

5.8 Effects of Program/Alternatives on Prehistoric, Historic, Ethnographic, and Paleontological Resources

This section summarizes the impacts to prehistoric, historic, ethnographic, and paleontological resources from implementing either the Proposed Program or any of the alternatives. Generally, in this section these resources will collectively be referred to as “cultural resources”, except where a distinction needs to be drawn for analysis purposes.

5.8.1 Significance Criteria

The management of archaeological and historical resources for the VTP is designed to comply with requirements of CEQA (as amended), the State CEQA Guidelines, the Public Resources Code (Section 5020 et. seq.), the California State Register Bill (CCR Title 14), and Executive Order W-26-92, and to conform to established CAL FIRE procedures (Foster, 1992; 1994).

The CEQA Environmental Checklist specifies that the Program and Alternatives would have a significant adverse effect to prehistoric, historic, and paleontological resources if any of them would:

- a) Cause an adverse change in the significance of a historical resource, as defined in Section 15064.5 of the CEQA Guidelines (Bass et al., 1999);
- b) Cause an adverse change in the significance of an archaeological resource, pursuant to Section 15064.5 of the CEQA Guidelines;
- 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.

In addition to prehistoric and historic archaeological sites, cultural resources also include those used for traditional cultural practices, or “ethnographic” resources. The term “traditional” refers to those beliefs, customs, and practices of a living community of people that have been passed down through generations, usually orally, or through practice. The term “cultural” refers to those attributes that are important to support the traditions, practices, lifeways, arts, crafts, or social institutions of a community, Indian Tribe, or other local ethnic group. The traditional cultural significance of a historic resource, then, is derived from the role the site plays in a community’s historically rooted beliefs, customs, and practices (USDI BLM, 2005). Examples of traditional sites possessing such significance include:

- Locations which are associated with the traditional beliefs of local Native American communities about their origin or cultural history, or the nature of the world;
- Locations where Native American religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with traditional cultural rules of practice; or
- Locations where Native Americans have traditionally carried-out economic, artistic, or other cultural practices important in maintaining their historical identity (e.g., gathering sites for basketry materials or medicinal herbs).

5.8.2 Determination Threshold

The Program and Alternatives would have a significant effect to cultural resources if treatments ultimately result in:

- A substantial adverse change in the characteristic(s) contained in that resource which qualify it as being significant;
- An adverse change to locations associated with the traditional beliefs of Native Americans, including areas used or assumed to be used for ceremonial activities; or
- An adverse change to locations and or resources used by Native Americans to carry out or support economic, artistic, or other cultural practices.

State law and regulation requires that any proponent of a VTP project must follow a defined methodology to determine the potential to affect cultural resources, including measures to avoid or mitigate adverse impacts to these resources (Foster, 1992; 2003) (CAL FIRE, 1996). This “CAL FIRE Protocol” is described in detail in Section 5.8.4 below.

The significance of an historical resource is materially impaired when a project demolishes or materially alters in an adverse manner the physical characteristics of a historical resource so that it would no longer be included in the California Register of Historic Places or a local register of historical resources (Bass et al., 1999). The criteria for listing are included in Section 4.8.2 of this document.

An adverse change to an ethnographic resource is one that would lessen the ability of Native Americans to access traditional sites, or to utilize such sites or the resources therein for their traditional purposes.

A “substantial adverse change” in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.

5.8.3 Data and Assumptions

One of the primary goals of the Vegetation Treatment Program is to restore a natural range of fire-adapted plant communities through periodic low intensity vegetation treatments. Before contact with Europeans, the indigenous Indian inhabitants of California conducted seasonal burning in order to manage for various amenities, including ease of travel, observation of the landscape, improvement of forage for game species, pest suppression (e.g., burning to reduce acorn worms), maintenance of grasslands for seed gathering, stimulating the production of basket materials, and others. These practices allowed for the development of healthy mixed-species and all-aged forests, with a high proportion of large conifers that could withstand repeated fire.

European intrusion greatly curtailed burning by Native Americans, but it continued on a limited scale. Seasonal burning was also commonly practiced by ranchers through the mid-late 1800s, but was suppressed by the USFS or other government entities during the widespread institution of fire suppression that began in the early 1900s. With the suppression of burning, the older trees became

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progressively older and more senescent, and timber stands became crowded with smaller trees and brush that had formerly been periodically removed by burning (Round Valley Indian Tribes 2006). Comparison of photographs (including aerial photographs) from the mid-1900s to the 1990s or later shows a decrease in grassland area as shrubs and trees encroached upon prairies. Today, due to the accumulation of fire-prone vegetation types and the seasonally fire prone Mediterranean climate of California, there is an elevated risk of high intensity wildfire across much of California. Fires that are more intense than those that occurred in the pre-contact landscape have the potential to degrade or destroy not only prehistoric cultural remains, but historical features and sites as well. While fire is often compatible with the lifeway values of current-day Indian people (such as production of basketry material), very intense fires can alter native plant communities and lead to infestation by non-native invasive plants. Restoration of natural fire regimes and removal of invasive vegetation can decrease the risk of high intensity wildfire while contributing to the restoration and maintenance of historic and ethnographic features (USDI National Park Service, 2003).

However, vegetation treatment techniques and methods pose their own risks to cultural resources. Prescribed burning is typically conducted within smaller units than would normally be affected by a wildfire, within which fire intensities and burning patterns may cause more impacts than would natural disturbance, even that of high intensity wildfire (Foster pers. comm. 2006). The use of heavy equipment or hand treatments to construct firelines and safety zones, or as the primary treatment for vegetation, obviously did not occur in the pre-contact period and has great potential to disturb cultural resources. Because of the abundance of cultural resources within the state and the potentially destructive nature of many vegetation treatments, implementation of the Proposed Program or any of the Alternatives has high potential to cause adverse impacts to cultural resources. This potential for harm, however, is balanced to a large extent by the protocol that CAL FIRE has instituted to avoid adverse impacts, as described below. The VTP is unique to CAL FIRE programs in that it contains an Archaeological Survey Report with a signature line whereby a professional archaeologist provides specific project approval (Foster, pers. comm., 2006).

Legal Requirements

The Archaeological Review Process for CAL FIRE Projects (Foster and Pollack, 2010) summarizes the legal requirements for archaeological responsibilities of the agency, as below:

“Legal Requirements: A number of state laws and regulations require CAL FIRE to identify and protect cultural resources. Section 106 of the National Historic Preservation Act and its implementing regulations also apply to some CAL FIRE projects when federal funds are being used. The primary mandate requiring archaeological review of CAL FIRE projects is found in the California Environmental Quality Act (CEQA). This state law requires CAL FIRE to identify potential impacts to archaeological resources during our assessment of environmental impacts from CAL FIRE projects, and to change the project or develop mitigation measures to eliminate or reduce the severity of those impacts. Additional state agency requirements pertaining to the management of cultural resources on state-owned lands are found in Public Resources Code (PRC) Section 5024. Environmental Impact Reports (EIRs) for CAL FIRE’s California Forest Improvement Program (CFIP), Vegetation Management

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Program (VMP), State Forest Management Plans, and our statewide Management Plan for Historic Buildings and Archaeological Sites contain specific requirements we must follow. California Executive Order W-26-92 directs CAL FIRE to develop programs for the preservation of the state's heritage resources throughout our jurisdiction. CAL FIRE also receives funding from several federal agencies to support our programs. This brings in a suite of federal laws and regulations pertaining to the protection of cultural resources. In 1996, CAL FIRE entered into a Programmatic Agreement (PA) with the U.S. Forest Service (USFS), State Office of Historic Preservation, and the Advisory Council on Historic Preservation that specifically addresses CAL FIRE's responsibilities for archaeological review of CAL FIRE projects funded by the USFS. This PA was superseded by a new PA in 2004 that is broader in scope to include CAL FIRE projects utilizing federal funds provided by the Bureau of Land Management (BLM) and United States Department of the Interior, Fish and Wildlife Service (FWS) in addition to the USFS. The procedures outlined in this document are intended to satisfy all of these legal requirements. A more complete listing of applicable laws and regulations is presented in CAL FIRE's *Reference Manual and Study Guide for the CAL FIRE-CLFA Archaeological Training Program for Registered Professional Foresters and Other Resource Professionals.*"

Bioregional Variation in Cultural Resources or Effects from Treatments

Certain regions within California contain notable concentrations of cultural resources, such as the historic resources associated with the Gold Rush in the Sierra Nevada foothills. Prehistoric resources, on the other hand, are common across the entire state, where they tend to be associated with geographical features such as gentle terrain and water or lithic sources. Ethnographic, or traditional, resources are generally known to contemporary Native Americans; for instance, the California Indian Basket Weavers' Association actively manages many gathering areas on tribal and non-tribal lands, and the Hupa, Yurok, and Karuk people maintain and protect many village sites dating back thousands of years. Paleontological resources, though not as common as prehistoric resources, are found in many places statewide. For instance, Mount Diablo and Anza Borrego State Parks contain particularly rich and varied concentrations of fossils.

However, although certain areas are known or can be assumed to contain concentrations of cultural resources, the likelihood of the VTP program adversely affecting such resources cannot reasonably be differentiated by bioregion. Prehistoric resources, in particular, are equally likely to occur in any bioregion due to the multi-millennia long occupation of the state by Native Americans during the prehistoric period. Cultural resources of many types may occur within any bioregion and any number of vegetative types (Foster pers. comm., 2006). While a proposed treatment in the Sierra foothills may be more likely to affect historic resources than in the Central Coast, there is nevertheless almost always potential for some type of cultural resource to occur within a proposed project area within any bioregion. For this reason, the analysis in this chapter will cover the entire state, and will focus on identification and protection measures to protect all significant sites, as prescribed by State law and regulation.

5.8.4 Direct Effects Common to all Bioregions From Implementing the Program/Alternatives

Table 5.8.1 summarizes the information from the balance of this subchapter on the effects of implementing the Program across the state by bioregion in terms of effects on Cultural Resources.

Table 5.8.1 Summary of Effects^{1/} On Cultural Resources from Implementing the Proposed Program				
Bioregion	Prescribed Fire	Mechanical	Hand	Herbivory
North Coast/Klamath	NA	NA	NA	NA
Modoc	NA	NA	NA	NA
Sacramento Valley	NA	NA	NA	NA
Sierra	NA	NA	NA	NA
Bay Area	NA	NA	NA	NA
San Joaquin	NA	NA	NA	NA
Central Coast	NA	NA	NA	NA
Mojave	NA	NA	NA	NA
South Coast	NA	NA	NA	NA
Colorado Desert	NA	NA	NA	NA

^{1/} Key to Effects: adverse effects are those effects which degrade the diversity, structure, size, integrity, abundance or number of; or are outside the natural range of variability, for the resource at issue. Beneficial effects are those effects that improve the diversity, structure, size, integrity, abundance or number of; or are within the natural range of variability, for the resource at issue. SA/SB – significant adverse effects are those effects that are substantial, highly noticeable, at the watershed scale; and often irreversible. MA/MB - moderately adverse or beneficial effects - those effects that can be detected beyond the affected area, but are transitory and usually reversible. NA/NB - negligible adverse or beneficial effects - those effects that are imperceptible or undetectable.

Prescribed Fire

Prescribed fire can produce a variety of changes to cultural resources that can be adverse, neutral, or beneficial depending on the intensity of the burn, types of materials comprising the resource, and history of previous fires. The relationship between these factors must be taken into consideration to adequately assess the effect of burning on specific characteristics of these resources and to identify appropriate mitigation measures (Jones and Stokes Associates, 2000).

Burn intensity is a product of combustion temperature, duration of heat, and heat penetration into the soil (Lentz et al., 1996). These, in turn, are dependent on environmental variables such as type and quantity of woody fuels, soil moisture content, wind, and air temperature. Studies typically describe these effects in terms of low, moderate, and high intensity burn categories that generally correspond to those defined by Eininger (1990):

- Low intensity burns—212-482°F, temperatures in soil do not exceed 212°F at a depth of 1-2 cm;
- Moderate intensity burns—572-752°F, temperatures in soil will reach 392-572°F at a depth of 1 cm; and

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- High intensity burns—932-1,382°F, temperatures in soil can reach 662-842°F at a depth of 1-2 cm and 212°F at 5 cm.

The elevated temperatures for each of these categories are confined primarily to the ground surface, with little heat transferred below the first few centimeters of the soil. Little attention has been given to the added effects contributed by the duration of burning for any of these categories (Foster, pers. comm., in Jones and Stokes, 2000). Preliminary studies show that when fuels are allowed to burn at a single location (e.g., such as a large log or stump) for an extended time, subsurface temperatures can become elevated substantially (Deal, 1997; Lentz et al., 1996).

Burn intensity can be correlated to some degree with typical fuels reported for specific vegetation types (Skinner and Chang, 1996). Jones and Stokes (2000) contains a detailed discussion of the relative effects of low, moderate, and high fire intensity to a variety of cultural resources, as well as dating techniques, which is summarized in Table 5.8.2.

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Table 5.8.2 Effects from Low, Moderate, and High Intensity Fire on Cultural Resources						
Intensity	Associated Fuel Types	Cultural Materials Potentially Damaged	Surface vs. Subsurface Damage	Dendro-chronology	Thermo-luminescent dating of pottery and Archaeo-magnetic dating	Hydration Values
Low	Grassland, Forests with Thin Duff	Organic materials: Wood, Bone, Plant, Antler	Surface only	Negatively affected	None to light damage	Largely Unaffected
Moderate	Mixed Grass Prairie, Pinõn-Juniper, Younger Chaparral	Organic materials including pollen. Surface stone tools, glass bottles, marine shell, bone, pottery, lead, glass	Surface; subsurface with heavy fuels	Negatively affected	None to light damage	Moderate damage
High	Mature Chaparral, Ponderosa Pine, Pinõn Pine/Juniper	Same as moderate, also fossils, rock art, construction materials, ground stone items, sandstone masonry blocks.	Sub-surface likely damaged	Likely destroyed	Negatively affected	Not measurable, greatly damaged.

Because of the variability in burn conditions (e.g., fuel load, wind, humidity, and air temperature) it is difficult to make an absolute correlation of burn intensity with any particular vegetation type. This is especially true for areas in which fire suppression practices have allowed fuels to accumulate in higher concentrations than under pre-fire suppression conditions.

Post-burn Effects

The loss of ground cover after a prescribed burn can result in increased visibility of the ground surface, exposing site constituents to collection by the public and by uninformed fire crew personnel. The loss of water-holding capabilities of vegetation and litter create increased erosion hazard. These effects from surface erosion are more severe on slopes of higher gradient than those of lower gradient (Kight, 1992). Removal of vegetation by burning also removes vegetation that has aided in stabilizing masonry and dry-laid walls (Traylor, 1981). These effects are generally short term, and slow as vegetation cover is re-established (Kelley and Maburry, 1980; Kight, 1992).

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If an area has been burned within the past 75 years or so, most of the perishable items may have been destroyed. However, archaeological and historical resources should be evaluated in relation to the following conditions:

- The potential for cumulative loss of information from repeated impacts;
- The potential for future burn intensity to be more intense than past fire events (e.g., low versus high fuel buildup); and
- The potential for recent surface exposure of artifacts or features from bioturbation and erosional processes.

Beneficial effects as well can result from controlled burning practices. Reducing heavy fuel loads through controlled, prescribed burns will result in lower fire intensity in future natural or prescribed burns. Prescribed burning can be used to reestablish the historic environmental context of significant archaeological and historical resources. For example, fire can be used to combat the recent invasion of forest or chaparral vegetation into original grassland settings of a region, or remove overgrown brush from historic trails. For traditional Native American practices, burning can be used to promote the growth of certain plants used for spiritual practices (e.g., *Angelica* root) food, medicine, or craft manufacture. Post-fire surveys will reveal sites previously hidden by duff and slash, and better ground visibility will allow refinement of boundaries of previously identified resources, aiding in the future management of these resources (Jones and Stokes, 2000).

Mechanical

Mechanical treatment poses the greatest risk to cultural resources of any VTP treatment. Use of heavy equipment may adversely affect the physical integrity of cultural resources by physical destruction or damage, displacement, covering, uncovering and exposing resources to the elements, and/or to unauthorized collection. Impacts on resources could occur from disking, bulldozing, and driving across sites, or from covering sites with slash or chips (from chipping operations). Clearing of vegetation reduces soil cover, exposing artifacts and facilitating surface erosion. Felling and removal of trees and other vegetation can also expose the ground surface and displace or expose cultural resources (Jones and Stokes, 2000).

Hand Treatments

Hand clearing can damage artifacts and their spatial distributions within resource areas in many of the same ways as mechanical clearing, though not typically to the degree caused by mechanical treatments. However, the closer scrutiny likely with handwork can tempt work crews and other project personnel to collect artifacts (Jones and Stokes, 2000).

Herbivory

The effects of herbivory on cultural resources can include trampling, artifact breakage, soil compaction (which can disturb soil profiles and affect dating), reduced ground cover, and destabilization of stream banks, leading to erosion and displacement of artifacts (USDA Forest Service, 2007). Grazing animals, especially large, heavy animals such as cattle, can dislodge and damage cultural resources (Osborn et al., 1987). Vegetation reduction by prescribed grazing may reduce flame lengths and thus fire severity. The clearing of vegetation may also expose cultural

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resources to the elements and to unauthorized collection. Fewer persons than are involved with hand clearing are on site during grazing activities, however, so the risk of collection is lower than for hand clearing. In Mexico, grazing on archaeological sites has led to erosion and unauthorized collection by herders (Society for American Archaeology, 2004). However, controlled grazing under the VTP would be much less likely to cause either of these effects. Herbivory using browsers, such as goats, could conceivably reduce vegetation (such as hazel shoots or bear grass) utilized by Indian basketweavers. Overall, negative effects of herbivory are considered lower than for mechanical or hand clearing.

Herbicides

Application of herbicides alone is unlikely to cause any direct effects to prehistoric, historic, or paleontological resources. However, herbicides could harm traditional use plants or threaten the health of the people gathering, handling, or ingesting recently treated plants, fish, or wildlife that are contaminated with herbicides. Since roots and other plant materials harvested by Native peoples are often found in close proximity to vegetation treatment areas, the potential exists for herbicides to drift from treatment areas onto gathering areas used by Native peoples. In some cases, vegetation important to Native peoples, including juniper, may be treated in areas where these plants are invasive and crowding out more desirable vegetation (USDI BLM, 2005).

The use of herbicides on private and public lands is of utmost concern to California Indian basketweavers because of the potential harmful effects their use may have on the health of Native plant gatherers and communities, as well as the health and vitality of the environment. A weaver may be exposed to herbicides by making skin contact while gathering. In addition, most of the materials a weaver collects are passed through her mouth in preparing it for weaving. The plants that are eliminated by herbicide spraying because of their lack of commercial value are often the same plants that provide Native people with traditional foods and teas, and that are used in baskets, for healing, and for ceremonial and other traditional purposes (California Indian Basketweavers' Association (CIBA), 2007).

Effects of Treatments at the Landscape Scale

Prehistoric, historic, and paleontological resources are fixed in place. Therefore, the effects on any of these resources located within the 216,910 acres annually treated by the Proposed Program depend on whether the cultural resource sites are identified before significant degradation has occurred. Effects to both known and unknown sites are mitigated by the standard practices of applying MMR 7 (the standard CAL FIRE protocol). No threshold is proposed for the number of sites that could be degraded so as to diminish their significance as a result of the Program: any such degradation would be considered a potentially significant effect of the program and would require development and application of mitigation measures. However, rather than developing mitigation measures, CAL FIRE has incorporated Minimum Management Requirement 7 that will apply to every VTP project. MMR 7 requires that a defined protocol be followed for each VTP project (Chapter 2).

Standard CAL FIRE Protocol

CAL FIRE protocol for protecting cultural resources is based on the CAL FIRE manual Archaeological Review Procedures for CAL FIRE Projects (Foster and Pollack, 2010). For every

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project, a Preliminary Study to determine the potential for cultural resource impacts will be conducted by the project manager in collaboration with a CAL FIRE archaeologist or his/her designee. Based on recommendations from the Preliminary Study, further protective measures may be applied, including an on-the-ground cultural resources survey, notification of Native Americans, pre-field research, development of protective measures, recording of sites, and completion of an archaeological reconnaissance report. For projects funded with federal dollars, consultation with the State Historic Preservation Office (SHPO) under the requirements of Section 106 is required where significant archaeological or historic resources are identified.

The flow chart on the following page (Figure 5.8.1) shows the review process for cultural resources for each CAL FIRE project. A detailed description of each of these steps is contained in Archaeological Review Procedures for CAL FIRE Projects (Foster and Pollack, 2010).

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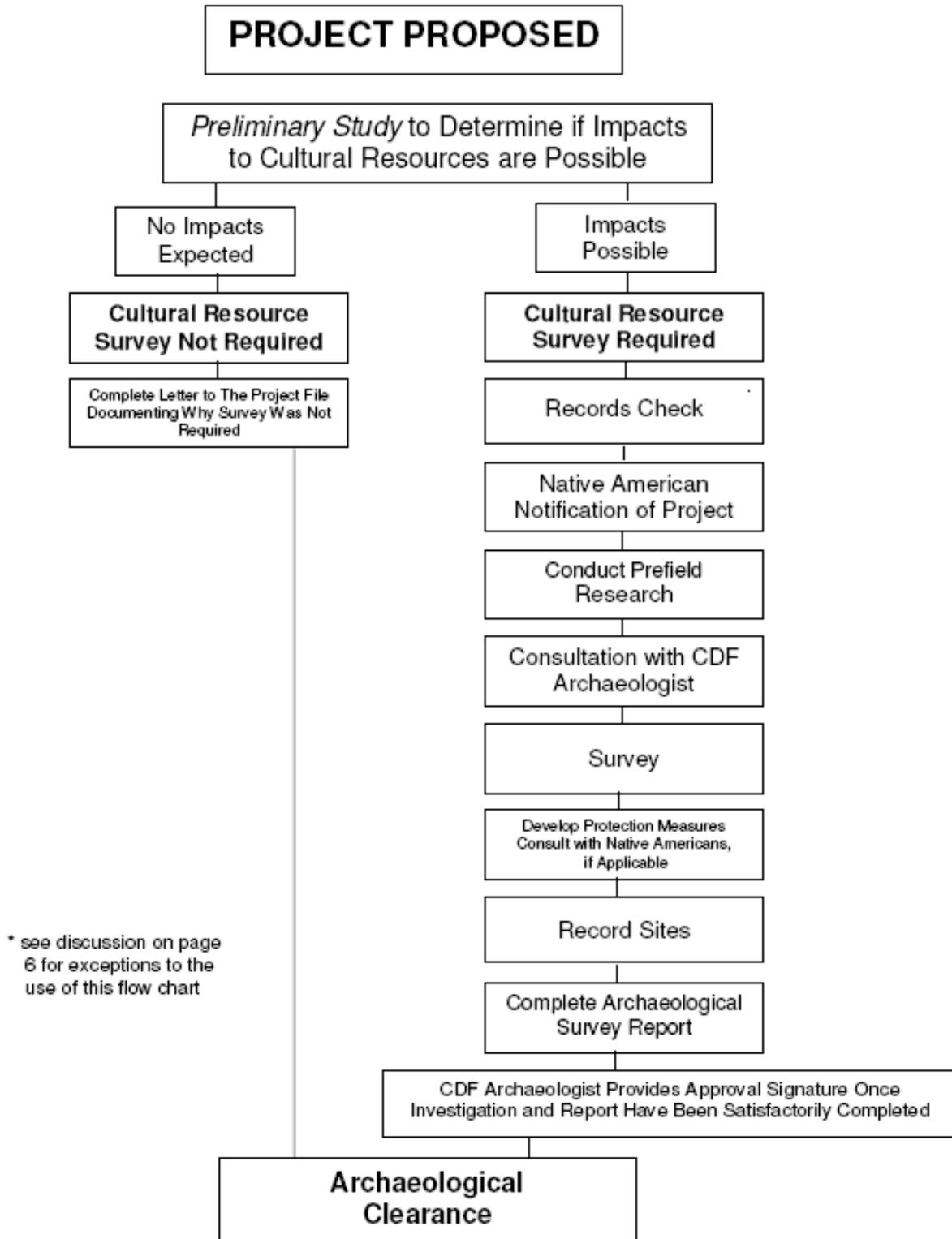


Figure 5.8.1

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If the Preliminary Study reveals the potential to affect cultural resources, the CAL FIRE project manager (or his/her designee) will conduct an intensive cultural resource survey of the project area. In most situations, this survey will include all of the procedural steps shown on the *Cultural Resource Review Procedures* flow chart above. Barring an unusual exception, the list of tasks specified in *Cultural Resource Survey Procedures* must be completed as part of the cultural resource review for every CAL FIRE project that is determined to have the potential to affect cultural resources. During the review of certain projects, the CAL FIRE project manager may determine that one or more of the procedural steps could be omitted. However, the concurrence of a CAL FIRE Archaeologist must be obtained in order to bypass any of these steps.

CAL FIRE has established a list of practices determined to have little potential to adversely affect cultural resources (Foster, 2003: pp. 8-12). Barring unusual circumstances (such as consideration for Native American traditional gathering areas), if the proposed project includes only those activities, an archaeological (field) survey will not be required. If ground-disturbing activities are part of a proposed project, then an archaeological survey will be required. For projects that do not include ground-disturbing activities, this requirement can usually be waived. All forms of burning, including broadcast burning and the burning of piled brush, will usually require archaeological survey.

Although Programmatic Environmental Impact Reports (PEIRs) such as this one discuss the broad aspects of environmental impacts, specific project impacts are identified and mitigations are developed through the Environmental Checklist process, which includes a structured component for archaeological resources. That structure involves the actions of Unit Foresters, sometimes assisted by a consulting Registered Professional Forester (RPF) and/or VMP Coordinator, working in close consultation with a CAL FIRE Archaeologist, who completes, assists, or oversees the archaeological survey work and impact analysis. Almost all Unit Foresters, VMP Coordinators, and consulting RPFs have completed CAL FIRE's Certified Archaeological Training Course and provide valuable assistance to the CAL FIRE Archaeologist in completing this work. This process has been in place long enough that close working relationships have been developed, resulting in a well-coordinated and highly efficient archaeological review process that leads to the timely completion of archaeological clearance for the project and adequate protection for cultural resources (Foster and Robertson, 2005).

CAL FIRE's archaeological review procedures apply well to CAL FIRE projects where CAL FIRE is the lead agency and a certified Programmatic EIR covers the results of the review. Currently, for CEQA compliance for projects conducted under the Prop 40 Program, CAL FIRE may not be the Lead Agency. However, once the VTP PEIR is certified, projects must comply with the VTP checklist, which will dictate procedures. Other agencies that rely on this document will need to ensure that their procedures meet or exceed the requirements this EIR requires, including a field archaeological survey, as needed.

If archaeological review procedures indicate that a project site has low potential for containing significant resources, the project may proceed without ongoing oversight by the CAL

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FIRE archaeologist. In such cases, if an unknown site is discovered during project operations, the project proponent is required by the VTP Contract to immediately halt all operations that could damage the site, and contact the local CAL FIRE Archaeologist for an evaluation of the significance of the site.

If potentially significant cultural resources are identified within project boundaries, the project may proceed if the project manager and archaeologist incorporate site-specific protective measures. Such measures may include: 1) soil will not be disturbed in areas where disturbance would harm the resources; 2) specific sites will be left unburned if burning would tend to degrade the resources; 3) crews will be carefully supervised to avoid unauthorized collecting or other disturbance of the site; and/or 4) areas will be designated for avoidance by machinery, hand crews, and/or fire.

The effectiveness of the CAL FIRE procedure relies on the consultation and collaboration of the CAL FIRE project manager and the in-house expertise of the CAL FIRE Archaeologist. Project manager compliance is tracked through inclusion of questions specific to cultural resources in the Project Checklist (Chapter 8). CAL FIRE maintains a cadre of professional archaeologists who are assigned to review projects under CAL FIRE jurisdiction. There are 12 Cultural Resources Information Centers located around the state, which provide information on archeological and historical resources, allowing for ready identification of recorded cultural resources. Professional archaeologists on CAL FIRE staff have expertise regarding the multitude of factors that indicate the likely presence of an unknown site; this knowledge may also be supplemented by pre-project research. If a cultural site is potentially located within a proposed project area, a certified surveyor will conduct an on-the-ground cultural resources survey. Based on the results of that survey, the project may be allowed to proceed without hindrance, or protective measures may be instituted to protect any potentially significant site, including cancellation or major redesign of the project.

As noted in Section 5.14.4, the VTP jurisdiction area includes the following amounts of land open to public recreation (see Section 4.14.2): 1.4 million acres of State Park Lands, ~1 million acres of DFG and CAL FIRE lands and ~2 million acres of Conservancy lands. In addition, there is an uncalculated acreage of likely CAL FIRE jurisdiction lands that are held in trust for American Indians by the Bureau of Indian Affairs. These trust properties include Indian reservations and Indian allotments (private lands held in trust for individual Indians).

This analysis assumes that traditional lifeway (ethnographic) resources currently being utilized by Native Americans, such as ceremonial sites or gathering areas, are generally not located on private fee parcels; or if they are, the landowner most likely knows about such sites and the activity takes place with his/her consent. The same almost certainly holds true for traditional activities that take place on tribal trust properties. However, there is no guarantee that the ~3.4 million acres of land open to public recreation do not contain ethnographic resources. Because under CAL FIRE protocol it is possible that VTP projects could proceed without consultation with Native Americans who may be utilizing ethnographic resources on

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publicly accessible lands, Mitigation Measure 5.8-1 has been developed to help ensure that such resources are protected from the impacts of VTP projects.

Effects of Alternatives on Cultural Resources

Alternative 1, the status quo, would annually treat 47,000 acres statewide, 9,870 acres with mechanical treatments (which, as noted, generally have the potential to cause the most damage to cultural resources). Because the geographic extent of this alternative is much less than the Proposed Program, the chances of causing a significant adverse impact are much less than under the Proposed Program or Alternative 2, each of which propose to treat 216,910 acres yearly (42,000 acres of which, in each alternative, utilize mechanical treatments). Alternative 2 is identical to the Proposed Program, except that herbicides would not be used. Alternative 3 would also treat 216,910 acres, but slightly fewer acres by mechanical means, at 36,750 acres. Alternative 3 includes the same mix of treatments and the same number of acres being treated as the Proposed Program but includes additional protections to reduce impacts to special status species and special status plant communities, which can be important to maintaining Native American lifeways. Acreages treated by herbicides are shown in the total acreage in Table 5.3.2, and the effects of treating forest and rangelands with herbicides are described in Section 5.17. Alternative 4 uses the same treatments as the Proposed Program but they are applied to substantially fewer acres: 80,400. However, because Alternative 4 includes significant restrictions on prescribed burning, it treats a higher proportion of its total acres: 19,932, by mechanical means. Alternative 4 would have less chance than either the Proposed Program or Alternative 3 to adversely affect cultural resources, but more chance for adverse effects than Alternative 1.

5.8.5 Indirect Effects of Implementing the Program/Alternatives

Off-Site Project Impacts

MMR 7 is focused on the project area; therefore, indirect effects of implementing the Program or the alternatives could potentially occur if off-site operations of the project were to impact a cultural site outside of the project area. For instance, effects might occur if project equipment were parked on an adjacent area that had not been evaluated as part of the project, or if an access road ran through an unknown site. These impacts are considered transitory and unlikely; nevertheless, indirect impacts can be addressed by requiring the project proponent or state archaeologist to assess the potential for sites to exist on off-site areas that might be used for parking, crew campsites, transportation, etc.

Effects from Reduction of Wildfire Intensity

As discussed in more detail below, wildfire can have detrimental effects to cultural resources. Generally, the more intense the fire, the more potential there is to degrade cultural resources. Table 5.2.1 indicates that the Proposed Program would have a negligibly beneficial to strongly beneficial effect on wildfire intensity across every treatment type and location, and would cause no exacerbation of wildfire intensity related to the Program. The Proposed Program can therefore be expected to have a beneficial effect to cultural resources to the

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degree that wildfire intensity is decreased, thereby helping protect the integrity of the resources.

5.8.6 Determination of Significance

As long as the CAL FIRE archaeological protocol is followed throughout all the stages of each VTP project, including involvement of a professional archaeologist for evaluation and clearance of the project, the VTP program will not create a significant adverse impact to prehistoric, historic, or paleontological state cultural resources. The safeguards that are in place must be supported by personnel and funding adequate to perform their stated intention, and include training of CAL FIRE personnel that design VTP projects; review and approval by the CAL FIRE archaeologist, including a determination that there will be no significant adverse effects by signing off on the Archaeological Survey Report for every project; and notification, review, and continued consultation and communication with Native American persons or groups who may have an interest in any project. This protocol is codified in this EIR via inclusion of Minimum Management Requirement 7, as stated in Section 2.3.