965 m
n	Kaweah brodiaea *Brodiaea insignis* List 1B.2 CA Endangered	Bulb	Apr-Jun	•Cismontane woodland •Meadows and seeps •Valley and foothill grassland /granitic or clay	150 - 1400 m
y	Shirley Meadows star-tulip *Calochortus westonii* List 1B.2	Bulb	May-Jun	•Broadleafed upland forest •Lower montane coniferous forest •Meadows and seeps /granitic	1500 - 2105 m
y	Berry's morning-glory *Calystegia malacophylla var. berryi* List 3.3	Per. herb	Jul-Aug	•Chaparral •Lower montane coniferous forest	610 - 2440 m
y	Muir's tarplant *Carlquistia muirii*	Per. herb	Jul-Aug	•Chaparral (montane) •Lower/Upper montane coniferous	1100 - 2500 m

1	Scientific/Common/Rank	Life Form	Bloom	Communities	Elev
	List 1B.3			forest /granitic	
y	Bolander's woodreed *Cinna bolanderi* List 1B.2	Per. herb	Jul-Sep	•Meadows and seeps •Upper montane coniferous forest /mesic, streamsides	1670 - 2440 m
n	Springville clarkia *Clarkia springvillensis* List 1B.2 CA Endangered, Fed Thr	Ann. herb	May-Jul	•Chaparral •Cismontane woodland •Valley and foothill grassland /granitic	245 - 1220 m
y	Tulare cryptantha *Cryptantha incana* List 1B.3	Ann. herb	Jun-Aug	•Lower montane coniferous forest (gravelly or rocky)	1430 - 2150 m
n	Rose-flowered larkspur *Delphinium purpusii* List 1B.3	Per. herb	Apr-May	•Chaparral •Cismontane woodland •Pinyon and juniper woodland /rocky, often carbonate	300 - 1340 m
n	Mineral King draba *Draba cruciata* List 1B.3	Per. herb	Jun-Aug	•Subalpine coniferous forest (gravelly)	2500 - 3315 m
n	Mt. Whitney draba *Draba sharsmithii* List 1B.3	Per. herb	Jul-Aug	•Alpine boulder and rock field •Subalpine coniferous forest	3300 - 3960 m
n	Pierpoint Springs dudleya *Dudleya cymosa ssp. costafolia* List 1B.2	Per. herb	May-Jul	•Chaparral •Cismontane woodland /carbonate	1435 - 1600 m
y	Hall's daisy *Erigeron aequifolius* List 1B.3	Per. herb	Jul-Aug	•Broadleafed upland forest •Pinyon and juniper woodland •Lower/Upper montane coniferous forest /rocky, granitic	1500 - 2440 m
y	Keil's daisy *Erigeron inornatus var. keilii* List 1B.3	Per. herb	Jun-Sep	•Lower montane coniferous forest •Meadows and seeps	1800 - 2200 m
y	Kern River daisy *Erigeron multiceps* List 1B.2	Per. herb	Jun-Sep	•Meadows and seeps •Upper montane coniferous forest (openings)	1500 - 2500 m
n	Mouse buckwheat *Eriogonum nudum var. murinum* List 1B.2	Per. herb	Jun-Nov	•Chaparral •Cismontane woodland •Valley and foothill grassland /sandy	365 - 1130 m
y	Twisselmann's buckwheat *Eriogonum twisselmannii* List 1B.2 CA Rare	Per. herb	Jul-Sep	•Upper montane coniferous forest (granitic)	2375 - 2805 m
n	Spiny-sepaled button-celery *Eryngium spinosepalum* List 1B.2	Ann./Per. herb	Apr-May	•Valley and foothill grassland •Vernal pools	80 - 255 m
?	Kaweah fawn lily *Erythronium pusaterii* List 1B.3	Bulb	May-Jul	•Meadows and seeps •Subalpine coniferous forest /granitic or metamorphic	2100 - 2775 m
y	Greenhorn fritillary *Fritillaria brandegeei* List 1B.3	Bulb	Apr-Jun	•Lower montane coniferous forest (granitic)	1415 - 2100 m

1	Scientific/Common/Rank	Life Form	Bloom	Communities	Elev
n	Pygmy hulsea *Hulsea vestita ssp. pygmaea* List 1B.3	Per. herb	Jun-Oct	•Alpine boulder and rock field •Subalpine coniferous forest /granitic, gravelly	2835 - 3900 m
n	Munz's iris *Iris munzii* List 1B.3	Per. herb	Mar-Apr	•Cismontane woodland	305 - 800 m
y	Field ivesia *Ivesia campestris* List 1B.2	Per. herb	Jun-Aug	•Meadows and seeps (edges) •Subalpine coniferous forest •Upper montane coniferous forest	1975 - 3350 m
?	Knotted rush *Juncus nodosus* List 2.3	Per. herb	Jul-Sep	•Meadows and seeps (mesic) •Marshes and swamps (lake margins)	30 - 1980 m
n	Madera leptosiphon *Leptosiphon serrulatus* List 1B.2	Ann. herb	Apr-May	•Cismontane woodland •Lower montane coniferous forest	300 - 1300 m
y	Yosemite lewisia *Lewisia disepala* List 1B.2	Per. herb	Mar-Jun	•Pinyon and juniper woodland •Lower/Upper montane coniferous forest /granitic, sandy	1035 - 3500 m
y	Copper-flowered bird's-foot trefoil *Lotus oblongifolius var. cupreus* List 1B.3	Per. herb	Jun-Aug	•Meadows and seeps (edges) •Upper montane coniferous forest /mesic	2400 - 2750 m
y	Hockett Meadows lupine *Lupinus lepidus var. culbertsonii* List 1B.3	Per. herb	Jul-Aug	•Meadows and seeps •Upper montane coniferous forest (mesic, rocky)	2440 - 3000 m
y	Broad-nerved hump moss *Meesia uliginosa* List 2.2	moss	Oct	•Bogs and fens •Meadows and seeps •Subalpine coniferous forest •Upper montane coniferous forest /damp soil	1300 - 2804 m
n	Kaweah monkeyflower *Mimulus norrisii* List 1B.3	Ann. herb	Mar-May	•Chaparral •Cismontane woodland /carbonate, rocky	365 - 1300 m
y	Purple mountain-parsley *Oreonana purpurascens* List 1B.2	Per. herb	May-Jun	•Broadleafed upland forest •Subalpine coniferous forest •Upper montane coniferous forest /usually metamorphic	2395 - 2865 m
y	Marble rockmat *Petrophyton caespitosum ssp. acuminatum* List 1B.3	Evergreen shrub	Aug-Sep	•Lower/Upper montane coniferous forest /carbonate or granitic, rocky	1200 - 2300 m
n	Aromatic canyon gooseberry *Ribes menziesii var. ixoderme* List 1B.2	Deciduous shrub	Apr	•Chaparral •Cismontane woodland	610 - 1160 m
y	Sequoia gooseberry *Ribes tularense* List 1B.3	Deciduous shrub	May	•Lower/Upper montane coniferous forest	1500 - 2075 m
y	Cut-leaf checkerbloom *Sidalcea multifida* List 2.3	Per. herb	May-Sep	•Great Basin scrub •Lower montane coniferous forest •Meadows and seeps	1750 - 2800 m

1	Scientific/Common/Rank	Life Form	Bloom	Communities	Elev
				•Pinyon and juniper woodland	
?	Prairie wedge grass *Sphenopholis obtusata* List 2.2	Per. herb	Apr-Jul	•Cismontane woodland •Meadows and seeps /mesic	300 - 2000 m
?	Marsh arrow-grass *Triglochin palustris* List 2.3	Per. herb	Jul-Aug	•Meadows and seeps •Marshes and swamps (freshwater) •Subalpine coniferous forest /mesic	2285 - 3700 m
y	Grey-leaved violet *Viola pinetorum ssp. grisea* List 1B.3	Per. herb	Apr-Jul	•Meadows and seeps •Subalpine coniferous forest •Upper montane coniferous forest	1500 - 3400 m