Draft Saddle Mountain Open Space Preserve
Management Plan
Initial Study and Proposed Mitigated Negative Declaration

Prepared for:

Sonoma County Agricultural Preservation and Open Space District
747 Mendocino Avenue
Santa Rosa, CA 95401

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March 2019

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SONOMA COUNTY

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1 Project Information

1. Project Title	Saddle Mountain Preserve Management Plan
2. Lead Agency Name & Address	Sonoma County Agricultural Preservation + Open Space District 747 Mendocino Avenue, Suite 100, Santa Rosa, CA 95401
3. Contact Person & Information	Monica Delmartini (707) 565-7260
4. Project Location	The Preserve is located in unincorporated Sonoma County northeast of the City of Santa Rosa and east of the intersection of Calistoga and St. Helena Road roads as shown on Figure 1. APNs: 028-390-028, 028-160-080, 028-160-044, and 028-380-008.
5. Project Sponsor's Name & Address	Sonoma County Agricultural Preservation + Open Space District 747 Mendocino Avenue, Suite 100, Santa Rosa, CA 95401
6. General Plan Designation	Resources & Rural Development
7. Zoning	Resources and Rural Development (RRD B6 40), Biotic Habitat and Riparian Corridor (BH RC50/50), Riparian Corridor (RC100/50), and Riparian Corridor and Scenic Resources (RC200/50 SR)
8. Description of Project	The proposed project is to adopt and implement the management activities described in the Saddle Mountain Preserve Management Plan.
9. Surrounding Land Uses & Setting	The area surrounding the Preserve is sparsely populated. Adjacent ownership consists mainly of rural residential lots varying in size from one to hundreds of acres. Developed parcels generally contain single-family residences. Rincon Valley subdivisions, consisting of residential lots within City of Santa Rosa limits, border the southern portion of the property. Some adjacent properties consist of relatively undeveloped forest and grasslands, some are maintained as pasture or range for livestock (horses and/or cows), and a few have been intensively developed for wine-grape production. An equestrian facility at the corner of Calistoga and St. Helena Roads is the only commercial enterprise in the vicinity.
10. Other public Agencies Whose Approval may be Required	See Table 2-7 for a list of the regulatory agencies that may have authority to permit or otherwise authorize project activities.
11. Have California Native American Tribes traditionally and culturally affiliated with the Program Area requested consultation pursuant to Public Resources Code §21080.3.1? If so, has consultation begun?	Yes, after requesting a sacred lands search and receiving a list of contacts from the Native American Heritage Commission (NAHC), the District initiated consultation with the Federated Indians of Graton Rancheria (FIGR), the Tribe traditionally and culturally affiliated with the proposed project area; see discussion in Section 4.18 below.

1.1 Introduction

The property comprising what is now the Saddle Mountain Preserve (Preserve) was considered a prime real estate development location since at least the 1970s. In 1978, the proposed development of a subdivision on the area resulted in the preparation of an Environmental Impact Report. The local community successfully opposed development efforts until July 2003, when final approval was given by Sonoma County to subdivide the property into 29 estate parcels. The Sonoma County Agricultural Preservation and Open Space District (District) then became involved in negotiations to purchase the property and, in January 2006, the Sonoma County Board of Directors adopted resolution #06-0041, approving the fee title purchase of the 960-acre Saddle Mountain property. The State Coastal Conservancy contributed grant funding to assist with the acquisition of the property and to provide funding for a management plan.

The District acquired the Preserve primarily to conserve and protect its natural resources and to contribute to the protection of key properties within the Mark West watershed (District 2012). The Preserve, which is visible from much of the city of Santa Rosa and provides viewsheds for Trione-Annadel and Spring Lake Parks, serves as an important backdrop that contributes to quality of life and community identity in Santa Rosa.

The District developed the Saddle Mountain Preserve Management Plan (Management Plan) to provide direction for the management and preservation of the property's unique natural and cultural resources. The information and guidance provided by the Management Plan would help ensure that management activities effectively conserve native coastal oak woodland, montane hardwood and coniferous forest, native grassland, and mixed chaparral and continue to provide high-quality habitat for a diversity of native wildlife and plants. Utilizing adaptive management principles, the Management Plan would protect the Preserve's populations of sensitive plant species and their habitats, while providing opportunities for research and environmental education.

Development of the Management Plan included public outreach and engagement with stakeholders. A public meeting to solicit feedback on the draft Management Plan was held on February 18, 2015, at the Rincon Valley Library Community Meeting Room.

The District worked collaboratively with a variety of partners, as well as the general public, to develop the Management Plan. With implementation of the Management Plan, the District would continue to collaborate with partners and the public to provide a range of management, research, environmental education, and community stewardship programs on the Preserve.

In order to manage, enhance, and protect the resources within the Preserve, the District proposes to adopt and implement the actions identified in the Management Plan for the Preserve. The location of some proposed management activities are identified in the Management Plan. Potential impacts associated with these management activities are analyzed in greater detail than other, less specific management activities. The site-specific management actions are referred to as "project-level" activities throughout this document. The longer-term management activities without site specificity are called "program-level" throughout the document and are identified to meet long-term management objectives.

The sections below describe the need and objectives of the proposed project as well as the key management activities included in the Management Plan that are the focus of this environmental review.

1.2 California Environmental Quality Act Requirements

Pursuant to Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines (Title 14, California Code of Regulations, Sections 15000 et seq.), an Initial Study is a preliminary environmental analysis that is used by the lead agency as a basis for determining whether an Environmental Impact Report (EIR), a Mitigated Negative Declaration (MND), or a Negative Declaration is required for a project.

The purpose of this Initial Study is to evaluate the potential environmental impacts from implementation of the proposed Management Plan to determine what level of environmental review is appropriate. As shown in Section 3, Determination, of this document, and based on the analysis contained in this Initial Study, it has been determined that the proposed project would not result in any significant impacts that cannot be mitigated to less-than-significant levels. The analysis contained in this Initial Study concludes that the proposed project would result in the following categories of impacts, depending on the environmental resource involved: no impact; less-than-significant impact; or less-than-significant impact with the implementation of project-specific mitigation measures. Therefore, preparation of an MND is appropriate.

The proposed project, for purposes of this environmental document, is the adoption and implementation of the Management Plan. This Draft Initial Study/Proposed MND will be subject to additional CEQA review and documentation if development of specific project activities or if short- or long-term plan development and subsequent management activities trigger new impacts or increase the severity of a previously identified impact.

1.2.1 Public and Agency Review

This Initial Study/Proposed MND will be circulated for public and agency review from April 3 through May 3, 2019. Copies of this document are available for review at the Sonoma County Agricultural Preservation and Open Space District office (747 Mendocino Avenue, Santa Rosa, CA), Rincon Valley Regional Library (6959 Montecito Blvd, Santa Rosa, CA), Central Santa Rosa Library (211 E Street, Santa Rosa CA), and Oakmont Library (6575 Oakmont Drive, Santa Rosa, CA). This document is posted on the District's website: www.sonomaopenspace.org.

Comments on this Initial Study/Proposed MND must be received by 5:00 p.m. on March 8, 2019, and can be sent by regular mail or emailed to:

Sonoma County Agricultural Preservation and Open Space District
747 Mendocino Avenue, Suite 100
Santa Rosa, CA 95401
Attn: Monica Delmartini or Monica.Delmartini@sonoma-county.org

2 Project Description

2.1 Project Location and Setting

As shown in Figure 1, Project Location, the Saddle Mountain Preserve is located in the central Mayacamas Mountains, in unincorporated Sonoma County, California, northeast of the city of Santa Rosa. The Preserve lies just north of the city limits of Santa Rosa and is located in the Mark West Creek and Santa Rosa Creek watersheds in the Russian River Hydrologic Unit. It lies at the intersection of four USGS 7.5' quadrangles: Mark West Springs in the northwest, Calistoga in the northeast, Santa Rosa in the southwest, and Kenwood in the southeast. The site is accessible from Cleland Ranch Road off of Calistoga Road, St. Helena Road, and via an access easement on Plum Ranch Road. Erland Road, another private road, has also been identified as an access point (Bowman Associates 2006).

2.2 Project Goals and Objectives

The purpose of the Management Plan is to provide a comprehensive assessment of the Preserve's conditions and resources and to develop recommendations that would guide the District's management of the property to preserve and enhance the area's biodiversity, ecosystem function, and diverse array of complex California habitat types. The Management Plan identifies the following specific objectives for the Preserve:

- Conserve large stands of contiguous oak woodland in the Mark West Creek watershed;
- Conserve high quality riparian habitat and adjacent uplands and wetlands in the Mark West Creek and Santa Rosa Creek watersheds;
- Protect highly visible open space land with outstanding scenic qualities;
- Manage the Preserve in a manner that minimizes impacts and enhances natural resources; and
- Provide recreational opportunities in close proximity to urban areas that are compatible with the Preserve's conservation purposes.

The Management Plan also identifies two primary conservation challenges that would direct short-term actions on the Preserve:

- Control and remediation of erosion sources with integrated management of sediment delivery to stream and wetland systems and
- Control and prevention of non-native plant species with eradication, where feasible, and long-term reduction of non-native plant coverage elsewhere.

Figure 1. Project Location

2.4 Project Site Characteristics

The Preserve comprises 960 acres on four Sonoma County legal parcels: Assessor's Parcel Numbers (APN) 028-390-028, 028-160-080, 028-160-044, and 028-380-008. All the parcels are zoned Resources and Rural Development (RRD). Elevations in the Preserve range from 760 feet at the property's northwest boundary near St. Helena Road to 1,800 feet in the southeast corner of the property. Vegetation is dominated by grassland (usually a mix of native and exotic species) and oak woodland. Coniferous and riparian forests occur along streams and on the relatively moist, north-facing slopes. The Preserve and its existing infrastructure is illustrated on Figure 2, Saddle Mountain Preserve Base Map.

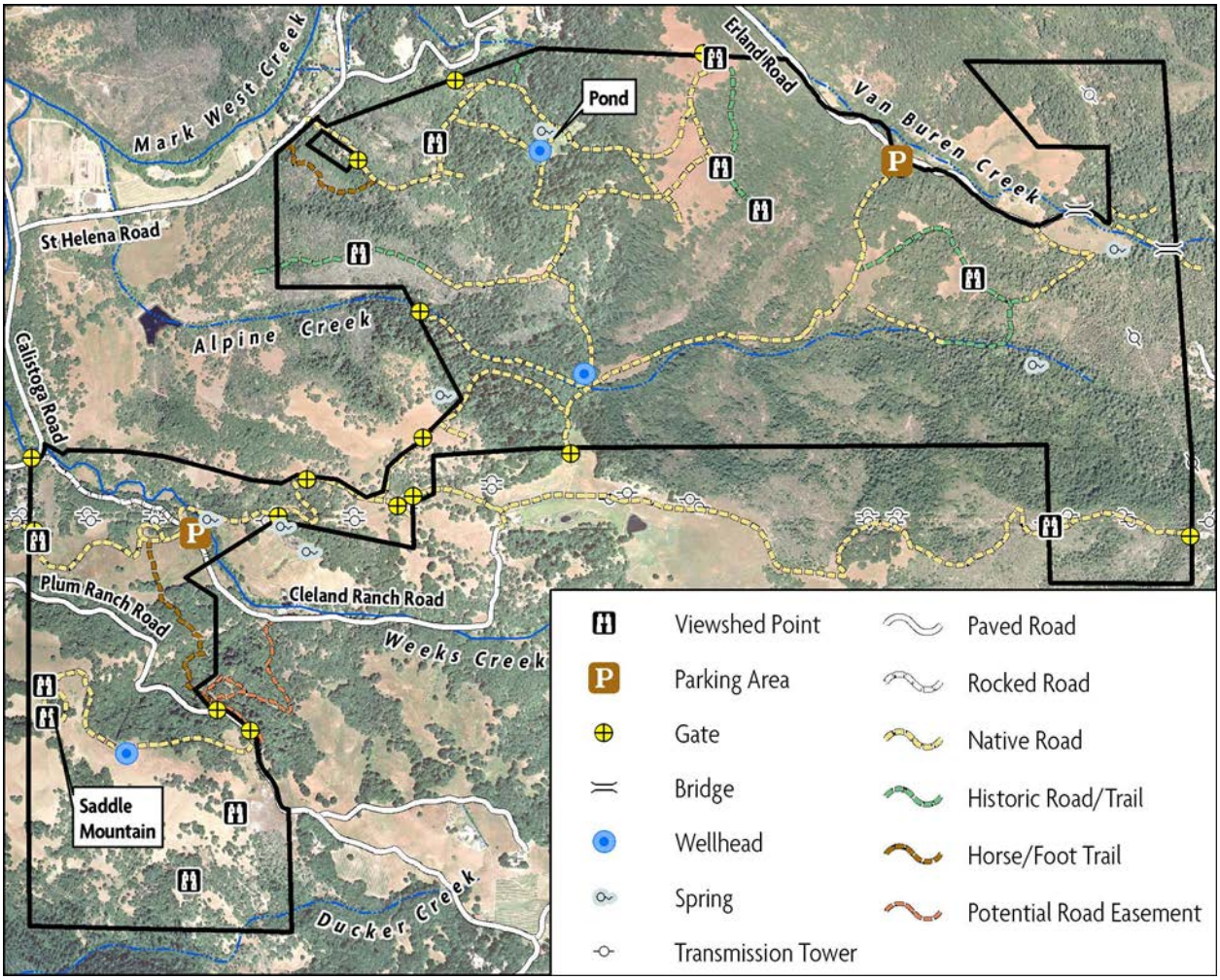


Figure 2. Saddle Mountain Preserve Base Map

2.4.1 Preserve Access

Access onto the Preserve is limited, as the property frontage along public roads is limited to two relatively small areas. There is approximately 500 feet of frontage along Calistoga Road at the junction of Calistoga Road and Cleland Ranch Road. Calistoga Road is a County maintained road and Cleland Ranch Road is private. The other public road frontage is an approximately 500-foot section of St. Helena Road where there is a gravel driveway leading from the public road to a private land holding. The driveway leads to an unimproved, seasonal road that enters the Preserve at the eastern boundary of the private in-holding at or near the property line.

Private road easements provide additional access to the Preserve. Plum Ranch Road, off Calistoga Road, provides access to the southern portion of the Preserve. There is a gated, unimproved, seasonal ranch road on the property off Plum Ranch Road that leads to the summit of Saddle Mountain. Another gated, unimproved, seasonal ranch road is located on the Preserve off Erland Road. PG&E has transmission tower maintenance road easements that provide access the southeastern and southwestern portions of the property. Several private roads and trails provide private access points to the Preserve from neighboring properties.

Local residents access the Preserve via several unauthorized trails off Erland and St. Helena Roads and from adjacent properties. Currently, authorized public access is restricted to District-trained volunteer patrollers and staff- or partner-led outings and workdays. The District provides regular outings, volunteer opportunities, and/or workdays, coordinated either by District staff or with other partner organizations. Visitation is limited primarily to existing ranch roads and informal trails.

Safe public access to the Preserve from existing roadways is limited and is available only from Cleland Ranch Road, which provides access to the southern portion of the property. Cleland Ranch Road is located at a sharp curve on Calistoga Road and limited visibility and dense, fast moving traffic on Calistoga Road make this turnoff unsafe for access by buses or horse trailers.

2.4.2 Infrastructure

Infrastructure on the Preserve is primarily associated with previous land use, including ranching and timber operations. Historic fences from livestock ranching are mostly in disrepair; however, some fencing has been maintained by neighboring property owners who have livestock. The livestock water system has not been maintained and portions of the system have been lost through sale of some of the historic ranch property. There is a developed well that formerly served a trough within the southeastern portion of the property and a developed spring box that formerly provided water to a galvanized cistern off Erland Road in the northeastern portion of the property. There are two capped wells along the road oriented north-south, north of Alpine Creek, which were presumably drilled when a subdivision was being planned for the area prior to purchase for a Preserve. Roads on the Preserve include several private roads that access neighboring properties, including Plum Ranch Road, Erland Road, and Cleland Ranch Road. Plum Ranch Road is paved, while Erland Road and Cleland Ranch Road are graveled. There are several culverts under these roads. There is a network of unimproved seasonal roads in various conditions that formerly served

as logging roads and some of which were later used for ranching operations. Some of these roads are currently overgrown with vegetation and are no longer accessible to vehicular use. Two PG&E transmission line corridors cross over the property and are serviced by seasonal unimproved maintenance roads.

The only structures on the Preserve are a historic hunting cabin, an outhouse, and a cabin or barn in ruins.

2.4.3 Land Uses

Current Land Uses

Land use on the Preserve is currently limited to natural resource management, periodic access by researchers through formal access agreements, and patrolling of the Preserve by District staff, contractors, and volunteers trained by the District. The District also offers approximately four public outings a year, led by entities contracted by the District, as well as approximately six workdays a year, and approximately two trainings a year for people interested in becoming volunteer patrollers on the Preserve. Neighboring residents who live along Erland Road and are trained volunteer patrollers may access the Preserve on horseback.

Illegal activities encountered on the Preserve during the natural resources inventory fieldwork include evidence of marijuana cultivation, water diversion, unauthorized trail construction, and unauthorized herbicide use.

Local residents off Erland Road have reportedly encountered marijuana patches on the property in past years. None were encountered during the 2008 natural resources inventory fieldwork, though irrigation drip lines in disrepair and watering buckets were noted, and a grow site was eradicated in the Alpine Creek watershed in 2017. Marijuana growers clear native vegetation, increased erosion, and introduce fertilizer, pesticides, fencing, guard dogs, illegal campsites, and human waste.

Water diversion pipes were noted in portions of Alpine Creek and Van Buren Creeks on the property. Some of these water diversion lines are no longer functioning and are probably remnants of past marijuana cultivation operations, and have since been removed. Others appear to have been previously used to divert water from the property to private residences along Erland Road.

Ag + Open Space staff and consultants and volunteer patrollers routinely patrol the Preserve for signs of marijuana cultivation activity in coordination with the Sonoma County Sheriff's office and U.S Fish & Wildlife's Marijuana Eradication Task Force. Active sites are eradicated when found by law enforcement personnel, and are cleaned up and restored by Ag + Open Space staff and contractors. Ag + Open Space began aerial surveillance of likely cultivation sites in 2018, and is contemplating additional surveillance measures such as cameras.

Historic Land Uses

Native Americans used the Saddle Mountain area. The Preserve and surrounding area was a likely place for prehistoric occupation, as it has fresh water sources, well-drained soils, and a mosaic of grassland and woodland, which created an environment rich in natural resources. These features suggest that the Preserve may have been utilized for hunting, resource gathering, and day-to-day activities (Barrow and Origer 2008).

Since Europeans arrived, logging, land clearing, importation of livestock, and fire suppression have resulted in major changes in the Preserve's vegetation patterns (Elgar Hill 1978). The land was owned for several generations by the Merner family and known by various names (including Merner Lumber Company, Inc., Progress Lumber Company, Inc., and Merner Land Company, Inc.) (Bowman Associates 2006). Much of the Douglas fir and coast redwood forest has been logged, and multi-stump growth patterns of many of the oak stands indicate the hardwoods were most likely cut decades ago, presumably for fuel wood.

The Preserve was historically used as a livestock ranch (Bush 2008). The original ranch is located in the northeastern section of the southwestern parcel. Livestock grazing and periodic wildfires prevented the establishment and growth of trees in the grasslands of the Preserve (Elgar Hill 1978). Other uses of the land have included timber production.

2.4.4 Geology and Soils

The main geologic units underlying the Preserve are the Franciscan Complex and Sonoma Volcanics. Other parts of the Preserve are composed of Glen Ellen and Merced Formations. The Glen Ellen Formation has been mapped along the northwest edge of the southwestern portion of the Preserve (Giblin Associates 2003, Elgar Hill 1978).

Serpentine soils occur on the Preserve and support serpentine-adapted plant species, some of which are endemic to Sonoma County (Best et al. 1996). Such soils typically have nutrient profiles that include low levels of nitrogen, potassium, phosphorous, and calcium; high levels of magnesium; and imbalances in heavy metals (Kruckberg 1984). Soil map units occurring on the Preserve that include serpentine-derived soils are Montara cobbly clay loam (30 to 75 percent slopes), Raynor-Montara complex (zero to 30 percent slopes), and Yorkville clay loam (30 to 50 percent slopes) (Bush 2008).

2.4.5 Water Resources

Surface Water

The Saddle Mountain Preserve encompasses portions of four creeks (Alpine, Ducker, Van Buren, and Weeks Creeks), as well as several of their unnamed tributaries. They are described below:

- The headwaters of Alpine Creek are located in the Preserve's mountainous northeastern parcel. The Alpine Creek subwatershed encompasses roughly 380 acres (0.59 mi^2, 1.54 km^2) in the central portion of the Preserve, ultimately flowing into a reservoir on an adjacent property. From there, an outlet stream crosses St. Helena Road and drains into Mark West Creek. Springs near the head

of Alpine Creek provide the water source for summertime flow, which was estimated in 2002 at 10 to 20 gallons per minute (Giblin Associates 2003).

- Ducker Creek drains a small area in the far southeastern corner of the southwestern parcel; it flows into the Santa Rosa Creek watershed.
- Van Buren Creek drains roughly 125 acres (0.20 mi^2, 0.51 km^2) of the northeastern portion of the Preserve and flows to the Mark West Creek; it is a seasonal creek (i.e. dry during the summer months with only isolated reaches containing very low perennial flow or remnant pools remaining as refugia for aquatic wildlife).
- The Weeks Creek subwatershed drains approximately 170 acres (0.27 mi^2, 0.69 km^2) in the southern portion of the Preserve. Weeks Creek flows into Mark West Creek just north of the intersection of St. Helena and Calistoga Roads. Weeks Creek is seasonal.

A number of springs were identified within and adjacent to the Preserve during the groundwater assessment (Giblin Associates 2003):

- Two small springs are located near the boundary between the overlying Sonoma Volcanics/Glen Ellen rocks to the north and the Franciscan Complex to the south. One of these springs drains to Weeks Creek; the other has been diverted to flow into a ranch pond on an adjacent property. These springs have relatively low flows that fluctuate seasonally.
- A larger spring is located further to the east where the Sonoma Volcanics and Franciscan Complex meet; this spring historically supplied water for the ranch house on an adjacent property.
- Near the Hunting Cabin, perched water forms a small spring that feeds a small man-made and year-round pond. Additionally a vernal pool is located near the hunting cabin that provides habitat for special-status plant species as well as invasive species.
- A developed spring is located near Erland Road in the northeastern portion of the Preserve.
- In the headwaters of Alpine Creek, a spring flows from serpentine rock providing the majority of late season flow into the creek. In the fall of 2002, seepage from this substantial spring into Alpine Creek was estimated to be 10-15 gallons per minute.

Groundwater

Although the Glen Ellen Formation is an important groundwater source in the Santa Rosa Valley Groundwater Basin, its capacity to produce groundwater within the project area is limited and most of the aquifers are within zones in the Sonoma Volcanics containing open and interconnected fractures (Giblin Associates 2003).

Existing groundwater wells on and adjacent to the Saddle Mountain Preserve are described below:

- The southwest portion of the Preserve contains a primary well located at an elevation of about 1,350 feet (411 m) on a ridge in the southwest portion of the Preserve. Standing water level was at a depth of 430 feet (131 m) when the well was constructed in 1996 and the well was set at a depth of 504 feet (154 m) below the ground surface. It has not been utilized to any significant degree. This well was tested in 2002 and reported to have sufficient capacity to supply water for only a portion of the then-proposed housing development project (Giblin and Associates 2003a).

- The northeast parcel contains two wells; one is about 50 (15 meters) feet north of Alpine Creek in the western portion and the other is 2,300 feet (701 meters) north of the first. These wells draw water from depths ranging from 120 to 340 feet (37-104 meters) deep from fractured volcanic rock.
- Numerous offsite neighboring wells were identified and were reported to be between 200 and 500 feet (61-152 meters) deep and individually provided sufficient water for single-family residential use. The wells were mostly drilled within Franciscan and Volcanic Formations and believed to contain water due to the fracture zones between the two Formations.

2.4.6 Vegetation Communities and Habitat on the Preserve

The Saddle Mountain Preserve contains 16 vegetation communities, as mapped by the Sonoma Vegetation Mapping and LiDAR Program (2017). (This recent countywide mapping is more detailed than the California Department of Fish and Wildlife Habitat Relationships database used at the time of the Management Plan development, which had identified 10 types; the table below shows how these two approaches relate). Vegetation types were corroborated by field reconnaissance conducted by the District in May 2008 and by PCI in 2018. Although distribution of plant life on the Preserve is complex, patterns exist:

- North-facing slopes on the Preserve are predominantly forested while warmer, sunnier south-facing slopes support grassland, oak woodland, and chaparral.
- South of the saddle in the Weeks Creek watershed, vegetation is mostly a mixture of oak woodland and grasslands, while to the north vegetation is dominated by Douglas fir, oaks, and other hardwoods.
- Chaparral is scattered throughout the Preserve, primarily on ridgelines and south-southwest oriented slopes.
- Grassland, including a diversity of remnant native perennial grasses, occurs in fairly large expanses in the southwestern portion of the Preserve and in smaller scattered patches in the northern portion.

The Preserve's vegetation communities are shown on Figure 3, Vegetation Types, and in Table 2-1, Special-status Plants Documented or with Potential to Occur on the Preserve. Habitat conditions, qualities, and management concerns are briefly described in the following sections.

Saddle Mountain Open Space Preserve

Vegetation Types

- Preserve boundary
- Leather oak chaparral
- Chamise chaparral
- Manzanita chaparral
- Coyote brush scrub
- Grassland
- Mesic Chaparral
- Developed
- Sargent cypress forest
- Douglas fir forest
- Mixed oak woodland
- Coast live oak woodland
- Oregon oak woodland
- Black oak woodland
- Valley oak woodland
- Coast redwood forest
- California bay forest
- Wetland

Sensitive vegetation types outlined in white.

0 1,000 2,000

Feet

N

Sources:
Sonoma Veg Map
Imagery - ESRI

Table 2-1. Vegetation Types and Sensitivity

Management Plan Vegetation Type	Sonoma Veg Map Vegetation Type	Rarity Rank[1]	Sensitive?[2]	Acres
Forest and Woodland				***765***
Douglas fir	Redwood forest	G3S3	Y	30
Douglas fir, montane hardwood-conifer	Douglas fir forest	G5S4	N	423
Closed cone pine cypress	Sargent cypress woodland	G3S3	Y	25
Montane riparian, montane hardwood-conifer, coastal oak woodland	California bay forest	G4S3	Y	33
	Black oak forest	G4S4	N	3
	Coast live oak woodland	G5S4	N	109
Coastal oak woodland	Mixed oak forest	G4S4	N	52
	Oregon oak woodland	G4S3	Y	87
	Valley oak woodland	G3S3	Y	4
Shrubland				***75***
Mixed chaparral	Chamise chaparral	G5S5	N	10
	Manzanita chaparral (Hoary, common, and Stanford manzanita)	G3S3	Y	37
	Leather oak chaparral	G4S4	N	15
	Mesic chaparral (Mountain mahogany, scrub oak-chamise chaparral)	G4S4, G5S4	N	5
	Coyote brush scrub	G5S5	N	8
Herbaceous Types and Other				***133***
Annual grassland	Annual and perennial grassland	See text for discussion		131
Wet meadow, freshwater emergent wetland, lacustrine, vernal pool	Freshwater marsh wetlands, vernal pool	varies	Y, based on wetland status and rare plant species	1
	Developed	n/a		0.8
TOTAL				**972**

[1] Rankings from CDFW's Vegetation Classification and Mapping Program. Types ranked G3 S3 or lower are considered to be of priority for protection. "G" indicates conservation priority at the global level, and "S" refers to the state level. 1 = critically imperiled; 2 = imperiled; 3 = vulnerable; 4 = apparently secure; 5 = secure. "?" indicates the need for further study.

[2] Sensitivity based on federal (U.S. Army Corps of Engineers; Section 404), state (CDFW), and local (Sonoma County) guidelines.

Forest and Woodland Vegetation Types

Douglas Fir Forest

Douglas fir forest on Saddle Mountain is dominated by Douglas fir (*Pseudotsuga menziesii*), but also encompasses small stands of coast redwood (*Sequoia sempervirens*) as well as mixed stands including hardwood like madrone (*Arbutus menziesii*). The shrub layer is limited under dense canopy but in more open areas may contain California blackberry (*Rubus ursinus*), poison oak (*Toxicodendron diversilobum)*, snowberry (*Symphoricarpos albus*), ceanothus, coffeeberry (*Rhamnus californica*), and hazelnut (*Corylus cornuta* var. *californica*). Saplings of California bay (*Umbellularia californica*), and fir are also abundant. The herbaceous layer is generally limited and dominated by ferns and other shade-tolerant species. In some historically disturbed or logged areas, including along old roads, dense thickets of young firs are present.

Few invasive species are present in these forests on the Preserve, with the exception of a small stand of Himalayan blackberry (*Rubus armeniacus*) and scattered Italian thistle (*Carduus pycnocephalus*) along Erland-Cleland Tie Road. Most of the Douglas fir forest, including the redwood stands, on the Saddle Mountain Preserve has been harvested for timber at least once. Unlike oaks, Douglas firs typically regenerate readily after logging, grow rapidly, and are shade tolerant. Oaks, on the other hand, are more resilient to fire. On the Preserve, in areas capable of supporting both oaks and firs, where logging but not fire has occurred, oak woodland may gradually transition to fir forest.

The Douglas fir forests on the Preserve, and other forest types present, provide suitable habitat for terrestrial birds, mammals, amphibians, and reptiles. Birds represent the most abundant and prominent wildlife taxa within this habitats. Year-round resident birds of the Douglas fir forests include: chestnut-backed chickadee, Steller's and western-scrub jays, American robin, common bushtit, Bewick's wren, California towhee, spotted towhee, band-tailed pigeon, California quail, and dark-eyed junco. Casual winter residents include winter wren, red-breasted sapsucker, ruby-crowned kinglet, varied thrush, and Townsend's warbler. The forests also support suitable foraging and breeding habitat for raptors. The dense forested habitats provide suitable foraging and nesting habitat for special-status northern spotted owl. These remote and relatively unfragmented forests with limited human disturbance are ideal locations for this forest dwelling bird. There is a documented spotted owl sighting on the Preserve and a number of territories documented within the region. Of particular concern for the northern spotted owl is the recent establishment of barred owl in Sonoma County, a species native to eastern North America, but one that has been expanding its range westward. The local effects of the barred owl are not known.

The Preserve's forested habitats, particularly those with dense understories and/or tree cavities, support a variety of mammals, providing escape, cover, and nesting sites. These densely wooded habitats provide protective cover and likely provide key migration corridors for native wildlife. The presence of a large number of vertebrate species may serve as a significant food source for larger predatory mammals such as gray fox, coyote, bobcat, and mountain lion. Some of the most commonly observed mammals include western gray squirrel, dusky-footed woodrat, and black-tailed deer. In addition, bats may forage over the Preserve and roost within crevices and tree hollows within the fir forests. Within the forest floor, woody debris piles and layers of duff provide habitat for amphibians and reptiles.

Douglas fir forest habitat quality on the Preserve is high. The forests are extensive and relatively free of invasives. They include stands of redwoods, a sensitive habitat type. These forests play important roles in carbon sequestration, water and soil protection, and wildlife habitat.

Montane Hardwood-Conifer Forest

Montane hardwood-conifer forest on the Preserve is composed of Douglas fir in the upper canopy with a sub-canopy of mostly evergreen broad-leaved trees including coast live oak (*Quercus agrifolia*), bay, madrone, and black oak (*Q. kelloggii*). The shrub layer is limited but includes poison oak, hazelnut, creambush (*Holodiscus discolor*), California blackberry, and Napa false indigo (*Amorpha californica* var. *napensis*), the latter listed by CNPS as fairly threatened in California (1B.2). Fir and bay seedlings and saplings constitute a significant fraction of the shrub horizon in many areas of the Preserve. Few invasive species are present, with the exception of a small stand of French broom near a population of Napa false indigo along Well Head Road.

Basal fire scars are present on many of the older trees on the Preserve, indicating a long history of wildfire in this habitat with most of the fires being low-intensity ground fires. Because Douglas fir seedlings and saplings are killed by fire, but most hardwood species survive by resprouting, periodic low-intensity fires in mixed forests favor the presence of hardwoods.

As noted above in the Douglas fir section, the forests on the Preserve are an important resource for wildlife. The montane hardwood-conifer forest with its more complex shrub layer and greater plant diversity, provide additional foraging, nesting, and cover opportunities for wildlife. Wildlife species composition across the forest types is likely similar.

Montane hardwood-conifer forest habitat quality on the Preserve is high. The forests support abundant natural regeneration and are diverse both in tree composition and understory. They are relatively free of invasive species. They include stands of California bay, which is considered by CDFW to be a sensitive habitat type although it is common locally. These forests play important roles in carbon sequestration, water and soil protection, and wildlife habitat.

Closed Cone Pine/Cypress Forest

Closed cone pine/cypress habitat on the Preserve is comprised of Sargent cypress (*Cupressus sargentii*) stands on serpentine soil at the eastern edge of the Preserve. The shrub layer is composed of leather oak (*Quercus durata*) and Sonoma ceanothus (*Ceanothus sonomensis*), the latter listed by CNPS as fairly threatened in California (1B.2). This habitat type is considered sensitive.

This habitat is fire dependent: Sargent cypress produce serotinous cones that require the heat of fire to open and release seeds, although cones of some species will gradually open with age, with summer heat, or partially upon maturity. The full sunlight and bare soil present after fire events is conducive to seed germination and results in even-aged, dense stands of the dominant species. In the absence of fire, this habitat is likely to succeed to serpentine chaparral or grassland habitat due to the inability of the dominant

species to reproduce in sufficient numbers to replace senescing[3] individuals without the heat of fire. However, too-frequent fire recurrence (e.g. before the build-up of a canopy seed bank) can lead to stand extinction.

The Sargent cypress habitat on the Preserve is limited in extent and less diverse than the other forest types present. The habitat type does not support the wildlife diversity as other forest types, but it is still an important resource. The cypress forests support wildlife adapted to dry, shrub-dominated habitats. Typical mammal species may include black-tail deer, coyote, and brush rabbit. Representative birds include California quail, Allen's hummingbird, western scrub-jay, bushtit, Bewick's wren, wrentit, spotted towhee, and song sparrow. Snakes and lizards use this drier habitat as well.

Sargent cypress habitat quality on the Preserve is high. Stands on the Preserve support significant native plant biodiversity, including several rare species, and are relatively free of invasive species. Sargent cypress stands also provide carbon sequestration and protection of soil and water in the uniquely challenging environment of serpentine soil. Management concerns in this habitat are protecting rare plant populations, managing fuel loads, and supporting the persistence of vegetation diversity as climate warms and fire regimes change.

Montane Riparian Forest

Montane riparian habitat comprises just two percent of the Preserve; nevertheless, viability in this zone is integral to maintaining high local biodiversity and watershed function. This forest type occurs as a narrow band of deciduous trees with a closed overstory and variable understory along Van Buren, Alpine, and Weeks Creeks. Tree species include big-leaf maple (*Acer macrophyllum*), California bay, coast redwood, white alder (*Alnus rhombifolia*), and Oregon ash (*Fraxinus latifolia*). Understory trees and shrubs may include willow (*Salix* sp.), poison oak, creambush, osoberry (*Oemleria cerasiformis*), California blackberry, and snowberry.

The riparian zone along Alpine Creek is largely devoid of invasive species. The riparian vegetation along the tributary of Ducker Creek on the Preserve contains a limited amount of Himalayan blackberry (*Rubus armeniacus*). Weeks Creek is infested with substantial stands of Spanish broom (*Spartium junceum*) and Himalayan blackberry and lesser amounts of wild plum (*Prunus cerasifera*). Stands of greater periwinkle (*Vinca major*), English ivy (*Hedera helix*), and Himalayan blackberry are located along the reach of Van Buren Creek on the Preserve, adjacent to Erland Road.

Riparian habitats tend to have an exceptionally high value for both aquatic and terrestrial wildlife species. In general, riparian woodlands and stream channels provide nesting opportunities, food, and shelter and may serve as corridors or islands during migration for a variety of fish and wildlife species. Riparian vegetation provides foraging and nesting opportunities for both migrant and resident birds and support a larger number of bird species than any other habitat type in California. Bird species occurring both along

[3] Senescence is the process by which an organism deteriorates with age.

riparian corridors and in adjacent uplands include red-shouldered hawk, California quail, mourning dove, great horned owl, Anna's and Allen's hummingbirds, downy and hairy woodpeckers, western wood-pewee, Pacific-slope flycatcher, tree swallow, Steller's and western-scrub jays, chestnut-backed chickadee, bushtit, Bewick's wren, Swainson's thrush, American robin, wrentit, warbling vireo, orange-crowned, yellow and Wilson's warblers, black-headed grosbeak, spotted towhee, song sparrow, purple finch, and American goldfinch. A few typical mammals of riparian habitats in the region include western gray squirrel, dusky-footed woodrat, northern raccoon, and black-tailed deer. In addition, common bat species may forage over the woodlands and roost within the larger trees.

Terrestrial salamanders (e.g., slender salamander, Ensatina) utilize adjacent woodlands, and aquatic salamanders (e.g., red-bellied, California giant salamander) utilize channels seasonally. The stream channels themselves are important for a variety of aquatic organisms that serve as the food base for larger aquatic species such as macroinvertebrates as well as for terrestrial species. The creeks are an important resource for fish. Steelhead have been documented in the perennial reaches of Alpine Creek and in Weeks Creek, and the larger Mark West Creek watershed supports this species as well as coho salmon. Special-status, stream-dwelling foothill yellow-legged frog have been documented at the edge of the Preserve in Weeks Creek and suitable habitat is present in Alpine Creek. The riparian habitats act as key migration corridors at both a local and regional scale.

Montane riparian habitat quality is high on the Preserve. It occurs in a narrow band due to its position high in the watershed, but is relatively diverse and has low to moderate levels of invasive infestation. It provides important functions of water quality protection and wildlife habitat diversity and movement corridors. It is also especially valuable as climate warms, providing temperature refuge and habitat connectivity. Riparian habitat is considered sensitive. The key management concern in this habitat is invasive species management.

Coastal Oak Woodland

Coastal oak woodland encompasses approximately 20% of the Preserve and includes stands of coast live oak, black oak, Oregon (*Q. garryana*) and valley (*Q. lobata*) oaks as well as mixed stands. Oregon and valley oak woodland are considered sensitive. Evergreen coast live oak woodland and Oregon oak woodland are the most extensive types on the Preserve. Other tree species commonly present include blue oak (*Q. douglasii*) and California bay, and in a number of locations, Douglas fir (*Pseudotsuga menziesii*).

The understory of the oak woodlands on the Preserve varies depending on canopy density but is typically dominated by a mixture of non-native annual grasses and forbs and native poison oak, blue wildrye (*Elymus glaucus*), and ferns. Special-status Napa false indigo occurs in some woodlands in dappled shade. Invasive species--other than the widespread non-native annual grasses and forbs--are limited within the oak woodlands. Oak regeneration is abundant in many locations but limited in the more open stands. Sudden Oak Death (SOD) has been confirmed in several locations throughout the Preserve.

Like the forests, oak woodlands provide suitable habitat for a variety of terrestrial birds, mammals, amphibians, and reptiles. The value of oak woodlands for wildlife is exceptionally high given the presence of native oak trees, which serve as a significant resource for many wildlife species in the form of both food

and shelter. Every aspect of the oak tree is utilized as forage, including acorns, leaves, twigs, pollen, roots, and sap. Perhaps the most widely recognized source of food is the acorn. This high-energy food is used heavily by acorn woodpecker, western-scrub jay, western gray squirrel, and black-tailed deer. Individual trees are also important food storage sites for acorn woodpeckers, which cache acorns for future consumption, particularly in dead and dying oak trees. These snags are prevalent on the Preserve and are also used as nesting cavities. The use of acorns by a number of wildlife species is important for dispersal and colonization of trees. The entire tree from the canopy to the roots is used as shelter; even the layer of detritus around the base is utilized by a number of amphibians and insects. Oak woodlands are typically less densely vegetated on the Preserve; thereby supporting wildlife species that require open areas for movement and foraging.

One wildlife management concern within the oak woodlands is the expansion of wild turkeys in Sonoma County. These birds are part of the range expansion of the Merriam's turkey, a subspecies native to the semi-arid mid- and southwestern U.S. This species was not present in California at the time of European settlement, but has been introduced throughout the state since the 1870s for hunting. The effects of introduced turkeys on native wildlife are not well understood, but this opportunistic omnivore could pose a threat to native wildlife through predation, direct competition, especially for acorns (CDFG 2004). Wild turkeys may use the more open wooded habitats on the Preserve.

Oak woodland habitat quality on the Preserve is high. It is extensive and includes a diversity of oak species. Understory diversity is moderate, with a mixture of native and non-native species. Douglas firs that could eventually shade out oaks are present in some locations, especially in areas of apparent past disturbance, where they form dense thickets. Key management concerns in the oak woodlands on the Preserve are encouraging oak regeneration in more open areas; limiting the spread of SOD by humans; and controlling firs where they are threatening to shade out oaks.

Mixed Chaparral

On Saddle Mountain, mixed chaparral habitat occurs on very shallow, rocky soils with chamise (*Adenostoma fasciculatum)* as the dominant species. Stands of scrub oak (*Quercus berberidifolia*), ceanothus, and manzanita (*Arctostaphylos* spp.) are also present with toyon (*Heteromeles arbutifolia*), California buckeye (*Aesculus californica*), poison oak (*Toxicodendron diversilobum*), stunted bay laurel (*Umbellularia californica*), northern sticky monkeyflower (*Mimulus aurantiacus*), and coffeeberry (*Rhamnus californica*) as associates. Vegetative cover is usually dense, often creating a relatively impenetrable thicket. Herbaceous ground cover is common in young stands but becomes less frequent as stands age. This type also includes several stands of coyote brush, which are establishing in areas previously maintained as grassland when livestock were present. See discussion in the Grassland section below.

Most chaparral types are fire-adapted. Many of the shrubs resprout readily after fire, or have seeds that require fire for germination. Even after prolonged fire-free intervals, other vegetation communities do not replace chaparral. Instead, dominant canopy shrubs are likely to change in response to changes in fire regime (Keeley and Davis 2007). Recovery is rapid after fire; for the first 30 years, shrub cover increases

and canopies begin to overlap and shrubs outcompete herbaceous species. Stands older than 25 to 35 years eventually become senescent with the rate dependent on species composition, slope, aspect, elevation, and soil type. Senescent stands tend to be highly flammable, with a lot of accumulated dead material.

The chaparral on the Preserve is largely free of invasive species, with the exception of a stand of French broom (*Genista monspessulana*) within a serpentine chaparral plant community along the PG&E access road and under a transmission line tower in the far eastern portion of the Preserve.

Chaparral provides habitat for a wide variety of wildlife adapted to shrub-dominated environments. Numerous rodent species inhabit chaparral, and deer and other herbivores make extensive use of it for browse and protective cover. Some small herbivores use chaparral species in fall and winter when grasses are not abundant. Brush rabbits eat twigs, evergreen leaves, and bark from chaparral plants. Shrubs are important to many other mammals (e.g., bobcat, gray fox) as shade during hot weather. Reptiles frequently observed in chaparral include western fence lizard, alligator lizard, and gopher and rattlesnakes. Chaparral provides a variety of resources for birds in the form of seeds, fruits, insects, protection from predators and climate, as well as singing, roosting, and nesting sites. Typical chaparral birds include California quail, Anna's hummingbird, western scrub-jay, bushtit, Bewick's wren, wrentit, California thrasher, spotted towhee, and rufous-crowned sparrow. Rocky outcroppings mixed within chaparral add complexity to the habitat, providing additional foraging and nesting opportunities.

Chaparral habitat quality on the Preserve is high. A diversity of chaparral types are present, including sensitive manzanita-dominated chaparral and other stands on serpentine soils. Multiple rare species have been documented. The Preserve's chaparral stands provide important carbon sequestration, fire resilience, wildlife habitat, soil and water protection, and plant diversity. Key management concerns in this habitat are managing fuel loads and invasive species control along the PG&E access road and in other areas of soil disturbance.

Grassland

Grassland habitat occurs extensively throughout the southwestern portion of the Preserve and in isolated patches in the northeastern portion. Although it is described in the Management Plan as annual grassland, most of the stands on the Preserve have a strong component of native perennial California oatgrass (*Danthonia californica*). This relatively small-statured perennial is often hidden by dense growth of taller non-native annuals, but forms significant cover in many stands. Stands of purple needlegrass (*Stipa pulchra*) are also present, including just uphill of the vernal pool near the hunting cabin. Native blue wild rye is common, especially along ecotones between grassland and woodland. Areas with thin, rocky, or serpentine soils typically have the highest proportion of native perennial grasses. Areas with deeper, clay-rich soils, such as Raynor clay in the southwest, appear to support the highest density of non-native annuals including invasive medusahead (*Elymus caput-medusae*) and yellow starthistle (*Centaurea solstitialis*). These areas may also have supported more livestock use in the past, as they are typically more productive and occur on gentler terrain. However, the native perennials and invasive annuals also

commonly co-occur throughout the Preserve. A stand of the endangered annual forb, Clara Hunt's milkvetch (*Astragalus claranus*), is present in one of the Preserve's grasslands.

Invasive species are a significant concern in the Preserve's grasslands. In addition to yellow starthistle and medusahead, other high-priority invasives include barbed goatgrass *(Aegilops triuncialis*) and fennel (*Foeniculum vulgare*). One non-native, rosy sandcrocus (*Romulea rosea*), is present near a stand of federally listed Clara Hunt's milk vetch and merits control and monitoring. In a few locations, native coyote brush is establishing in grassland. This likely reflects the termination of livestock grazing on the Preserve. Historic clearing of oaks may have occurred in these locations, or grazing pressure may have eliminated scattered stands over time. As a pioneer woody species, coyote brush may facilitate the gradual re-establishment of native oaks in these areas.

Grasslands provide important habitat for wildlife, but many species also require special habitat features (i.e., rocky outcroppings, woody cover, shrubs) and habitat margins to meet their needs. Grasslands provide foraging opportunities for a number of bird species who are attracted to seeds, other plant material, invertebrates, and small vertebrates. Species such as the western bluebird, loggerhead shrike, and Say's phoebe utilize grasslands, especially when there are adequate perches such as fences to forage from. Predatory hawks and owls, including American kestrel and barn owls, frequent these areas as well. Small vertebrates and invertebrates within the habitat are likely to serve as a food source for these birds and other predatory vertebrates. Subterranean foragers, such as Botta's pocket gopher and California mole, commonly occur in grassland habitats, and evidence suggesting their presence was observed. In addition, small mice (e.g., deer and harvest), California vole, black-tailed jackrabbit, coyote, and black-tailed deer are frequently observed. Bat species may also forage over grasslands. Patches of perennial grasses and forbs add to the habitat's complexity and provide additional foraging opportunities. Native butterflies and invertebrates are also abundant.

Grassland habitat quality on the Preserve is moderate to high. Although native grassland stands have not been formally mapped on the Preserve, they occur throughout most of the Preserve, are regionally uncommon, and are considered sensitive by CDFW. However, even in native-dominated stands, invasive species are common. Native grasslands in particular provide important plant and animal habitat diversity, protect soil from erosion, and provide resilience to disturbance from fire. Key concerns in the Preserve's grasslands are protecting native perennial grass stands, protecting the stand of Clara Hunt's milk vetch, and controlling invasive species.

Wetlands and Pond Habitat

Wetlands on the Preserve include wet meadow, freshwater emergent wetland, and a small vernal pool and pond. Together, these comprise approximately one acre. The vernal pool and constructed pond are near the hunting cabin in the northern portion of the Preserve.

Wet meadow habitat on the Preserve occurs in low areas and seeps primarily within grassland settings. Representative plant species include native California oatgrass (*Danthonia californica*) and meadow barley (*Hordeum brachyantherum*), sedges, and rushes. Invasive species are relatively common and include velvet grass (*Holcus lanatus*) and bull thistle (*Cirsium vulgare*).

Freshwater emergent wetlands on the Preserve are similar to the wet meadows but have a greater supply or duration of water. They are associated with seeps, springs, and pool or pond edges. Vegetation is dominated by perennial water-loving plants such as sedges (*Carex* sp.), rushes (*Juncus xiphioides*, *J. patens*, and others), and creeping wildrye (*Elymus triticoides*). Invasive species in this habitat type are primarily within the wetland/upland transition zone and include Himalayan blackberry, Harding grass (*Phalaris aquatica*), velvet grass (*Holcus lanatus*), bull thistle (*Cirsium vulgare*) and pennyroyal (*Mentha pulegium*).

A vernal pool is located near the hunting cabin in the northern portion of the Preserve. Vegetation includes Lobb's buttercup (*Ranunculus lobbii*, CNPS 4.2), as well as popcorn flower, semaphore grass (*Pleuropogon californicus*), and spikerush (*Eleocharis macrostachya*). The invasive plant pennyroyal is well established within the pool, and a small patch of Himalayan blackberry is located adjacent to the pool. A small created pond is nearby. Vegetation along the pond edge is dominated by the non-native lance-leaved water-plantain (*Alisma lanceolatum*), and also includes invasive pennyroyal and the special status plant Lobb's buttercup.

The pond and seasonal wetland provide resources for terrestrial and aquatic wildlife. The pond provides a nearly year-round water supply while the smaller wetland provides habitat during the winter months. These water sources are important breeding grounds for local amphibian populations and aquatic invertebrates. The pond provides suitable breeding habitat for newts and Sierran treefrog, a native frog. Adult Sierran treefrogs were observed at the pond in early October 2018. The pond may support northwestern pond turtle, a special-status species. Persistent aquatic resources with water into late summer are also critical watering holes for local wildlife when other sources have dried up. Many birds (e.g., swallows, Steller's jay, American robin) also rely on pockets of exposed mud within wetlands for construction of all or portions of their nests. Many species of mammals also come to utilize these as a source of drinking water and to prey on aquatic species.

Wetland habitat quality on the Preserve is moderate. The wetlands present are small and support a mixture of non-native and common native plant species. Wetlands do provide important plant and animal habitat diversity, and serve a valuable role in capturing, filtering, and storing water. Key concerns in the Preserve's grasslands are controlling invasive species and climate change stresses.

2.4.7 Special-status Species

The Preserve supports potential habitat for a number of special-status species. Special-status species include plants and animals native to California that are afforded legal protections because they are at risk. These species occur in small isolated populations or in fragmented habitat, show a marked population decline, depend on habitat that has been greatly reduced or is threatened by further loss, or have historical records in the state but no longer persist. These species require careful consideration for resource management actions or land-use changes.

The potential for occurrence of special-status species on Saddle Mountain was determined based on occurrences reported in the California Department of Fish and Wildlife California Natural Diversity

Database (CNDDB), the primary source for special-status plant and animal sighting information in the state (CDFW 2018b, Figure 4) and additional background and literature review. Special-status species with potential to occur on the Preserve were identified based on a comparison of existing habitat and microhabitat conditions with species needs, proximity to reported occurrences, and geographic range of subject species.

2.4.7.1 Plants

Seven special-status plant species have been identified on the Preserve to date, and two others are known to occur in the vicinity of the Preserve. Table 2-2, Special-status Plants Documented or with Potential to Occur on the Preserve, describes the special-status plants identified as having potential to occur on the Preserve; species known to be present or with high potential to occur are highlighted in gray. A complete list of special-status plants associated with the Preserve is presented in Appendix C, including the plant characteristics and potential for the species to occur on the Preserve.

Table 2-2. Special-status Plants Documented or with Potential to Occur on the Preserve

Scientific Name	Common Name	Listing Status[4] USFWS/CDFW/CNPS
Amorpha californica var. napensis	Napa false indigo	--/--/ 1B.2
Anomobrym julaceum	slender silver moss	--/--/2.2
Arctostaphylos canescens ssp. sonomensis	Sonoma canescent manzanita	--/--/ 1B.2
Arctostaphylos stanfordiana ssp. decumbens	Rincon Ridge manzanita	--/--/ 1B.1
Astragalus claranus	Clara Hunt's milk-vetch	FE/ST/ 1B.1
Brodiaea californica var. leptandra	narrow-anthered California brodiaea	--/--/ 1B.2
Calystegia collina ssp. oxyphylla	Mt. Saint Helena morning-glory	--/--/ 4.2
Ceanothus confusus	Rincon Ridge ceanothus	--/--/ 1B.1
Ceanothus divergens	Calistoga ceanothus	--/--/ 1B.2
Ceanothus purpureus	holly-leaved ceanothus	--/--/ 1B.2
Ceanothus sonomensis	Sonoma ceanothus	--/--/ 1B.2
Centromadia parryi ssp. parryi	pappose tarplant	--/--/ 1B.2
Eryngium constancei	Loch Lomond coyote-thistle (=button-celery)	FE/SE/ 1B.1
Fritillaria liliacea	fragrant fritillary	--/--/ 1B.2
Hemizonia congesta ssp. congesta	white seaside tarplant	--/--/ 1B.2

[4] Listing Status: FE-federally listed as endangered, FT-federally listed as threatened, BCC-Bird of Conservation Concern, SE-state listed as endangered, ST-state listed as threatened, Candidate SE-state candidate to be listed as endangered under CESA Candidate ST-state candidate to be listed as threatened under CESA, FP-State of California fully-protected species, SSC-California Species of Special Concern, and WL-Watch List.

Table 2-2. Special-status Plants Documented or with Potential to Occur on the Preserve

Scientific Name	Common Name	Listing Status[4] USFWS/CDFW/CNPS
Layia septentrionalis	Colusa layia	--/--/ 1B.2
Leptosiphon jepsonii	Jepson's leptosiphon	--/--/ 1B.2
Lupinus sericatus	Cobb Mountain lupine	--/--/ 1B.2
Navarretia leucocephala ssp. bakeri	Baker's navarretia	--/--/ 1B.1
Penstemon newberryi var. sonomensis	Sonoma beardtongue	--/--/ 1B.3
Plagiobothrys strictus	Calistoga allocarya (popcorn-flower)	FE/ST/ 1B.1
Ranunculus lobbii	*Lobb's aquatic buttercup*	--/--/4.2
Sidalcea hickmanii spp. napensis	Napa checkerbloom	--/--/ 1B.1
Trifolium hydrophilum	saline clover	--/--/ 1B.2
Triquetrella californica	coastal triquetrella	--/--/ 1B.2
Viburnum ellipticum	oval-leaved viburnum	--/--/ 2.3

2.4.7.2 Animals

Six special-status animal species have been identified on the Preserve to date, and four others are known from nearby. Table 2-3, Special-status Animals Documented or with Potential to Occur on the Preserve, describes all special-status animals identified as having potential to occur on the Preserve; species known to be present or with high potential to occur are highlighted in gray.

Table 2-3. Special-status Animals Documented or with Potential to Occur on the Preserve

Common Name	Scientific Name	Listing Status[5] USFWS/ CDFW[6]
California Giant Salamander	*Dicamptodon ensatus*	--/SSC
California Red-legged Frog	*Rana draytonii*	FT/ SSC
Foothill Yellow-legged Frog	*Rana boylii*	--/Candidate ST, SSC
Red-bellied Newt	*Taricha rivularis*	--/SSC
Northwestern Pond Turtle	*Actinemys marmorata*	--/SSC
Sharp-shinned Hawk	*Accipiter striatus*	--/WL (nesting)
Oak Titmouse	*Baeolophus inornatus*	BCC/--
Wrentit	*Chamaea fasciata*	BCC/--
American Peregrine Falcon	*Falco peregrinus anatum*	Delisted, BCC/ Delisted, FP

[5] See footnote from Table 2-2.

[6] California Department of Fish and Wildlife (CDFW). 2018a. Special Animals List – August 2018. Periodic publication.

Table 2-3. Special-status Animals Documented or with Potential to Occur on the Preserve

Common Name	Scientific Name	Listing Status[5] USFWS/ CDFW[6]
Nuttall's Woodpecker	*Picoides nuttallii*	BCC/--
Northern Spotted Owl	*Strix occidentalis caurina*	FT/ ST, SSC
Pallid Bat	*Antrozous pallidus*	--/SSC
Townsend's Big-eared Bat	*Corynorhinus townsendii*	--/SSC
San Bruno Elfin Butterfly	*Callophrys mossii bayensis*	FE/--
California Freshwater Shrimp	*Syncaris pacifica*	FE/SE
Coho Salmon – Central California Coast ESU	*Oncorhynchus kisutch*	FE/SE
Steelhead – Central California Coast DPS	*Oncorhynchus mykiss irideus*	FT/--

Saddle Mountain Open Space Preserve

Special-status Species Records in Preserve Vicinity

Preserve boundary

Northern spotted owl observations

0 0.5 1

Miles

N

Sources:
Occurrences - CDFW 2018,
Sonoma Ag + Open Space
Imagery - ESRI

2.4.8 Other Resource Issues

Sudden Oak Death

Sudden Oak Death (SOD) is a plant disease caused by the introduced pathogen *Phytophthora ramorum*. First detected in 1995, the pathogen is hosted by, weakens, and/or kills several oak species as well as a growing list of additional native plant species. Native tree species that are highly susceptible to SOD on the Preserve are tanoak (*Lithocarpus densiflorus*) and coast live oak (*Quercus agrifolia*). California bay serve as key hosts for the disease. Additional susceptible species that occur on the Preserve include madrone, California buckeye (*Aesculus californica*), big-leaf maple, western azelea (*Rhododendron* spp.), manzanita (*Arctostaphylos* spp.), toyon (*Heteromeles arbutifolia*), coffeeberry (*Rhamnus californica*), and honeysuckle (*Lonicera hispidula*). There are several confirmed locations and numerous potential areas of SOD on the Preserve as shown on Figure 5, Documented and Potential Locations of SOD.

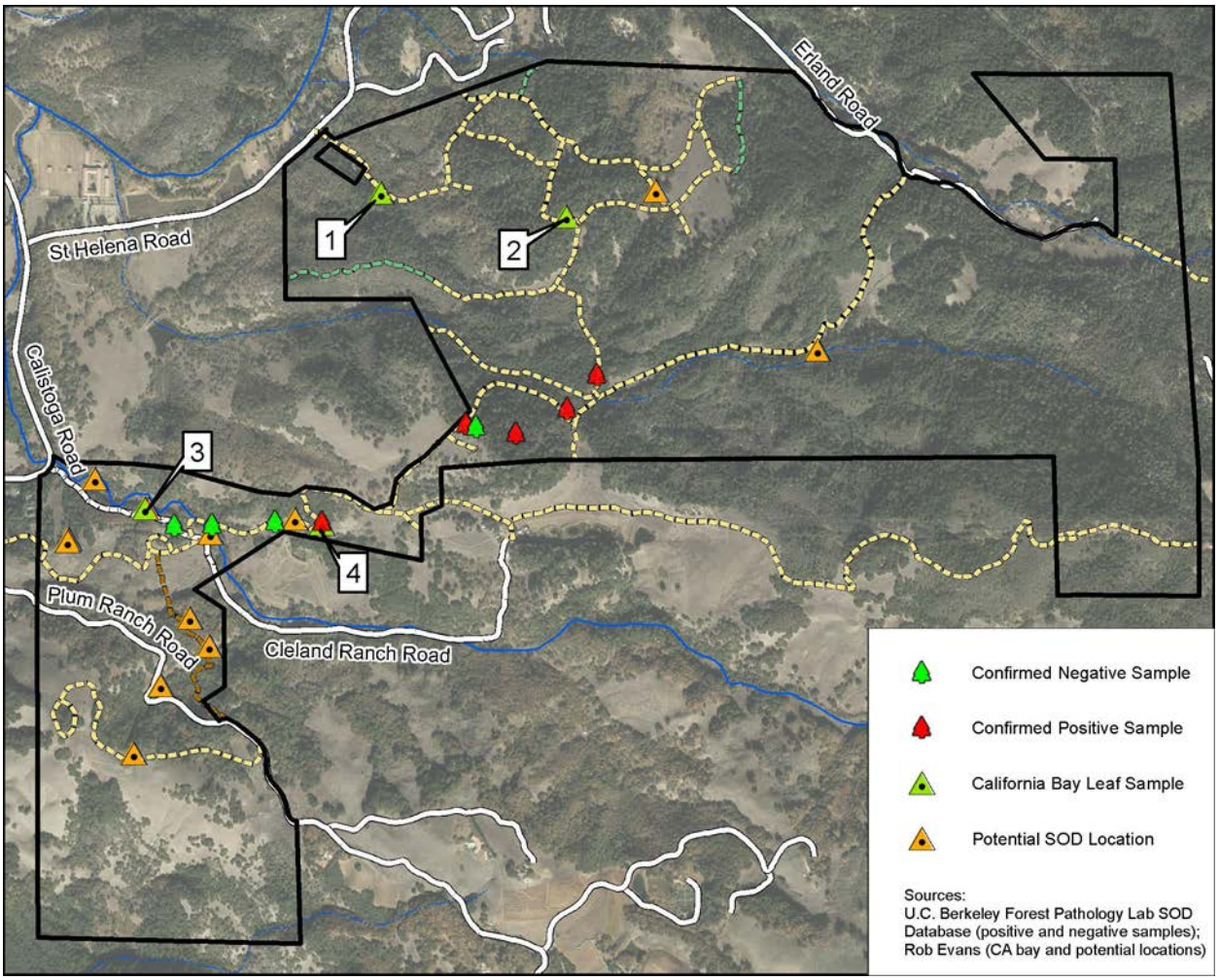


Figure 5. Documented and Potential Locations of Sudden Oak Death

Fire Hazard and Fuels

The Preserve is designated a State Responsibility Area (SRA), where CalFire has legal responsibility for fire protection. The Preserve is in an area of high and very high fire hazard severity (CalFire 2007) and is located within the wildland-urban interface (ABAG 2018). Fuel loads have accumulated throughout many of the Preserve's natural communities. Managing fuel loads within the Preserve and reducing the risk of wildfire is a key management concern for the District.

2.5 Project Components

The Management Plan presents an assessment of the types of resources on the Preserve, their status, and known threats. Having established the status of the resources and known threats to each resource, the District identified areas that required remediation and protection or enhancement actions to address these threats. The objectives, actions, and management regimes described in the Management Plan are designed to address several primary resource management issues on the Preserve. Erosion and sedimentation control, forest and fire management, and invasive plant species management warrant more immediate management actions to address. The Management Plan also addresses other management issues that the District anticipates may pose future threats: Sudden Oak Death, human use management, and preservation of cultural resources.

The following is a discussion of specific management actions proposed for the Preserve. For the full details of how management would be conducted and the thought process leading to these management actions, see Appendix A: Draft Management Plan. The Draft Management Plan may be revised to address public and agency comments received during the CEQA comment period.

2.5.1 Erosion Control and Water Quality Protection

Erosion control and water quality protection activities would be implemented on the Preserve to protect soil and water resources by restoring actively eroding roadways and trails, maintaining and improving native vegetation cover, and avoiding infrastructure development and public access in sensitive habitats.

Roadway Erosion Control Activities

Priority gully and roadway erosion sites throughout the Preserve would be repaired to reduce sediment delivery from chronic erosion of roadways. Proposed roadway erosion control activities are shown in Table 2-4, Proposed Erosion Control Treatments. Erosion control treatments would include culvert installation and replacement, road outsloping, ditch removal, construction of wet crossings and rolling dips, and re-surfacing. Figure 6, Erosion Control Treatment Areas, displays the location of treatment sites throughout the Preserve. Proposed road and trail treatments to protect nearby sensitive features are shown in Table 2-5, Road and Trail Treatments.

Table 2-4. Proposed Erosion Control Treatments

Treatment type			No.	Comments
Site specific treatments	Stream crossing treatments	Armor fill faces	1	Armor the outboard fill face at site #1 using 2 yd3 of riprap.
		Replace culverts	1	Replace an undersized, poorly installed, worn out culvert (Site #24).
		Clean culverts		Clean and maintain the inlet and outlet of the ditch relief culvert (Site #25).
		Trash racks	1	Install a trash rack at culvert inlet (site #24).
		Wet crossing	13	Construct 2 fords (Site #11 and 15) and 11 armored crossings (Site #2, 4, 7, 8, 13, 18, 20, 21, 22, 27, 34) using 80 yd^3 of rock. armor
		Critical dips	1	Install roadway dips to prevent stream diversions (Site #24).
	Other	Soil excavation	18	Excavate and remove a total of 192 yd^3 of sediment (Site #1, 2, 4, 7, 8, 11,13, 15, 18, 20, 21, 22, 24, 26, 27, 31, 33, 34)
Road surface treatments	Road drainage treatments	Rolling dips	93	Install rolling dips to improve road drainage.
		Cross road drains	2	Install cross drains to improve drainage on decommission roads.
		Install ditch relief culvert	3	Install or replace ditch relief culverts to improve road surface drainage.
		Outslope road	16	Outslope road and remove ditch along 8,188 feet of road to improve road surface drainage.
	Roadway surface treatments	Repave roadway	4	Repave a total of 900 ft^2 of road at 1 stream crossing and 3 ditch relief culvert installations.
		Rock armor	3	Add a total of 105 yd^3 of rock to the road surface at 3 rolling dips and 520 feet of road outsloping.
		Upgrade Road Surface		Upgrade roadway surface of approximately 4.9 miles of existing roadway as shown in Table 2-5.
		Roadway Decommissioning		Decommission approximately 1.5 miles of roads currently running through or near sensitive resources as shown in Table 2-5.

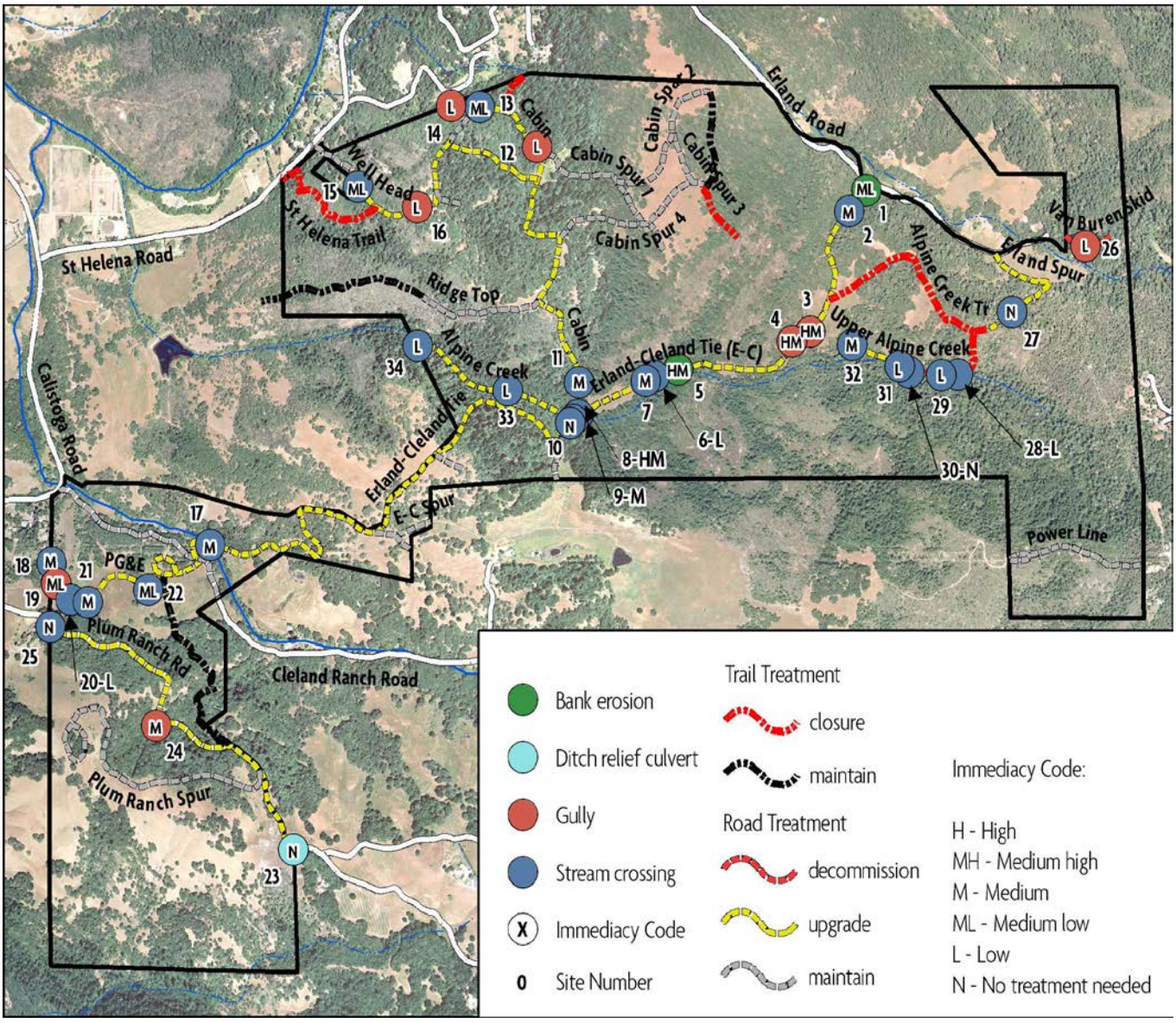


Figure 6. Erosion Control Treatment Areas

Table 2-5. Road and Trail Treatments

Road / trail name	Sensitive Feature	Road sites impacted by sensitive feature buffer zone	Treatment recommendation	Total length (mi)
Alpine Creek Road	Riparian, Napa false indigo	2 stream crossings: Site #33, 34	Closure	0.37
Alpine Creek Trail	Riparian, Napa false indigo	2 stream crossings: Site #28, 29	Closure	0.62
Cabin Road	Riparian, Freshwater Emergent Wetland, Cultural	1 gully: Site #12	Upgrade (0.69 mi), Decommission (0.17 mi)	0.86
Erland-Cleland Tie Road	Riparian, Cultural	6 stream crossings (Site #6, 7, 8, 9, 10, 17) 1 bank erosion (#5)	Upgrade	2.00
Erland Spur Road	Serpentine, Closed Cone Pine-Cypress Sonoma ceanothus	None	Upgrade	0.28
PG&E Road	Serpentine, FEW, Wet Meadow	3 stream crossings (Site #18, 20, 21) 1 gully (Site #19)	Upgrade	0.51
Plum Ranch Road	Serpentine, Cultural, Napa false indigo	1 DRC (Site #23)	Upgrade	0.78
Upper Alpine Creek Road	Riparian	3 stream crossings Site (#30, 31, 32)	No treatment, abandon in place	0.17
Van Buren Skid Road	Riparian	1 gully (Site #26)	No treatment, abandon in place	0.10
Wellhead Road	Napa false indigo	None	Upgrade	0.65

2.5.2 Enhance Plant Communities and Habitats

The Management Plan identifies enhancement activities in riparian, grassland, chaparral, and forest and oak woodland habitats. The District intends to manage riparian habitats to enhance cover for erosion prevention and bank stabilization and to conserve native plant communities and species. Grasslands would be managed to enhance the local diversity of native perennial grasses and native forbs. Chaparral habitats (serpentine chaparral) and northern interior cypress forest would be managed to increase native biodiversity and wildlife habitat. Forest and woodland habitats would be managed for fuel reduction, invasive plant control, and maintenance of appropriate native vegetation assemblages.

Sensitive Habitat Enhancement

The District intends to implement enhancement activities within select sensitive habitats on the Preserve, as shown on Figure 7, Sensitive Habitat Enhancement Areas and Figure 8, Habitat Enhancement Area Zones as discussed below.

- Revegetation and habitat enhancement would be implemented along Weeks Creek in an approximately 1.26 acre area in the western portion of the Preserve, which was previously

disturbed and has been invaded by exotic plants. This area is divided into five zones (Zones A through E) as shown on Figure 8, Habitat Enhancement Area Zones. In Zone A, revegetation would be implemented in order to widen the riparian corridor to 50 feet while leaving much of the adjacent grassland habitat intact. Small open areas in Zones B through E would be revegetated with drought-tolerant native tree species to expand the riparian corridor, provide habitat, and aid in bank stabilization.

- An approximately one-acre area, encompassing Zones F through I on Figure 8, Habitat Enhancement Area Zones, in an upland drainage along PG&E Road would be enhanced to restore disturbed habitat and address erosion and sedimentation. A population of invasive plants (Fuller's teasel) would be removed and the area would be revegetated to provide high-quality habitat and aid in bank stabilization. Brush check dams would be installed along the channel bottom to minimize erosion and sedimentation into Weeks Creek.

- Approximately 11 acres of non-contiguous coast redwood habitat would be enhanced. This acreage is spread throughout the northern and eastern portions of the Preserve, with the largest single area being just under two acres as shown on Figure 7, Sensitive Habitat Enhancement Areas. Coast redwood on the Preserve were historically logged and the redwoods on site currently consist primarily of scattered, sizeable second-growth stands that have stump-sprouted. Small saplings exist between established stands but are threatened by the encroachment of other tree species. Thinning, consisting primarily of removing Douglas fir and bay laurel, would be implemented in these areas to decrease competition and encourage the coast redwood saplings to thrive. Douglas firs and bay laurels would be removed by contractors utilizing chainsaws and hand tools. While prescribed burning (which is a long-term management activity) would be effective at reducing encroaching Douglas fir saplings and seedlings, larger trees would likely survive most prescribed burns. Therefore, when determined to be necessary, some larger Douglas fir and bay laurel would be removed using chainsaws or hand tools if saplings are small enough to be lopped. In the event that prescribed burns are not permitted or not considered a viable option on the Preserve in the long-term, manual methods of Douglas fir removal would be used exclusively to reduce encroachment. Larger Douglas fir trees may also be girdled and an herbicide applied to the cambium layer where the cut was made.

- Approximately 2.17 acres of valley needlegrass grassland would be enhanced. This grassland is currently threatened by the encroachment of coyote brush and a variety of invasive species. Enhancement activities in this area (see Figure 7, Sensitive Habitat Enhancement Areas) would focus on removing these encroaching species and restoring the open character of the grassland. Coyote brush and invasive species removal would be performed by District staff, volunteers, or contractors using hand tools and, if necessary, handheld power tools.

- Native plant communities around the Preserve would be enhanced by controlling invasive plant species and encroaching coyote brush and Douglas fir where appropriate. Invasive species would be monitored, including Himalayan blackberry, velvetgrass, and bull thistle, as these species pose the most aggressive threat to the integrity of the Preserve's grasslands.

- Fuel loading and encroachment of Douglas fir and bay laurel in chaparral habitat would be reduced through mechanical fuels treatment methods such as individual tree removal.

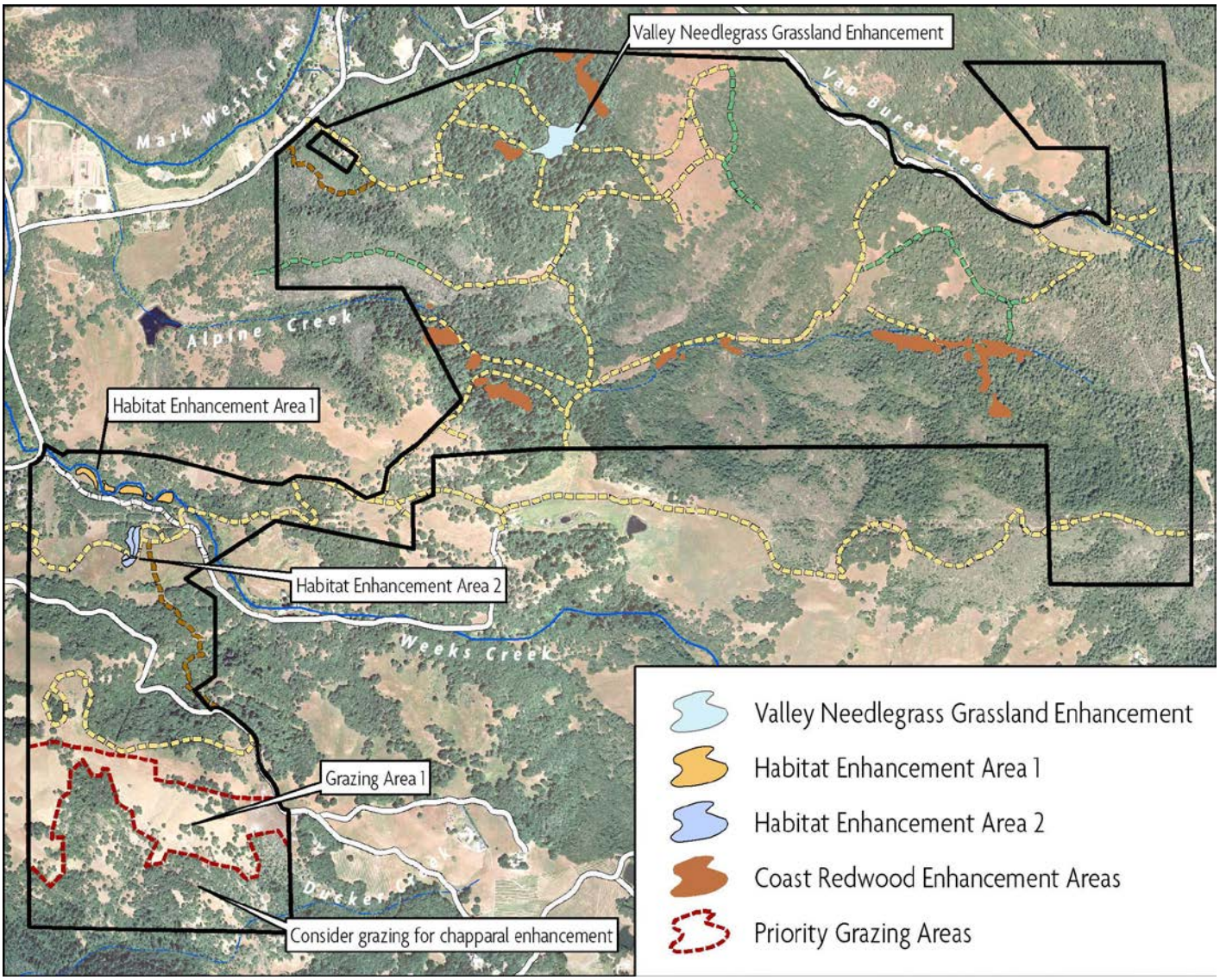


Figure 7. Sensitive Habitat Enhancement Areas

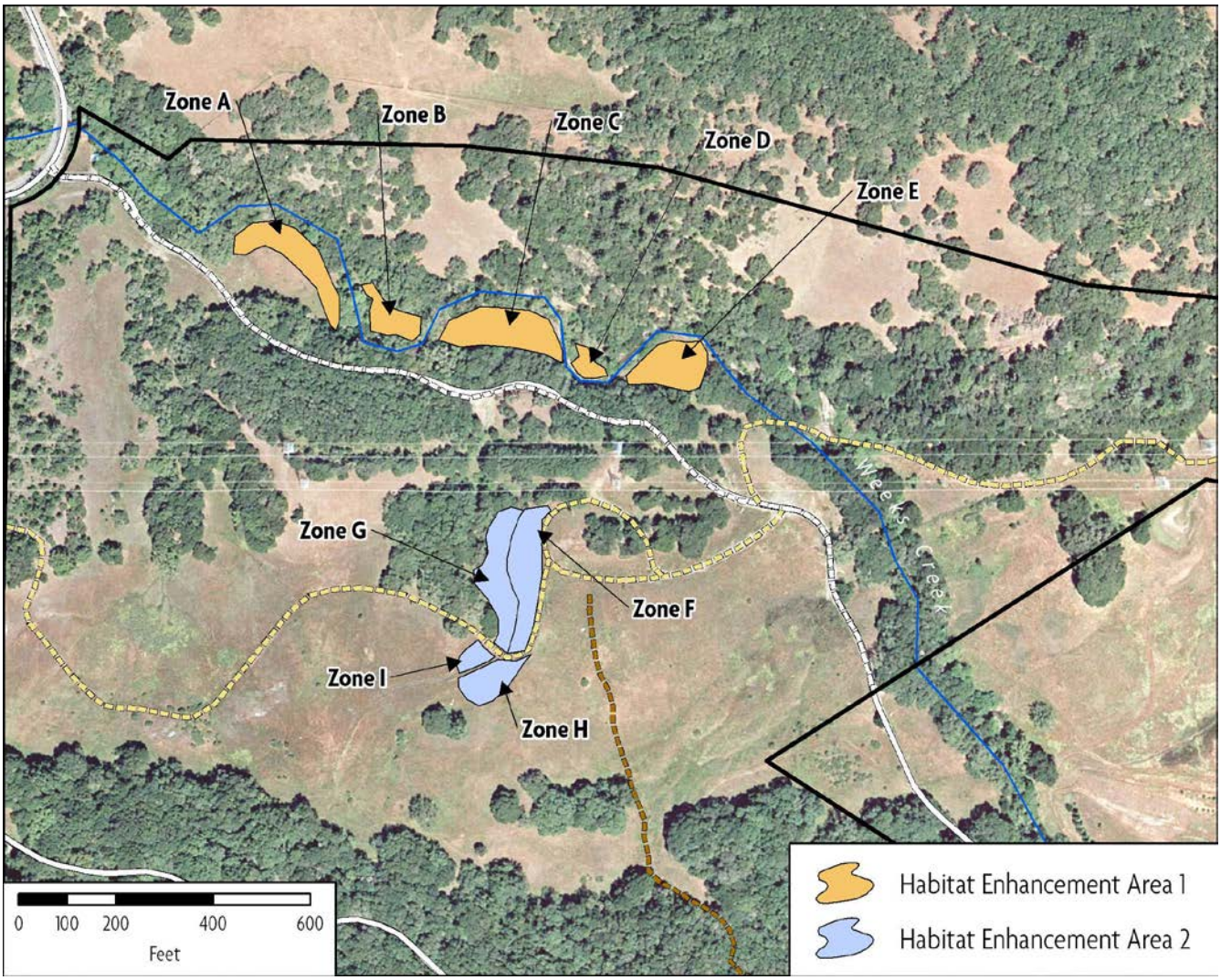


Figure 8. Habitat Enhancement Area Zones

General Forest Thinning and Tree Removal

Habitat enhancement opportunities within the Douglas fir Forest, Mixed Hardwood-Conifer, and Coastal Oak Woodland habitat types on the Preserve include thinning of dense even-aged stands. The District intends to conduct thinning within overcrowded, even-aged Douglas fir and mixed hardwood conifer habitats and along select corridors to establish shaded fuel breaks. To accomplish this, the District would implement the following actions:

- Evaluate vegetation management opportunities across approximately 780 acres of forested habitats, including some areas where coyote brush is encroaching into grasslands as shown on Figure 9, Proposed Fuel Breaks and Maximum Potential Thinning Area. The District would evaluate forest conditions to determine if mechanical treatment is necessary to thin overcrowded, even-aged Douglas fir and mixed hardwood conifer habitats, and along select corridors to establish shaded fuel breaks.

- Prepare a site-specific management program or plan, such as a Forest Management Plan, to guide overall forest management and the potential use of mechanical removal of trees to improve forest health and reduce fire risk. The Forest Management Plan would be developed in cooperation with registered professional foresters, natural resource specialists, ecologists, and/or wildlife biologists to identify and describe the objectives of forest thinning, the specific locations proposed for thinning, the prescription to achieve the desired forest condition, and the target vegetation conditions, including species composition and basal area. The Forest Management Plan, or similar document, would guide fuels treatment following mechanical treatment activities. Thinned trees may be pile burned, chipped on-site, or lopped and scattered to retain material and nutrients within the vegetation community while also reducing fire hazards.

- Secure approval and authorization from CalFire and other resource agencies for the Forest Management Plan or similar document.

- Implement forest management activities using a variety of mechanical treatment methods to accomplish forest thinning and tree removal. Mechanical management techniques may be used to implement forest and grassland management to improve the structure and composition of forest vegetation and decrease fire danger across the Preserve. Mechanical treatments may include targeted mowing in grasslands or mechanical thinning to improve forest conditions and to meet other management objectives across the Preserve. The District may use mowing to manage invasive species in grasslands. Mechanical forest treatments would include thinning and trimming to selectively removing trees from an area to restore stand structure to an ecologically appropriate range, improve species and habitat diversity, reduce ladder fuels, and ensure health and resiliency across the forested landscape.

Shaded Fuel Breaks

A shaded fuel break is a forest management strategy used to facilitate emergency access and establish safe locations for fire suppression activities in areas where natural fire regimes have been suppressed and where combustible vegetation has built up. They provide an opportunity to reduce, modify, and manage fuels along designated corridors to enhance wildland fire protection and to inhibit the spread of wildfire in key areas across the landscape. Shaded fuel breaks are designed to meet the following goals:

- Modify fire behavior by reducing ladder fuels and increasing tree spacing
- Treat ground fuels
- Facilitate fire suppression efforts

By modifying vegetation to reduce the rate of spread and intensity of fire, shaded fuel breaks can provide a defensible location that can be used by firefighters to help suppress oncoming wildfires. Fuels within a shaded fuel break are reduced in volume through thinning or pruning and the fuel breaks are generally constructed to protect both wildlands and neighboring communities and to facilitate safe ingress/egress along travel routes. They are commonly located along ridgelines and/or existing roads where firefighters often implement fire control efforts. The ideal location and design of shaded fuel breaks is determined after considering fuels, topography, weather, exposures, and other constructed or planned

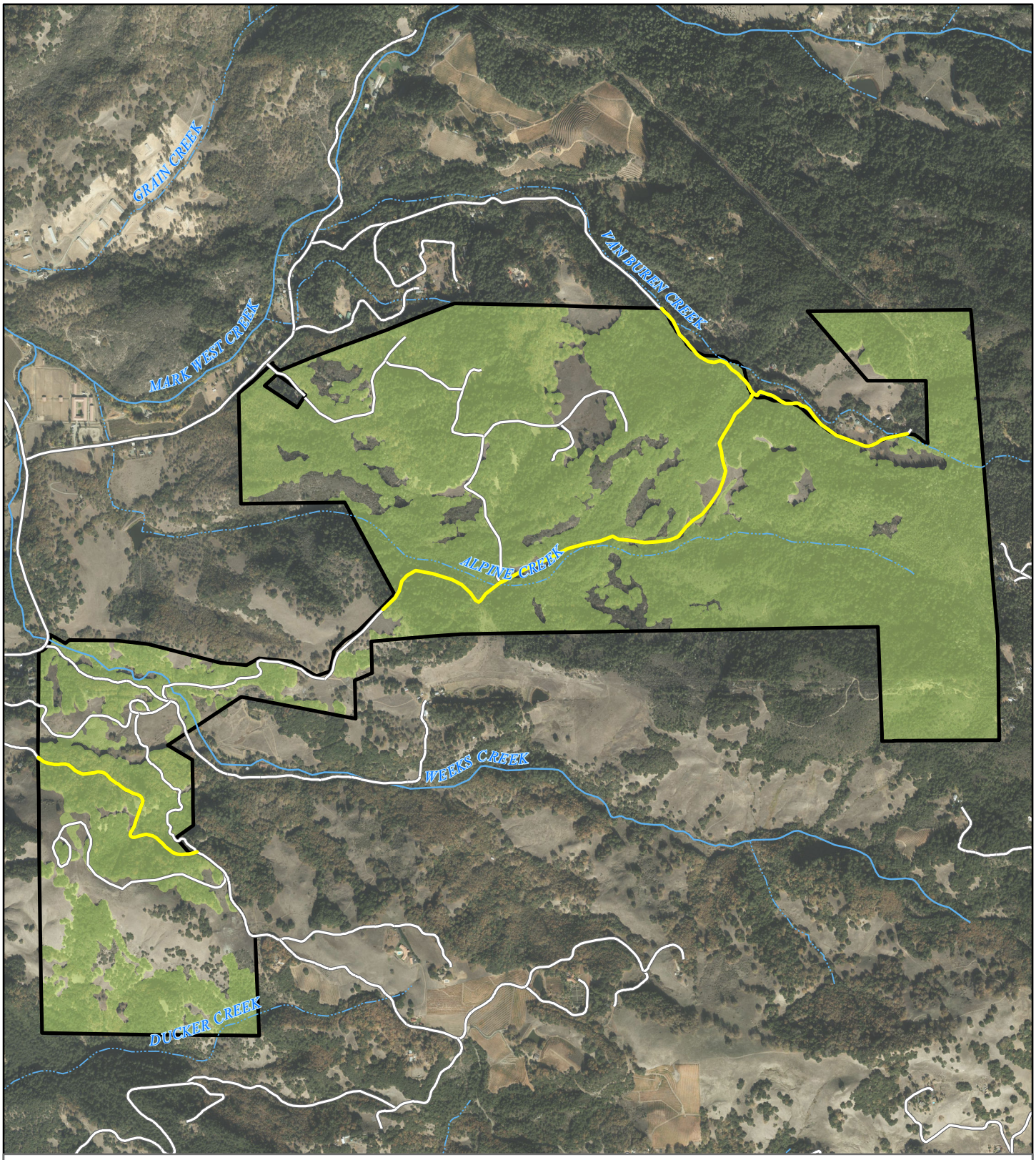
improvements. Soil stabilization, erosion prevention measures, and long-term maintenance requirements are considered during planning and construction phases.

The Management Plan includes identification of three proposed shaded fuel breaks. CalFire and the District have identified the Erland-Cleland Tie Road, property frontage along Erland Road, and a portion of Plum Ranch Road as potential locations for shaded fuel breaks as shown on Figure 9, Proposed Fuel Breaks and Maximum Potential Thinning Area. The shaded fuel break would be implemented as a short-term management activity on the Preserve.

The proposed shaded fuel breaks would be approximately 2.43 miles long in total and approximately 50-200 feet wide. The District would use mechanical thinning and pruning within an approximately 43-acre area to create the shaded fuel break, following a vegetation management prescription developed in conjunction with CalFire or a Registered Professional Forester. Mechanical treatments would be implemented to thin understory vegetation through the removal of shrubs and saplings; trim mature trees to reduce ladder fuels; and, in areas where forest stands are particularly dense, remove trees to open the canopy and reduce ladder fuels. Woody material would be lopped and scattered or chipped and left in place to form a mulch to protect the soil from compaction and erosion. Some larger woody material may be piled and burned on site.

In the long term, the District would re-treat the shaded fuel break every several years as needed to maintain reduced tree and fuel densities.

The District may identify other shaded fuel break locations in the future, as further forest management reviews are conducted.



Saddle Mountain Open Space Preserve

Proposed Fuel Breaks and Maximum Potential Thinning Area

AG + OPEN SPACE
SONOMA COUNTY

Map Date: 12/6/2018
Sources: SCGIS (roads, parcels);
Sonoma County Vegetation Mapping
and LiDAR Program (vegetation);
NASA/UMD/WSI (Oct.2013 imagery).
This map is for illustrative purposes only and is
not intended to be a definitive property description.

N

0 0.225 0.45 Miles

- Proposed Shaded Fuel Break
- Road
- Perennial Stream
- Intermittent Stream
- Area Appropriate for Future Thinning
- Preserve Boundary

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Invasive Plant Management

Some of the Preserve's plant communities are threatened by invasive plants. As noted above, the control and prevention of non-native species is one of the primary conservation challenges guiding management of the Preserve. As a result, the District intends to implement a range of actions to control existing populations of invasive plants species and to prevent the establishment of new invasive species on the Preserve. Focus areas for treatment include riparian zones, wetlands, serpentine chaparral and grasslands, and other grasslands that currently contain invasive plant species, as shown on Figure 10, Invasive Plant Species Treatment Sites below. To meet these objectives, the District would implement the following actions:

- Infestations of invasive plants would be controlled or eradicated to the extent feasible. Table 2-6, Priority Invasive Plant Treatments, lists the known populations of invasive plants on the Preserve that are the highest priority for treatment in the short-term. A variety of methods would be used to control invasive plant populations, including manual removal, application of herbicides, and mechanical control (e.g., mowing, thatch removal, and mechanical removal of entire plants). The exact method used would depend on the target species and the characteristics of the surrounding habitat. Implementation of invasive species management activities would be managed by a qualified ecologist and damage to native plants and habitats would be avoided. Following the removal of invasive plants, disturbed sites would be planted or seeded with appropriate native species. Treatment sites would be monitored on an annual basis to assess the effectiveness of control methods and determine the need for retreatment.

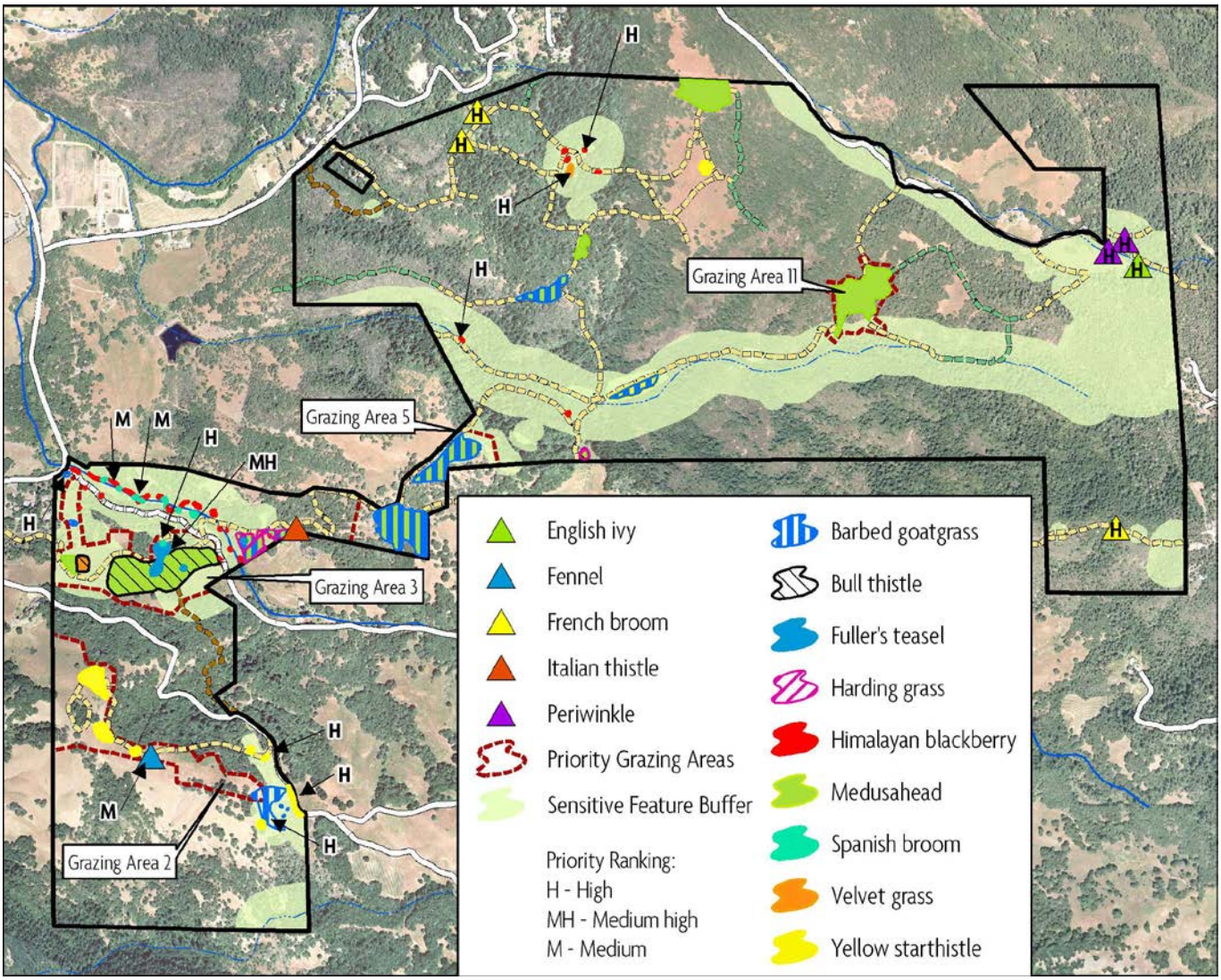


Figure 10. Invasive Plant Species Treatment Sites[7][8]

[7] Sensitive Feature Buffers are further described in Section 2.4.5.

[8] Though Priority Grazing Areas are identified, grazing is not proposed as a management tool in this Management Plan, with the exception of limited goat grazing.

Table 2-6. Priority Invasive Plant Treatments

Invasive Plant Name	Location	Estimated Acreage	Treatment Priority	Target Status	Control Method
Barbed goatgrass *Aegilops triuncialis*	Off Plum Ranch Road	1.74 ac	High	10% decrease in annual areal coverage	Mowing, hand pulling Thatch removal Prescribed fire Imazapic herbicide
	Near entrance to the Preserve off Cleland Ranch Road	3.00 ac			
Bull thistle *Cirsium arvense*	Uphill from the vernal pool near the hunting cabin	0.04 ac	High	100% eradication	Mowing, weed-whacking, hand pulling
English ivy *Hedera helix*	Along Van Buren Creek in the northeast	Less than 0.10 ac	High	100% eradication	Hand pulling, removing vines and roostocks Remove vines from area after pulling
Fennel *Foeniculum vulgare*	Grassland near the "saddle" of Saddle Mountain	Less than 0.10 ac	Medium	100% eradication	Remove with handtools Glyphosate herbicide
French broom *Genista monspessulana*	Tower maintenance road in the southeastern portion of the Preserve	Less than 0.10 ac	High	100% eradication	Hand pull or weed wench when soil is moist Glyphosate herbicide
	Along several old roads east of St. Helena Road near the northern Preserve line	Multiple patches less than 0.10 ac			
Fuller's teasel *Dipsacus sativus*	Near the road on both sides of Weeks Creek	2.00 ac	Medium High	100% eradication	Manual plant removal
Greater periwinkle *Vinca major*	Along Van Buren Creek downstream of English ivy	Multiple patches less than 0.10 ac	High	100% eradication	Manual removal
Himalayan blackberry *Rubus armeniacus*	Along Van Buren Creek	0.23 ac	High	100% eradication	Hand removal of rootstock Mechanical control methods Herbicide
	Along Ducker Creek	0.50 ac			
	By the transmission lines north of Weeks Creek	0.04 ac			
	Near the old hunting cabin in the	0.10 ac			

Invasive Plant Name	Location	Estimated Acreage	Treatment Priority	Target Status	Control Method
	northern portion of the Preserve				
	Uphill from the vernal pool near the hunting cabin	0.03 ac			
	Along Weeks Creek	0.91 ac (total, non-contiguous)			
Pennyroyal *Mentha pulegium*	Near the old hunting cabin in the northern portion of the Preserve	0.03 ac	High	100% eradication	Manual removal
Spanish broom *Spartium junceum*	Along the transmission line service road south of Cleland Ranch Road	Single occurrence	High	100% eradication	Manually operated hand and power tools with minimal soil disturbance Glyphosate
	Along Weeks Creek	0.22 ac (total, non-contiguous)			
Velvet grass *Holcus lanatus*	Uphill from the vernal pool near the hunting cabin	0.29 ac	High	100% eradication	Hand removal Herbicide
Yellow starthistle *Centaurea solstitialis*	Off Plum Ranch Road	5.5 ac	High	10% decrease in annual areal coverage	Mowing, weed whacking Herbicide
Rosy sandcrocus *Romulea rosea*	Near known Clara Hunt's milk vetch population	Small, non-continuous areas	High	100% eradication	Hand removal

- The District would monitor the Preserve for the spread invasive plant species. New occurrences of invasive plant species not currently documented on the Preserve would be considered high priority and controlled and eradicated to the extent feasible. Control methods and procedures for these occurrences would follow those outlined above for managing existing high priority invasive plants.

- Fully established populations of grassland invasive species (e.g., bull thistle, medusahead, barbed goatgrass, hedgehog dogtail, velvet grass, and wild oat) are currently considered low priority, but control measures may be implemented as funding and resources become available. Such populations are low priority because occurrences are widespread and difficult to control through traditional methods, as invasive species are widely interspersed with native species in grasslands on the Preserve. Prescribed fire, described below, may be implemented to control some of these invasive populations, along with the control methods described above.

2.5.3 Prescribed Fire

Prescribed fire can be a valuable management tool both to protect and enhance natural resources and to reduce the risk of catastrophic wildfire. Carefully managed burns can help control invasive species, reduce fuel loads, and promote regeneration of fire-dependent species and maintenance of other desired habitat conditions.

In general, fire has potential to provide the following benefits on the Preserve:

- Forest settings
    - reduce density of juvenile Douglas firs to encourage development of larger individual trees and/or facilitate other species (redwood, oak) to maintain on-site habitat diversity
    - reduce density of surface fuels, ladder fuels, and Douglas firs and other species contributing to high fuel loads that may pose a threat to human infrastructure or safety
    - support natural regeneration of fire-dependent Sargent cypress forest species
- Woodland settings
    - reduce density of juvenile Douglas firs to facilitate oaks and maintain on-site habitat diversity
    - reduce high fuel loads that may pose a threat to human infrastructure or safety
- Shrubland settings
    - support natural regeneration of chaparral species
    - temporarily reduce high fuel loads that may pose a threat to human infrastructure or safety
- Herbaceous settings
    - reduce cover of invasive species and other non-native annuals
    - reduce high fuel loads that may pose a threat to human infrastructure or safety
    - maintain open character of meadows and reduce shrub and tree encroachment and succession

Prescribed Fire for Invasive Species Management

The District intends to use prescribed fire as a management tool to control invasive species within the Preserve's grassland communities. The District anticipates partnering with CalFire and local non-profit programs to host initial, small-scale burns on the Preserve. The District intends to coordinate with CalFire to explore the possibility of participating in CalFire's VMP or Vegetation Treatment Program (VTP). Participation in these programs would provide programmatic-level guidance for utilizing prescribed fire to manage habitat and vegetation on the Preserve, while also providing for further specific planning and resource review for each individual prescribed burn on the Preserve to evaluate potential site-specific impacts and to identify means to reduce or avoid them. However, individual burn unit planning could be implemented even if the District does not enter a VMP or VTP contract with CalFire.

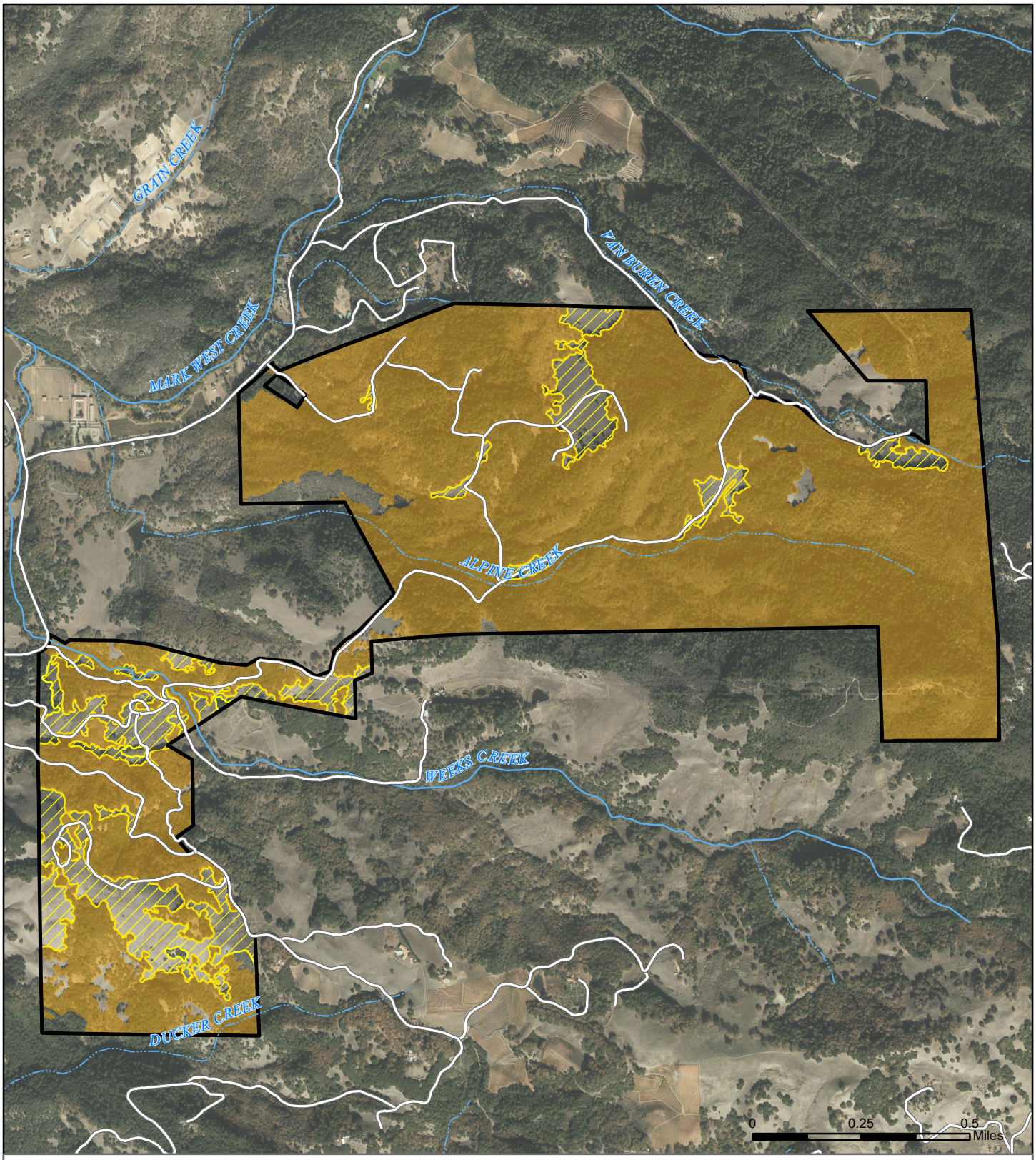
Once prescribed burn units are identified and the District is prepared to implement an individual prescribed burn, a burn plan would be developed for each specific prescribed fire project on the Preserve in coordination with CalFire. The burn plan would be developed by a qualified prescribed fire specialist and would include a description of the burn area, an analysis of the environmental setting and potential impacts, a burn prescription designed to meet treatment objectives, and fire behavior predictions. If a burn were to take place near sensitive resources, the burn plan would be subject to appropriate resource

review, such as consultation with relevant permitting agencies. A search of archival records and pedestrian survey to identify cultural resources, as well as Native American tribal outreach, would be conducted prior to burning. Conditions and environmental protection measures may be included in the burn plan as a result of the site-specific environmental review process. In addition to the burn plan, a smoke management plan would be developed for each prescribed fire project in accordance with Bay Area Air Quality Management District regulations. The required smoke management plan would include emissions estimates, wind prescriptions, identification of smoke-sensitive areas, any necessary mitigations, contingency plans, and public notification and complaint procedures. Finally, a "Go/No Go Checklist" would be developed for each prescribed fire project to confirm that all the conditions necessary for implementing a burn are met. CalFire and qualified fire personnel would conduct burn operations.

After working with Calfire and others to identify conceptual burn units, ideal burn conditions, and the timeframes to achieve prescribed fire objectives, the District would engage with neighboring community members and other stakeholders to share District plans and objectives, solicit input, answer questions, and address potential concerns about proposed burns and smoke management. The District would initiate public outreach months in advance of any proposed burn and would continue coordinating with the public throughout the entire process of burn planning, implementation, and evaluation. Key target audiences would include property owners adjacent to the Preserve, public health officials, local elected officials, and members of the general public. The District would provide the public with information regarding the goals and objectives of the proposed prescribed burn, predicted smoke emissions, and measures to minimize impacts and protect public health. The District would consider public comments in burn planning and smoke management decisions.

Additionally, some burn units may be well suited for educational outings to allow the public to experience both pre- and post-burn conditions, observe post-fire vegetation and fuel response over time, and learn about local fire ecology, ecosystem processes, fire safety, and the use of prescribed fire as a land management tool.

Prescribed fire would be utilized on a small scale within the Preserve's grassland habitats to manage invasive species and restore native grasses. Prescribed fire would specifically be utilized to treat populations of yellow star thistle, medusahead, and barbed goatgrass, which can otherwise be difficult to control through traditional means once well-established within grassland habitats. Figure 11, Maximum Extent of Forest and Grassland Areas for Future Prescribed Fire Planning, shows the grassland and forest areas where prescribed burns could potentially be conducted in the short- and long-term. The grassland areas encompass 117 acres of the total 131 acres of grassland on the Preserve. They represent the maximum spatial extent of grasslands that could be included in future planned burn units, not actual burn units or prescribed fire projects. Not all of these grasslands may be appropriate for prescribed fire use and additional evaluation would be needed for the grasslands to determine if prescribed fire is the correct tool to utilize. The areas mapped in Figure 11 exclude some grassland areas due to characteristics such as the presence of listed vegetation species, difficulty of access, or very small vegetation patch size that would not be economical or efficient to burn, as well as extensive chaparral areas where the District does not plan to introduce fire. Invasive treatment needs, safety, terrain, fuel levels, neighboring



Saddle Mountain Open Space Preserve

Maximum Extent of Forest and Grassland Areas for Future Prescribed Fire Planning

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SONOMA COUNTY

Map Date: 12/6/2018
Sources: SCGIS (roads, parcels);
Sonoma County Vegetation Mapping
and LiDAR Program (vegetation);
NASA/UMD/WSI (Oct.2013 imagery).
This map is for illustrative purposes only and is
not intended to be a definitive property description.

N

- Road
- Perennial Stream
- Intermittent Stream
- Focus Area for Future Prescribed Fire Analysis and Planning
- Potential Grassland Prescribed Burn Unit
- Preserve Boundary

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properties, smoke dispersal, and other resource considerations would be considered when selecting individual burn areas through further analysis, planning, and consultation with CalFire and community residents. Individual burn units would be small scale and would not exceed approximately 20 acres per unit, although more than one unit may be burned in a single day, if it is efficient and appropriate to do so. Each of these individual prescribed fire projects would be subject to the process described above, with development of specific burn and smoke management plans and associated review.

Individual burn units would be selected from within the mapped areas through further analysis of site-specific conditions, planning, and consultation with neighboring landowners and community residents. As guided by qualified prescribed fire personnel, control lines would be established around individual burn units prior to conducting prescribed fire activities, and may include selective thinning in adjacent forest habitats. Natural firebreaks would be utilized whenever possible. New control lines that result in soil disturbance would be rehabilitated after the burn to restore original soil surface cover, erosion-control measures would be put in place where needed, and disturbed areas would be re-seeded with site-appropriate native species.

Burns in grasslands would ideally be conducted in late May and early June, when weather conditions are suitable and after the seeds for native grasses have dropped, but while the seed heads for barbed goatgrass and medusahead are still ripe but not yet dispersed (Berlemen et al. 2016). While medusahead can be significantly reduced with one burn, fully controlling barbed goatgrass with prescribed fire requires two burns in consecutive years (DiTomaso et al. 2001). However, follow-up control of barbed goatgrass within the Preserve's grasslands may be accomplished with hoeing or hand pulling after the population is substantially reduced by initial burning. Two consecutive years of burning would be most effective for controlling established populations of yellow star thistle in grassland communities.

Reintroduction of Prescribed Fire to Forest, Woodland, and Chaparral Habitat

The District intends to reintroduce prescribed fire to the Preserve's forest and woodland habitats, and, to a limited extent, within small patches of chaparral habitats set within larger forested communities, as a long-term management action. The District will explore the use of prescribed burns to address long-term habitat management needs through the development of a Forest Management Plan or similar document, as discussed above in Section 2.4.2. This long-term plan could include continued burning in grasslands as described above, as well as burns in woody habitats to reduce ladder fuels, control encroachment of undesired species, and promote other desired habitat conditions. Prescribed burning in woody habitats would require additional steps, which will be addressed in the Forest Management Plan. These may include mechanical fuel load reduction prior to burns and greater coordination with neighboring landowners and the public to address smoke concerns, as burning in woody habitats tends to generate more smoke than in grassland.

The Forest Management Plan or similar document would be prepared to guide this expanded prescribed fire program and would include the historic role of fire, weather analysis, suppression, and prevention. This plan would also describe how maintenance of currently proposed and any potential additional shaded fuel breaks would be incorporated into the management of the Preserve.

In addition to short-term burns in the Preserve's grasslands, prescribed fire may be used in the long-term to manage coastal oak woodland, closed-cone pine cypress, Douglas fir, montane hardwood conifer, and other forested habitats, as shown in Figure 11, to meet vegetation and habitat condition objectives. Prescribed burns would be implemented to reduce or eliminate tree encroachment and stimulate seed germination among targeted species within forest and woodland habitats if site-specific evaluation indicates that prescribed burning is a feasible means to achieve treatment objectives. Fire would simultaneously eliminate encroaching trees (larger trees may need to be manually cut or girdled) and stimulate the germination of seeds of desired species to maintain chaparral or Sargent cypress habitats.

The District anticipates that the frequency of prescribed fire projects would fall between once every few years to a likely maximum of twice per year. Exact intervals may vary depending on partnership opportunities and resource availability. Ecological factors, including appropriate fire return intervals for each habitat type and re-treatment timing for invasive species control, would be primary considerations in determining burn frequency. Prescribed burns would be conducted in spring and fall, and potentially during winter if fuel moistures are low enough to carry fire and meet burn objectives. Required pre-burn actions may include construction of a firebreak, establishment of control lines, removal of ladder fuels, and/or thinning of brush as appropriate to reduce fire intensity within burn units and reduce the risk of fire escaping the designated burn unit. Any prescribed burns would be planned in collaboration with and executed by trained fire professionals from CalFire or other qualified agencies and/or consulting fire ecologists. Measures would be taken to monitor for and prevent erosion following burns, as described in Section 2.6.

2.5.4 Native Plant Revegetation

The District would implement native plant revegetation to establish diverse assemblages of native species, improve fish and wildlife habitat, aid in sediment retention, and provide erosion control. Revegetation would be focused on disturbed areas that are not naturally regenerating with native species. The District would revegetate invasive species management areas to help prevent the re-establishment of invasive species and would evaluate the need for revegetation after any grading operation or other ground-disturbing activity. When conducting revegetation activities, the District would source seeds and plants locally.

Revegetation of Riparian and Wetland Habitat

The District would revegetate riparian areas following removal of invasive species, where warranted, to reduce the risk of re-establishment of invasive species and to aid in bank stabilization and erosion control. The invasive removal and erosion control sites would be evaluated by a professional restoration ecologist for erosion potential following vegetation removal. If post-treatment monitoring indicates insufficient natural regeneration of native species within the riparian zone, a revegetation plan would be developed and implemented.

Revegetation of Upland Habitat

Revegetation opportunities in upland habitats on the Preserve are intended to restore areas adversely impacted by prior land use practices, including road-related erosion and clearing of trees and shrubs within the upper riparian zone. The District would implement revegetation activities in conjunction with erosion control activities in upland habitats.

2.5.5 Buffer Zones for Sensitive Features

The District would establish buffer zones around sensitive resources to protect and enhance resources, protect water quality, provide land stability, improve habitat function, and provide wildlife habitat and corridors. Visitor use and modification of the environment would be avoided within the buffer areas, except for implementation of land management and habitat improvement activities. The proposed locations of the buffer zones in the Preserve are shown on Figure 12, and the buffers would be implemented as follows:

- At least 100 feet (30 meters) for terrestrial species and habitats (e.g. Sargent cypress and serpentine areas) and cultural resources
- At least 300 feet (90 meters) around/along riparian zones, vernal pools, and other aquatic habitats

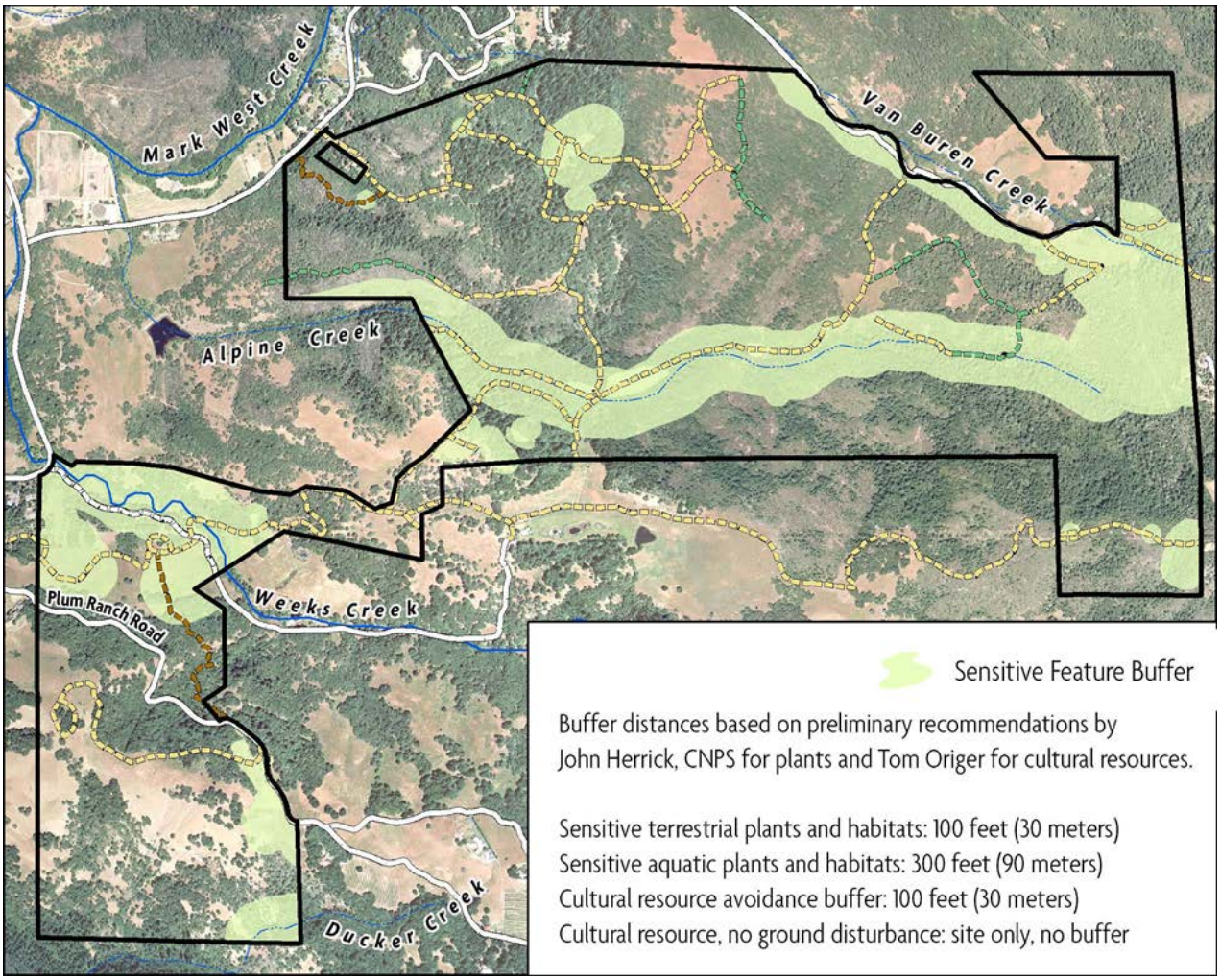

Figure 12. Proposed Buffer Locations

2.5.6 Sudden Oak Death Treatments

The District would proactively prevent the spread of *Phytophthora* pathogens on the Preserve by following the best management practices discussed below:

- Train land managers on symptoms of Sudden Oak Death (SOD). Land managers would be trained in identifying the symptoms of SOD and would monitor the Preserve for signs of SOD as feasible.

- Manage the Preserve for a healthy ecosystem. Forest stand conditions where species vulnerable to SOD are more susceptible to infection would be identified. Figure 5, Documented and Potential Locations of SOD in Section 2.3.8, illustrates the confirmed and potential SOD-impacted areas on the Preserve. The Forest Management Plan, which the District proposes to develop, would include a stand management prescription that would be implemented, where feasible, to increase the spacing between trees of vulnerable species and to reduce immediate contact with known carrier species like California bay. This treatment would be applied in areas where SOD has been

documented and its potential to spread is high due to forest stand conditions, poor circulation, suppressed trees, or high basal area of California bay near vulnerable species.

- Education about SOD. Staff, land managers, contractors, and the general public would be educated on how to prevent the spread of SOD by informing them of the SOD best management practices developed by researchers and regulatory agencies.

- Additional control methods from the California Oak Mortality Task Force website: http://www.suddenoakdeath.org/. Best management practices would be implemented to prevent the spread of Sudden Oak Death to the extent feasible.

Locations for treatment are shown on Figure 5, Documented and Potential Locations of SOD Section 2.3.8.

2.5.7 Preserve Visitors

The District intends to allow limited recreational access on the Preserve that is compatible with preserving the conservation values of the Preserve. Recreation would be allowed on the Preserve only when authorized by permit and when consistent with resource management objectives. Activities that threaten or endanger visitors, the land, or the environment would not be permitted. Public access would be limited primarily to trained volunteers, docent-led outings, environmental education, and planned "Open Space" days. Allowable uses for authorized visitors include hiking, wildlife observation, photography, picnicking, interpretive and educational activities, and botanizing. Equestrian use would be limited to Preserve patrol by trained volunteers.

Allowable Public Access and Uses (By Permit Only)

- Volunteer Patrols would hike or ride trails on horseback to ensure that the site is being used in accordance with the Management Plan. Volunteers would identify any constrained parking conditions, vandalism, fences in need of repair, erosion along trails, adverse conditions to wildlife, environmental, or cultural resources, or any other conditions that warrant District attention.

- Horseback patrol would be prohibited in sensitive habitats and where populations of sensitive plant species have been documented.

- Since the Preserve does not have safe access for horse trailers, equestrian use would be limited to those entering through neighboring properties where safe access is possible and who have completed an orientation and training program provided by District representatives.

- To best protect the Preserve's resources, roads and trails would be open only to hiking and limited horseback riding during those times of year when adverse impacts are limited. Flooded and potentially erosive trails would be closed to public use.

- Dogs would not be allowed on the Preserve in order to prevent trampling of rare or sensitive plants and disturbance to wildlife and habitat.

- Select trail closures may be considered to protect sensitive habitat, sensitive plants and animals, and visitors. Traffic on trails that lead to or pass close to vernal pools would be restricted until the pools dry for the summer.

- Types of future outreach and public engagement on the Preserve could include the development of a docent program, which would be comprised of trained volunteers who are authorized to staff the Preserve on designated days to provide guided tours for hikers.

- The District may also plan and host public "Open Space" days that would offer hikes and tours to the public. Guided tours would be hosted by District staff and partner organizations and would be limited to an appropriate number of visitors, as determined by the District. District staff would identify appropriate parking areas and establish a general route for the tours and outings.

- The District would work with partner agencies and organizations to provide environmental education and interpretive activities on the Preserve. These activities could include classes for school children and a self-guided interpretive trail. Educational activities for school children and other youth groups would be conducted by District partners and would cover topics approved by the District. Educational activities that support Preserve management such as wildlife and botanical surveys, invasive plant removal, and restoration projects would be a priority.

Avoiding Impacts on Sensitive Resources from Public Uses

The District would implement the following measures on the Preserve:

- Limit visitor activities to established trails: The District would encourage use of existing trails to route visitors around or away from sensitive areas (e.g. individual rare plant occurrences, serpentine outcrops, and archaeological sites) to prevent direct trampling of plants and wetlands, avoid flushing wildlife, and discourage collection of artifacts.

- Properly maintain trails: The District would maintain trails to prevent excessive wear and erosion, reducing sediment input into nearby water bodies.

- Limit types of visitor activities: The District would allow only relatively low-impact activities (hiking and limited horseback riding) on the Preserve. Off-road vehicles, biking, hunting, and fishing would be prevented and restrictions enforced.

- Establish buffers to prevent or limit access to particularly sensitive areas: The District would close portions of existing trails (seasonally or permanently) known or suspected to impinge on sensitive resources (e.g. rare plants and habitats, spotted owl nest sites, archaeological sites). If necessary and feasible, the District may erect fenced enclosures around discrete habitats (e.g. vernal pools, serpentine outcrops) to prevent visitors from trampling plants. Visitors would be discouraged from using certain areas when impact potential is high, especially during the rainy winter season.

- Modify visitor behavior: The District would post signs and may construct kiosks to educate visitors about sensitive resources and how to protect them.

- Allow low-impact recreational use research: The District would allow credentialed researchers, scholars, and their students to conduct research on the Preserve. Research subjects that are considered highly appropriate on the Preserve include serpentine plant communities, freshwater wetlands, SOD, grassland management, cultural resources, and other subjects that address management concerns or sensitive habitats. All research must be conducted to minimize impact to the Preserve's natural resources including the removal of equipment used to conduct the research, and data or reports generated through research on the Preserve would be shared with the District and made available to the public. Removal of objects or specimens or other collections will be prohibited unless clearly necessary and in support of the Preserve's conservation purpose. All research must be approved by the District prior to initiation. Approval would be subject to revocation if the research is subsequently determined to be detrimental to Preserve resources or individuals conducting the research fail to act in a manner consistent with District policies.

2.6 Management Action Timeframes

Management actions are assigned time frames for implementation and broken down into short-term (1-5 years), long-term (6+ years), and ongoing. Short-term actions are the highest priority management actions that would be undertaken by the District. Long-term activities would be implemented as funding becomes available and after completion of higher priority actions.

Short-term management actions may begin in the near term and continue to be ongoing as a means to persistently protect resources. Planning for many of the short-term actions is more advanced than for the long-term activities, as they have been identified in current site evaluation studies such as recent road and erosion assessments. The short-term projects are, therefore, evaluated at a site-specific level in this document. The District can implement these actions with little additional environmental evaluation, as the impacts, avoidance, and mitigations are specifically evaluated for these projects.

Long-term actions are those that would begin in six or more years following adoption of the Management Plan and many of these actions may also be ongoing. The majority of the long-term actions are evaluated at a programmatic level throughout this Initial Study/Proposed MND because specific locations, work types, and timing are currently unknown and may require additional planning. Long-term actions would be subject to the same protections and mitigation measures as project-level and ongoing actions.

Table 2-7, Management Plan Actions, Timing, and Level of Analysis below, summarizes the Management Plan actions described in Section 2.4 and lists the timeframe (short-term, long-term, or ongoing) and level of analysis (project or program) for each item.

Table 2-7. Management Plan Actions, Timing, and Level of Analysis

Resource Issue	Recommended Management Activities	Timing	Project/Program Level Analysis
Erosion Control and Water Quality Protection			
Existing Roadway Erosion and Sedimentation	Stream crossing improvements	Short-term	Project
	Roadway drainage improvement	Short-term	Project
	Road surface improvement	Short-term	Project
	Roadway decommissioning	Short-term	Project
	Road closures	Short-term	Project
	Gully repair/bank stabilization	Short-term	Project
Future Roadway Erosion and Sedimentation	Monitor Preserve for future roadway and trail erosion control needs	Ongoing	NA
	Implement erosion control measures as needed	Ongoing	Program
Exposed Soils	Implement a native plant revegetation program to establish diverse plant types and native species, improve fish and wildlife habitat, reduce sedimentation and provide erosion control in disturbed areas that are not naturally regenerating with native species	Short-term	Project
	Revegetate riparian and wetland habitats disturbed during erosion and sediment control activities	Short-term	Project
	Revegetate upland habitat areas impacted by prior land use practices and as part of other erosion control activities	Short-term	Project
Enhance Plant Communities and Habitat			
Revegetation	Revegetate 1.26 acres along Weeks Creek	Short-term	Project
	Revegetate and remove invasive species in a 1-acre area along the PG&E Road	Short-term	Project
Tree and Shrub Encroachment	Remove Douglas fir and bay laurel trees encroaching into coast redwood forest within approximately 11 acres	Short-term	Project
	Remove encroaching coyote brush and other invasive species within 2.17 acres of valley needlegrass grassland habitat	Short-term	Project
	Monitor serpentine bunchgrass habitat for encroachment from coyote brush and Douglas fir; remove encroaching trees and shrubs	Ongoing	Program

Table 2-7. Management Plan Actions, Timing, and Level of Analysis

Resource Issue	Recommended Management Activities	Timing	Project/Program Level Analysis
	Monitor chaparral and mixed hardwood habitat for encroachment of Douglas fir and bay laurel trees	Ongoing	NA
	Control tree and shrub encroachment in grassland through the use of prescribed fire	Short-term	Project
	Control tree and shrub encroachment through thinning and mechanical control in appropriate communities throughout the Preserve	Short-term	Project
	Control tree and shrub encroachment in forests through the use of prescribed fire	Long-term	Program
Densely Stocked Forests	Work with a Registered Professional Forester to develop a Forest Management Plan to guide forest management prescriptions and unit planning for mechanical thinning and guide implementation of tree thinning operations to reduce fire risk and to achieve desired forest conditions	Short-term	Program
	Implement forest thinning operations in stands that are adjacent to accessible roads	Short-term	Program
Invasive Species	Implement invasive species eradication in high priority areas through hand-pulling, mowing, thatch removal, and mechanical control	Short-term	Project
	Limit factors favoring introduction of exotic plant species by limiting visitor access points (e.g. trailheads). The District would conduct trail-side monitoring and targeted plant removals where invasives are found. Access points to the Preserve would be limited to reduce the spread of non-native invasive species.	Short-term	Project
	Implement invasive species eradication in high priority areas through application of herbicides	Short-term	Project
	Control invasive species in grassland communities through the implementation of small-scale prescribed fire projects in conjunction with CalFire; specific burn plans would be developed for each individual prescribed fire project	Short-term	Project

Table 2-7. Management Plan Actions, Timing, and Level of Analysis

Resource Issue	Recommended Management Activities	Timing	Project/Program Level Analysis
	Monitor Preserve for the spread of invasive plant species	Ongoing	NA
	Control new occurrences of invasive plant species not currently documented on the Preserve	Ongoing	Program
	Control fully established populations of grassland invasive species that are not proposed for control with prescribed fire (e.g., bull thistle, hedgehog dogtail, velvet grass, and wild oat) as funding and resources are available	Long-term	Program
Altered Fire Regime	As part of the proposed Forest Management Plan, develop a fire management program to guide use of prescribed fire in habitats across the Preserve	Short-term	NA
	Coordinate with CalFire and a Registered Professional Forester to develop shaded fuel breaks along Erland-Cleland Tie Road, property frontage along Erland Road, and a portion of Plum Ranch Road	Short-term	Project
	Identify areas for additional future shaded fuel breaks; conduct thinning and understory reduction to develop fuel breaks	Long-term	Program
	Maintain shaded fuel breaks	On-going	Program
	Develop individual burn plans for prescribed fire in the Preserve's forests and woodlands, and implement prescribed burns in conjunction with CalFire and professional fire organizations	Long-term	Program
Buffer Zones for Sensitive Features			
Infrastructure and Access Close to Sensitive Resources	Establish 100-foot buffer zones around sensitive terrestrial species and habitats and cultural resources	Short-term	Project
	Establish 300-foot buffer zones around/along riparian zones, vernal pools, and other aquatic habitat	Short-term	Project

Table 2-7. Management Plan Actions, Timing, and Level of Analysis

Resource Issue	Recommended Management Activities	Timing	Project/Program Level Analysis
Sudden Oak Death Treatment			
Confirmed Sudden Oak Death Impact Areas	Train land managers on identification of SOD symptoms	Short-term	Project
	Develop and implement a stand management plan to treat SOD and increase tree spacing in infected areas	Long-term	Project
	Educate forest professionals, land managers, contractors, and the general public about how to prevent the spread of SOD	Ongoing	Project
	Implement Best Management Practices designed to reduce the potential spread of SOD	Short-term & Ongoing	Project
Preserve Visitors			
Resource Protection and Allowable Public Access	Implement volunteer patrols to hike or ride trails on horseback to ensure the site is being used in accordance with the Management Plan	Ongoing	Project
	Allow low-impact activities (hiking and horseback riding) on the Preserve by permit following District-sponsored training program	Ongoing	Project
	Limit equestrian use to riders entering from neighboring properties and to those who have completed a District-sponsored orientation and training	Ongoing	Project
	Limit hiking and horseback riding in inclement weather	Ongoing	Project
	Do not allow dogs on the Preserve	Ongoing	Project
	Limit access to trails near vernal pools until the pools dry for the season	Ongoing	Project
	Limit visitors to established trails	Ongoing	Project
	Protect cultural resource sites	Ongoing	Project
Expand Public Access	Develop a docent program to train volunteers to staff the Preserve to provide guided tours for hikers on Open Space days	Short-term	Project
	Plan and host Open Space days to offer hikes and tours to the general public	Ongoing	Program

Table 2-7. Management Plan Actions, Timing, and Level of Analysis

Resource Issue	Recommended Management Activities	Timing	Project/Program Level Analysis
	Encourage environmental education to allow classes for school children and a self-guided interpretive trail	Ongoing	Program
Support Low-impact Recreational Use Research	Allow credentialed researchers, scholars, and their students to conduct research on the Preserve	Ongoing	Program

2.7 Site-specific and Programmatic Environmental Protection Measures and General Program Measures

Management of the Preserve is intended to protect and enhance native habitats and conserve the Preserve's natural, biotic, cultural, and scenic resources. Proposed Management Plan activities are designed to improve water quality, conserve and enhance native habitats, and reduce wildfire risks. However, any activity that involves ground-disturbance or work in an area with sensitive resources has the potential for adverse impacts. The following environmental protection measures (referred to as Project Measures) were developed to describe the minimum level of impact avoidance for all ground-disturbing management activities. These Project Measures are an essential part of the Project Description and would be implemented as part of all ground-disturbing actions.

Project Measure 1 - Planting and Revegetation after Soil Disturbance for Restoration

The District, to the extent feasible, shall ensure plants disturbed by management actions be replaced with native plant species in accordance with the following measures:

- Implement soil protection measures, including seeding or planting promptly with appropriate native species and covering with weed-free straw mulch, and/or installing biodegradable erosion control fabric on slopes.
- Use seed or container stock of local origin for plantings. Seed or propagules for revegetation shall be collected from the Preserve itself if a viable source is present. Where this is not possible, propagules shall be from within the Russian River watershed, with exceptions being made only after review by a qualified staff member or consultant. Within these geographic parameters, collections shall be made with the goal of capturing natural genetic variation (e.g., collect from a range of elevations and from plants exhibiting varied phenology).
- Native plant species historically present at the site shall be used and species with high wildlife and/or pollinator values will be used where feasible and appropriate.
- In limited instances, non-invasive, non-persistent grass species (e.g., sterile wheat) may be used in conjunction with native species to provide fast-establishing, temporary cover for erosion control.

- Soil amendments are typically not needed for establishment of native vegetation in intact native soils. If soils have been disturbed and require additional organic matter or nutrients to support native plants, limited organic, weed-free amendments may be used to help establish restoration vegetation. Organic fertilizers may be used only above the normal high water mark of any adjacent waterways. No chemical fertilizers shall be used.
- For management actions that have removed native vegetation, post-disturbance revegetation success will be based on individual site conditions and will generally be based on the following: 1) establishment of native trees and shrubs at a ratio of 1:2 living after five years (or the ratio mandated by regulatory permits if permits are needed), 2) establishment of herbaceous cover equal to that of adjacent undisturbed ground within three years, and 3) no increase in invasive species populations (or no greater cover of invasive species than that of adjacent undisturbed ground).
- If needed, a temporary irrigation system will be installed to ensure establishment of vegetation; when vegetation is sufficiently established, irrigation materials will be removed.

Project Measure 2 - Reduction of Construction Emissions

The District shall ensure that dust and other emissions are controlled during construction activities by implementing the following measures, as recommended by the BAAQMD (BAAQMD 2017b):

- Exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered two times per day during the dry season.
- Haul trucks transporting soil, sand, and other loose material off-site will be covered.
- Visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- Vehicle speeds on unpaved roads will be limited to 15 miles per hour.
- Idling times will be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage for construction workers will be provided at all access points.
- Construction equipment will be maintained and properly tuned in accordance with manufacturer's specifications. All construction equipment will be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- During construction activities, a publicly visible sign will be posted with District and BAAQMD contact information regarding dust complaints. The District will respond and take corrective action within 48 hours of receiving a complaint.

Project Measure 3 - Erosion Control, Sediment Detention, and Site Maintenance

The District shall ensure erosion control, sediment detention, and site maintenance activities occur in accordance with the following measures:

- Ground disturbance will not exceed the minimum area necessary to complete the project or activity. Existing native vegetation will be preserved to the maximum extent feasible.

- All disturbed areas will be protected from erosion. Measures to stabilize disturbed soils will include, but not be limited to, placement of straw wattles, jute netting, silt fencing, and native reseeding. When a project involves grading or work within or adjacent to a stream, waterway, or other sensitive aquatic habitats, a spill prevention and clean-up plan, a Stormwater Pollution Prevention Plan, or similar document, will be prepared and implemented during construction activities to protect water quality. The plan will address polluted runoff and spill prevention policies, best management practices (BMPs) that are required to be available on site in case of rain or a spill (e.g., straw bales, silt fencing), clean-up and reporting procedures, and locations of refueling and minor maintenance areas.
- Debris, sediment, rubbish, vegetation, or other construction-related materials will be placed in an approved location. No materials, including petroleum products, chemicals, silt, fine soils, or substances deleterious to the function of a watercourse, water quality, or biological resources will be allowed to pass into, or be placed where it can pass into, stream channels.
- If rain occurs while materials are temporarily stockpiled, the stockpiles will be covered with plastic that is secured in place to ensure the piles are protected from rain and wind. Silt fencing or wattles will be installed on contour around all stockpile locations.
- Spoil materials from clearing, grubbing, grading, and channel excavation will be disposed of at a site approved by the District.
- Fire-suppression equipment will be reviewed and approved by the District or contracted staff before construction begins and will be available on site at all times.
- Areas that have received prescribed fire treatments will be evaluated and monitored for soil instability and erosion. Unacceptable levels of post-fire erosion, potentially as a result of greater-than-intended fire intensity, will be remediated through the implementation of control measures such as those described above.

Project Measure 4 - Pollution Prevention

The District shall employ BMPs for staging, maintenance, fueling, and spill containment of potentially hazardous materials used on the Preserve, including, but not limited to, the following:

- Vehicles and equipment will be inspected daily for leaks and repaired immediately if necessary.
- Fueling will take place away from watercourses and sensitive areas.
- Major vehicle and equipment maintenance and washing will be performed offsite.
- Spill cleanup materials will be maintained onsite during all activities that require the use of vehicles, equipment, or hazardous materials. Any spill will be cleaned up immediately.
- Spent fluids, such as motor oil and radiator coolant, and used vehicle or equipment batteries will be collected, stored, and recycled as hazardous waste offsite.

Project Measure 5 - Prevent Spread of Sudden Oak Death

The District shall be responsible for protecting against the spread of SOD through implementation of the following requirements:

- Before purchasing any nursery stock for restoration plantings, confirm that the nursery follows current BMPs for preventing the spread of SOD (consult the California Oak Mortality Task Force,

www.suddenoakdeath.org, for current standards). All plant materials will be inspected for symptoms of SOD before bringing onto the Preserve.

- Train management staff on host species, symptoms, and disease transmission pathways for *Phytophthora ramorum* and other *Phytophthora* species, and on BMPs to prevent the spread of SOD, including:
  - Clean equipment after working in forest and woodland habitats, including chainsaws, boots, and truck tires (spray with a 10% bleach solution or other disinfectant, then rinse).
  - Work in forest and woodlands in the dry season instead of the wet season when spores are being produced and infections are starting. Avoid or minimize pruning oak, tanoak, and bays in wet weather.
  - Leave potentially infected downed trees on site instead of transporting the material to an uninfected area. Where infection is already known to be present, leaving *P. ramorum*-infected or killed trees on site has not been shown to increase the risk of infection to adjacent trees.
  - If necessary to reduce safety or fire hazards, infected trees can be cut, branches chipped, and wood split. Avoid working in wet weather. Clean equipment after work is completed. Do not leave cut wood and chips in an area where they might be transported to an uninfected location.
- Educate Preserve users about measures to prevent the spread of SOD. Provide signage at major trailheads explaining that SOD occurs on the Preserve, showing typical symptoms and explaining that it can be spread by Preserve visitors, especially in wet winters, during rainy and windy weather.

Project Measure 6 - Agency Coordination, Approvals, and Public Notification for Prescribed Fire

The District shall coordinate with CalFire, the BAAQMD, and the interested public during the planning and implementation of all prescribed fire projects. For each prescribed fire project, the District will work with qualified prescribed fire personnel to:

- Develop a site-specific burn plan that is approved by CalFire and conforms to the agency's specifications. The burn plan will include a description of the prescribed fire project area and burn objectives, an analysis of site-specific environmental setting and any potentially affected resources, a burn prescription and predicted fire behavior, and contingency and medical plans.
- Develop a smoke management plan that is approved by the BAAQMD and conforms to the agency's specifications. The smoke management plan must include emissions estimates, wind and weather prescriptions, any necessary mitigations to reduce impacts from smoke, contingency procedures if the burn or smoke impacts exceed the original prescription, and public notification and complaint protocols.
- Conduct public outreach to solicit public input and to inform neighboring landowners and the interested public about potential prescribed fire projects and possible smoke impacts. Public outreach will occur throughout the burn planning process and public notification will take place prior to implementation of burns. Neighboring landowners and all sensitive receptors that may be impacted by smoke from a prescribed fire project shall be notified prior to burning.

- Develop a "Go/No Go Checklist" approved by CalFire and the BAAQMD that provides final confirmation of necessary conditions for implementing a prescribed fire project.

Additionally, the District will partner with qualified entities for the implementation of burns. All prescribed fire projects on the Preserve shall be implemented by CalFire or a qualified professional organization.

Project Measure 7 - Herbicide Use

The District shall ensure that herbicides are used in accordance with the manufacturers' recommendations. Herbicides will only be used to control invasive species and when other control measures are determined to be infeasible or less effective. Herbicides will be used only by applicators who hold a Qualified Applicator License or Certificate. Techniques such as spot application will be employed to ensure that only the minimum amount of herbicide necessary is used. Herbicides will not be used in areas where surface water bodies could be effected.

Project Measure 8 - General Measures to Avoid Impacts on Biological Resources

The District shall ensure the following biological resources protection measures are implemented on the Preserve:

- Perform preconstruction surveys prior to significant ground disturbance within all native habitats year-round. Surveys (on the day preceding work and/or ahead of the construction crew) will be performed by a qualified biologist to ensure no special-status species or common wildlife are occupying the area. If wildlife species are observed within the work area or immediate surroundings, these areas must be avoided until the animal(s) has (have) vacated the area, and/or, upon approval by the regulatory agencies, the animal(s) must be relocated out of the area by a qualified biologist.
- Conduct a training session for all construction crew personnel before any significant ground disturbance or building work, year-round. The training will be conducted by a qualified biologist and will include a discussion of the sensitive biological resources on the Preserve and the potential presence of special-status species. This must include a discussion of special-status species' habitats, protection measures to ensure species are not impacted by project activities, project boundaries, and biological conditions outlined in the project permits, as applicable.

Project Measure 9 - Prevent the Spread of Invasive Species

The District shall prevent the spread of invasive plant species to the extent feasible. Weed control methods will include, but will not be limited to:

- Clean plant material and soil from the tires and undercarriage of vehicles and equipment (e.g., mowers) that have traveled through weed-infested areas before they leave those areas. Cleaning may be done with a hose if water is available and/or with a scrub brush or stiff broom.
- Train staff and Preserve volunteers to recognize invasive species and report new infestations promptly.

Project Measure 10 - Ensure Adequate Emergency Access

The District shall ensure that adequate access to the Preserve for emergency vehicles is maintained at all work sites, during all management activities including construction and prescribed burning.

2.8 Permits and Approvals

The table below lists the federal, State, and local regulatory or permitting agencies that may have permitting or approval authority over activities proposed in the Management Plan.

Table 2-8. Regulatory/Permitting Agencies

Regulatory/Permitting Agency	Requirement	Potential Permit/Approval
Federal Agency		
U.S. Army Corps of Engineers	Compliance with the Clean Water Act (CWA) Section 404	Approval of fill in waters of the U.S. or jurisdictional wetlands pursuant to the federal Clean Water Act
U.S. Fish and Wildlife Service	Endangered Species Act (ESA) Section 7 consultation	Consultation with U.S. Army Corps of Engineers
State Agencies		
North Coast Regional Water Quality Control Board	Compliance with the CWA Section 401 or State CWA	Water Quality Certification or Waste Discharge Requirements
Bay Area Air Quality Management District	Compliance with air quality and burning regulations	Approved Smoke Management Plan and Burn Notification
CalFire	Compliance with prescribed fire rules and regulations	Vegetation Treatment Program (VTP) or Vegetation Management Program (VMP) contract, approved burn plans and associated environmental reviews
	Compliance with timber harvest plans and forestry rules	Approved Timber Harvesting Plan or similar document and associated environmental reviews
California Department of Fish and Wildlife	Compliance with Fish and Game Code Section 1602	1602 Lake and Streambed Alteration Agreement
	Compliance with Fish and Game Code Section 2081	Incidental Take Permit for state-listed wildlife and/or plant species covered under the California ESA
Local and Regional Agencies		
Sonoma County Permit and Resource Management Department	Sonoma County Ordinances	Grading, Building, Roiling, Zoning

3 Determination

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 and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☐ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)
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 will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will 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 will 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.

Signature

4-30-19
Date

4 Environmental Effects of the Project

4.1 Aesthetics

Aesthetics Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
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 public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Setting

The Preserve is located in eastern Sonoma County, just northeast of Santa Rosa. The Preserve is visible from several locations in northeast Santa Rosa, as well as nearby roads including Calistoga Road and State Route 12 (SR-12). The Preserve has rolling topography as well as steep ridges and sharp elevation changes, which range from 760 feet to 1,800 feet. The Preserve's ridgeline offers sweeping views of Cotati Valley and the Sonoma Mountains. At lower elevations, the Preserve's natural diversity, wide range of habitats, and mosaic of vegetation types provide a variety of vistas. Many natural areas can be found on the Preserve, including stands of coast redwood lining portions of Alpine Creek, alluvial meadows, dense forest, and open grassland. Portions of four creeks run through the Preserve (Alpine, Ducker, Van Buren, and Weeks Creeks), as well as a number of unnamed tributaries and springs. The Ducker Creek watershed is highly visible from Santa Rosa, and the entire Preserve is a key component of the region's scenic beauty.

The Preserve is set within a landscape with high aesthetic values and is surrounded primarily by rural residential land holdings, including single-family residences, natural forests and grasslands, and ranches and pastures.

4.1.1 Project-level Analysis

a) Adverse effect on a scenic vista – Less-than-significant

The Preserve encompasses natural spaces with outstanding scenic quality that are visible from the surrounding area, including portions of Santa Rosa and its proximate communities and roadways. There are no designated scenic vistas on the Preserve nor are there designated scenic vistas viewable from the Preserve. Some of the activities proposed in the Management Plan could lead to changes in views of the project site. Such activities include selective thinning of Douglas firs and bay laurel saplings that are encroaching into coast redwood habitat; creation of shaded fuel breaks; control and prevention of coyote brush encroachment into grasslands; and removal of high priority exotic invasive plant species. However, the change in scenic quality caused by these activities would be minor, as the activities would be implemented selectively, in a targeted manner, and over time. Removal of encroaching species is designed to encourage regrowth of native species, such as coast redwoods or perennial grasses, that are appropriate to the specific community type; and the removal of invasive plants would be followed by revegetation and planting as appropriate. Over the long-term, these activities would result in improved native habitat with enhanced assemblages of native vegetation, and are expected to increase the aesthetic value of the Preserve.

Prescribed fire activities could temporarily impact scenic vistas by causing views of blackened shrub and grassland vegetation. Prescribed burning would be small-scale and would occur only within discrete units of grassland throughout the Preserve (Figure 11, Section 2.4.3). Burns may cause a blackening of the ground and the exposure of soil, which would temporarily impact area aesthetics. However, these impacts would be greatly reduced after a growing season, as fire-induced seed germination and regrowth occur. Scorching of trees may occur, though burns would be targeted to open grassland areas and would be low-intensity so only trees within ecotones (i.e., transitional areas between habitat types) along the edges of grassland units would be likely to be impacted. Impacts on scenic vistas as a result of the prescribed burning activities proposed by the Management Plan would occur only within a small portion of the Preserve, would be short-term in nature with grasses and forbs expected to quickly regenerate, and would maintain the natural character of the habitat. The impact would, therefore, be less-than-significant. In the long-term, prescribed fire activities are expected to enhance the aesthetics of the Preserve by promoting native habitat conditions and enhancing the open character of the area's grasslands, while also reducing the likelihood of a catastrophic wildfire which could substantially impact the visual character of the Preserve.

Additionally, some of the erosion control and road treatment activities would require use of construction equipment and small-scale ground disturbance, which could temporarily impact the Preserve's scenic vistas. These activities could be visible during construction from roads and trails within the Preserve; however, once construction is complete, visual changes would be minimal. In the long-term, such activities are likely to lead to lasting benefits to the Preserve's visual character by enhancing native habitat and reducing sedimentation and erosion. Therefore, the impact would be less-than-significant.

b) Damage scenic resources within a designated Scenic Highway – Less-than-significant

The portion of State Route-12 (SR-12) south of the Preserve, from Danielli Avenue to London Way, is a state-designated scenic highway. The portion of SR-12 nearest to the Preserve, north and west of Danielli Avenue, is eligible to be considered a state scenic highway but is not officially designated as such. No portion of the Preserve is directly adjacent to SR-12, so project activities would not damage resources within the scenic highway corridor itself. However, intermittent views of the Preserve are available from SR-12 and contribute to the scenic nature of the roadway. Some forest management activities proposed in the Management Plan could be temporarily visible from SR-12, which is located approximately 1.5 miles south of the Preserve. Visual changes are expected to be less-than-significant because the small size of the proposed management actions, the nature of the proposed activities, and the distance between the Preserve and the highway all mean the visual changes would be minimal.

c) Substantially degrade existing visual character – Less-than-significant

Thinning of encroaching Douglas firs, creation of shaded fuel breaks, road treatments, prescribed burning, and erosion control measures would require the use of heavy construction equipment and would result in some ground disturbance. These activities have the potential to temporarily degrade the visual character of the site, but such impacts would be short-term and small-scale. Invasive vegetation treatment and removal activities could also lead to short-term visual impacts, but the areas where such activities take place would be revegetated and the scenic character of the location would be restored. Prescribed fire would cause blackening of the ground and other impacts to the Preserve's visual character, but these impacts would be small-scale and short-term and will be substantially reduced within a season, as native regrowth takes place. As a result, the impact on the Preserve's scenic resources and visual character would be less-than-significant.

d) New source of light or glare – No Impact

The implementation of activities proposed in the Management Plan would take place during the day and would not result in any new source of light or glare. Therefore, there would be no impact from light and glare.

4.1.2 Program-level Analysis

a, b, c) Adverse effect on a scenic vista, degradation of visual character, or damage scenic resources – Less-than-significant

Maintenance of shaded fuel breaks, invasive species management, forest thinning, and grassland management would have the same less-than-significant impacts on scenic vistas and scenic resources as described for activities. Prescribed burning in forested and woody habitats would result in more scorching of trees and would likely consume the majority of understory vegetation within each burn unit. Blackened tree trunks and scorched canopies, as well as consumed ground cover and understory, would be prevalent throughout a burn unit in the first few months after a burn. However, robust regeneration of understory vegetation and scorched tree canopies would occur over the course of a year following prescribed burning. Ultimately, the proposed activities would be designed to improve native habitat and enhance

vegetation assemblages, which would not adversely affect scenic resources with minor alteration of views from trails and roadways on the Preserve. The proposed activities would not result in significant, adverse impacts to scenic views from SR-12 or any other roadway in the vicinity.

d) New source of light or glare – No Impact

Maintenance of shaded fuel breaks, invasive species management, forest thinning and prescribed fire, and grassland management would take place during the day and would not result in any new source of light or glare. Therefore, there would be no impact.

4.2 Agriculture and Forestry Resources

Agriculture and Forestry Resources Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
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) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC §12220(g)), timberland (PRC §4526), or timberland zoned Timberland Production (Government Code §51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Setting

The Preserve is currently managed as open space to protect and conserve its natural, cultural, and scenic resources. Adjacent ownerships consist primarily of rural residences, ranches, and scattered agricultural lots varying in size from one to hundreds of acres. Developed parcels generally contain single-family residences and structures associated with ranching and agriculture. Much of the land surrounding the Preserve consists of lightly developed forest, grasslands, and pasture. The Preserve itself is home to a diversity of natural vegetative communities, including grasslands and forest and woodland habitats (Section 2.3.6).

The California Land Conservation Act of 1965, known as the Williamson Act, allows local governments to enter into contracts with private landowners that grant tax relief in exchange for preservation of agricultural land and open space. The Hayfork Ranch, located adjacent to the central portion of the Preserve at the junction of Calistoga and St. Helena roads, is enrolled under a Williamson Act contract as a District open space easement (California Department of Conservation 2013), but is not part of the Preserve itself.

The California Department of Conservation (DOC) Farmland Mapping and Monitoring Program categorizes farmland to assess its relative importance. Important farmland categories represent the agricultural land most suitable for cultivating crops; these categories including Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. None of these categories are present in the project area. All of the land within the Preserve is classified as either Grazing Land or Other Land (California Department of Conservation 2018).[9]

4.2.1 Project-level Analysis

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use – No Impact

All of the land within the Preserve is classified by the Farmland Mapping and Monitoring Program as either Grazing Land or Other Land (California Department of Conservation 2018). The Preserve does not contain any land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Implementation of the proposed management activities including erosion control and road drainage improvements, invasive species management, native restoration activities in the Management Plan would not result in a change in important farmland status or conversion of farmlands to non-agricultural use. Therefore, there would be no impact.

b) Conflict with existing zoning for agricultural use or a Williamson Act contract – No Impact

The Preserve is not under a Williamson Act contract, though the adjacent Hayfork Ranch is enrolled under a Williamson Act contract as a District open space easement (California Department of Conservation 2013). Implementation of the proposed management activities including, erosion control and road drainage improvements, invasive species management, native restoration activities in the Management Plan would not affect the Williamson Act contract on this neighboring land.

All of the land within the Preserve is zoned Resources and Rural Development by Sonoma County (Sonoma County 2016) and is managed by the District as an open space preserve. Surrounding land uses include rural residential, grazing, and agriculture. Erosion control and road drainage improvements, invasive species management, native restoration activities proposed in the Management Plan would not impact surrounding agricultural uses and would not conflict with existing zoning for agricultural use. Therefore, there would be no impact.

[9] The Grazing Land classification indicates land on which the existing vegetation is suitable for grazing of livestock. The Other Land classification refers to land which does not fall within any of the other categories, with typical uses including low density rural development, heavily forested land, mined land, or government land with restrictions on use.

c) Conflict with existing zoning for, or cause rezoning of, forestland or timberland – No Impact

Timberland, as defined by PRC §4526, means land, other than land owned by the federal government and land designated as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products. Government Code §51104(g) defines a timberland production zone as an area which has been zoned pursuant to §51112 and §51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses. The project area is managed by the District as an open space preserve; there is no timberland or area zoned timberland production on the Preserve. Therefore, erosion control and road drainage improvements, invasive species management, Douglas fir and bay encroachment management, prescribed fire in grasslands, native restoration activities proposed in the Management Plan would have no impact on timberland or any timberland production zone.

Forest land, as defined by PRC §12220(g), is land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. The Preserve meets this definition, as over 60% of the area is composed of natural communities that support native tree cover and it contains notable forest resources. However, no activities proposed in the Management Plan would conflict with or cause any change in the zoning of this forest land. Therefore, there would be no impact.

d) Result in the loss of forest land or convert forest land to non-forest use – No Impact

The Management Plan includes forest management activities but would not result in the loss of forest land or convert forest land to non-forest use. Activities include thinning of Douglas fire and bay laurel saplings near Alpine creek and other target areas to promote diverse habitat assemblages, to protect coast redwood saplings, and to prevent type conversion by encouraging regrowth of historic habitat types on the Preserve, including coast redwood stands. The creation of shaded fuel breaks would also result in some removal of saplings and ladder fuels. However, mature, healthy trees would not be removed and these shaded fuel breaks will reduce the risk of catastrophic wildfire on the Preserve, which poses a significant risk to the area's forest resources. In the long-term, these activities are anticipated to result in greater habitat diversity and increased forest health and resilience on the Preserve, and no activity would result in the loss or conversion of forest land. There would be no impact.

e) Involve other changes in the existing environment that could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use – No Impact

The proposed activities within the Management Plan are designed to manage, enhance, and conserve the Preserve's natural resources. Implementation of these activities would not involve other changes in the existing environment that could result in the conversion of farmland or forest land. As a result, there would be no impact.

4.2.2 Program-level Analysis

a-e) Convert farmland, conflict with Williamson Act contract, cause rezoning of forestland or timberland, or result in the conversion or loss of farmland or forest land – No Impact

The Management Plan includes future forest management activities but would not result in the loss of forest land or convert forest land to non-forest use. Activities include targeted thinning of encroaching trees, prescribed fire within forest and woodland habitats, and maintenance of shaded fuel breaks. The analysis for these future management activities is the same as for the management activities discussed above and, in the long-term, the program-level activities are anticipated to result in greater habitat diversity and increased forest health and resilience on the Preserve. No activity would result in the loss or conversion of forest land or farmland. There would be no impact.

4.3 Air Quality

Air Quality Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Result in a cumulatively considerable net increase of any criteria pollutant under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors or dust) adversely affecting a substantial number of people?	☐	☐	☒	☐

Setting

The Federal Clean Air Act (CAA) and the California Clean Air Act form the basis of the air quality regulations and programs that govern the Preserve and the surrounding region. The Preserve is located in southern Sonoma County within the San Francisco Bay Area Air Basin (SFBAAB) and air quality is monitored and regulated by the U.S. Environmental Protection Agency (EPA), the California Air Resource Board (CARB), and the Bay Area Air Quality Management District (BAAQMD).

A region's success in promoting good air quality is measured by comparing the concentration of pollutants in the atmosphere to the known safe level set as State and federal standards. Chemicals with potential basin-wide effects are regulated under the CAA in two groups: 1) toxic air contaminants with immediate, acute toxicity effects and 2) criteria pollutants that are common chemicals with long-term health effects. Acutely toxic chemicals are problematic at any concentration; however, the effect of criteria contaminants depends on the amount of exposure over time. Criteria pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), sulfates, lead, and fine (PM2.5) and coarse (PM10) particulate matter.

EPA sets limits on maximum atmospheric concentration for each criteria pollutant. The State of California is required to use these limits but may also set higher standards when CARB determines that tighter limits would protect human health. When an area is at or below the regulatory standard, it is said to be "Attainment" for that pollutant. The SFBAAB is designated nonattainment for the federal and State ozone standards, the state PM10 standard, and the federal and state PM2.5 standards (BAAQMD 2017a). The SFBAAB is designated attainment or unclassified for all other state and Federal air quality standards.

Air quality in Sonoma County, where the Preserve is located, is generally better than much of the rest of the SFBAAB. Sonoma County experiences some of the lowest levels of ozone and PM2.5 in the entire Bay

Area (BAAQMD 2016). The BAAQMD measures air quality in Sonoma County at a monitoring station in Sebastopol. Data from this station indicates that the levels of air pollutants in Sonoma County are below air quality limits for all criteria pollutants (BAAQMD 2017d).

Air pollutants can be locally problematic when they occur at high densities or when the source is close to a sensitive receptor[10]. The Preserve is located in a rural setting, northeast of the city of Santa Rosa. Lands surrounding the Preserve consist primarily of rural residences, ranches, and undeveloped forests and grassland. The nearest sensitive receptor to the Preserve is Maria Carrillo High School, approximately three-quarters of a mile southwest of the Preserve's boundary.

4.3.1 Project-level Analysis

a) Conflict with or Obstruct Applicable Air Quality Plan – No Impact

In 2017, BAAQMD adopted a Clean Air Plan (CAP) (BAAQMD 2017c). It provides comprehensive guidelines to protect air quality, public health, and the climate. Per BAAQMD's Air Quality CEQA Guidelines, BAAQMD considers a project consistent with the CAP if it: 1) can be concluded that a project supports the primary goals of the CAP (by showing that the project would not result in significant and unavoidable air quality impacts); 2) includes applicable control measures from the CAP; and 3) does not disrupt or hinder implementation of any CAP control measure (BAAQMD 2017b).

Because implementation of the Management Plan would not result in a significant and unavoidable air quality impact (refer to Impact b, below), it would not conflict with the primary goals of the 2017 CAP. The CAP includes 85 control measures across nine sectors: stationary (industrial sources), transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-GHG pollutants. The Management Plan does not include new stationary sources or new permanent mobile sources, does not introduce a new land use, and would not use a substantial amount of energy. Implementation of Management Plan activities would not hinder implementation of any control measures included in the CAP. Therefore, there would be no impact.

b) Result in a cumulatively considerable net increase of any criteria pollutant – Less-than-significant

The Management Plan proposes some activities that would result in short-term emissions, including road and trail treatments, erosion control activities, mechanical vegetation control and the creation of shaded fuel breaks, prescribed fire, and the general use of vehicles and equipment.

Emissions from construction activities proposed in the Management Plan would be short-term, but could have the potential to result in an air quality impact. Construction associated with proposed road treatments, erosion control projects and ongoing mechanical vegetation control and thinning would result in temporary emissions associated with grading, worker trips, and use of equipment and vehicles.

[10] Sensitive receptors are areas that are occupied by populations that are more susceptible to adverse effects from pollutants. Examples include hospitals, communities for the elderly, schools, and daycare facilities.

Potential emissions from these projects were evaluated using the California Emissions Estimator Model (CalEEMod). The full results of this air quality analysis using CalEEMod can be found in Appendix B. Table 4-1, below, displays the potential average daily emissions associated with these Management Plan activities, assuming a 45-day construction window, compared to the thresholds of significance developed by the BAAQMD (BAAQMD 2017b). As shown in Table 4-1, BAAQMD Thresholds of Significance and Potential Project Emissions, the proposed management activities would not result in emissions in excess of the applicable BAAQMD thresholds of significance for criteria pollutants.

Table 4-1. BAAQMD Thresholds of Significance and Potential Project Emissions

Air Contaminant	Threshold of Significance (lb/day)	Project Emissions (lb/day)
ROG	54	1.47
NO_x	54	15.44
PM10	82	0.68
PM2.5	54	0.63
PM (Fugitive Dust)	None	7.46
CO	None	7.85

Notes: lb/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM10 = coarse particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; PM2.5 = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; CO = carbon monoxide.

The Management Plan also proposes the development of 43 acres of shaded fuel breaks on the Preserve, which would require the use of handheld equipment as well as some use of heavy equipment, such as dozers, tractors, and chippers. The resulting emissions could result in an air quality impact. Potential emissions from shaded fuel break development were also modeled using CalEEMod; this analysis was performed separately due to the unique nature of the activity and the fact that it is not a traditional land use or construction project. Emissions were calculated by combining the construction phase output (for heavy equipment use, worker trips, and the movement of vehicles on unsurfaced roads on the Preserve) with the operational output for the use of landscaping equipment and hand-held power tools. The full results of this analysis can be found in Appendix B. Table 4-2. BAAQMD Thresholds of Significance and Potential Project Emissions, below, displays the potential average daily emissions associated with shaded fuel break development compared to the thresholds of significance developed by the BAAQMD. As shown in Table 4-2, the development of shaded fuel breaks would not result in emissions in excess of the applicable BAAQMD thresholds of significance for criteria pollutants.

Table 4-2. BAAQMD Thresholds of Significance and Potential Project Emissions, Shaded Fuel Breaks

Air Contaminant	Threshold of Significance (lb/day)	Project Emissions (lb/day)
ROG	54	0.48
NO_x	54	3.70
PM10	82	0.19
PM2.5	54	0.17
PM (Fugitive Dust)	None	13.05
CO	None	1.95

Notes: lb/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM10 = coarse particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; PM2.5 = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; CO = carbon monoxide.

Though road treatments, erosion control projects, and shaded fuel development activities would not be implemented simultaneously, even if the emissions from these activities (shown in Tables 4-1 and 4-2) were to be combined, total project emissions would still be below the applicable BAAQMD thresholds of significance.

The movement of vehicles and construction equipment, particularly on unpaved roads, during these activities could temporarily result in PM10 and PM2.5 emissions in the form of fugitive dust. The amount of fugitive dust generated would vary depending, in part, on the specific construction activity taking place, weather conditions, and soil characteristics. The BAAQMD *CEQA Air Quality Guidelines* consider the impact from construction-phase dust to be less-than-significant if recommended measures are implemented. These measures are included as ***Project Measure 2 - Reduction of Construction Emissions*** in Section 2.6 and require best management practices during construction such as watering exposed surfaces, preventing sediment tracking, limiting vehicle speeds on unpaved roads, etc. Implementation of ***Project Measure 2 - Reduction of Construction Emissions*** would ensure that the impact from fugitive dust emissions as a result of project construction activities is less-than-significant by controlling emissions during all construction activities.

The Management Plan includes project-level prescribed fire activities in grassland communities that could temporarily affect air quality. Prescribed burning produces smoke, which is a mixture of carbon dioxide, carbon monoxide, particulate matter, water vapor, hydrocarbons, and other materials (CARB 2016). The specific composition of smoke produced by a fire depends on a range of factors, including fuel type and weather conditions. Smoke can result in reduced visibility, respiratory impacts, and increased levels of pollutants. Depending on weather conditions and other factors, smoke from prescribed burning on the Preserve may blow to nearby areas and linger anywhere from less than an hour to several days. All impacts from smoke would be temporary. Grassland burns would produce comparatively little smoke, while pile burning would produce more. Coordination with BAAQMD and development of a smoke management plan would ensure that prescribed burning takes place under appropriate conditions to minimize smoke impacts.

BAAQMD Regulation 5 prohibits most forms of open burning but provides exemptions and regulations for prescribed burning of range, forest, marsh, and wildland areas (BAAQMD 2013). Because the project-level prescribed fire in grassland activities proposed in the Management Plan are allowed under Regulation 5, the air quality impacts that would be created by such activities would be exempt from regional air quality standards. In accordance with Regulation 5, and as described in ***Project Measure 6 - Agency Coordination, Approvals, and Public Notification for Prescribed Fire***, the District would cooperate extensively with the BAAQMD in the planning and implementation of all prescribed fire activities. In addition to developing a specific burn plan, as described in the Project Description, the District would register each burn with the BAAQMD, obtain BAAQMD and CalFire permits and approvals for the burn, and develop a smoke management plan and obtain approval of the plan from the BAAQMD. These steps, along with the short-term nature of prescribed fire emissions and because prescribed burns are allowed under BAAQMD Regulation 5, would ensure that the impact of project-level prescribed fire activities proposed in the Management Plan would be less-than-significant.

The ongoing operation of the Preserve, as described in the Management Plan, would not result in any change in land use or any new stationary or area sources of emissions and pollution. No significant, permanent increase in vehicle trips would result from Management Plan activities. Operation of the Preserve does not currently exceed the applicable BAAQMD thresholds of significance for operational emissions and would not change substantially due to implementation of activities associated with the Management Plan. Therefore, the impact of Preserve operation on criteria pollutants would be less-than-significant.

c) Expose Sensitive Receptors to Substantial Pollution Concentrations – Less-than-significant

The Preserve is located in a rural setting that is sparsely populated. Adjacent ownerships consists primarily of rural residential lots, ranches, and undeveloped forests and grasslands. The nearest sensitive receptor is Maria Carrillo High School, approximately three-quarters of a mile southwest of the Preserve's boundary. There are no sensitive receptors in the immediate vicinity of the Preserve.

As described above, construction-related emissions associated with erosion control and road treatment activities are well below the BAAQMD thresholds of significance. Additionally, these activities will occur entirely within the boundaries of the Preserve, three-quarters of a mile from the nearest sensitive receptor. The construction-related emissions associated with the erosion control and road treatment activities proposed in the Management Plan would not expose any sensitive receptors to substantial pollution concentrations.

Smoke emissions from prescribed fire activities could potentially affect sensitive receptors in a wider area around the Preserve, however a BAAQMD-approved smoke management plan would be developed for each individual prescribed burn to minimize potential smoke-related impacts to surrounding communities and sensitive receptors. As described in ***Project Measure 6, Agency Coordination, Approvals, and Public Notification for Prescribed Fire*** all sensitive receptors that may be affected by smoke from a prescribed fire project will be notified prior to burning. Additionally, the District would obtain final BAAQMD authorization for each prescribed burn no more than 24 hours prior to the burn, based on weather conditions and current air quality. Prescribed burning will only occur with proper authorizations and under specified conditions that minimize adverse effects. These controls would ensure that any potential impacts to sensitive receptors from prescribed fire activities proposed in the Management Plan would be less-than-significant.

d) Result in other emissions (such as those leading to odors or dust) adversely affecting a substantial number of people? – Less-than-significant

Although construction equipment used in some Management Plan activities may generate odors, work would occur entirely within the boundaries of the Preserve and would not affect surrounding landowners or a substantial number of people. Prescribed fire activities would produce smoke, but as described above in Impact c, smoke emissions from prescribed burns would be carefully controlled and approved by the BAAQMD, and would have a less-than-significant impact. Prescribed burns would not be conducted when prevailing winds would have the potential to carry smoke from the Preserve towards Santa Rosa and substantially populated areas, or at times when CalFire and/or BAAQMD states conditions are not ideal

for burning due to potential smoke and air quality impacts. Additionally, surrounding landowners would be consulted throughout the planning and implementation process for individual prescribed burns and the District would notify the potentially affected public prior to conducting any burns. Management activities proposed in the Management Plan would not generate other emissions that would significantly affect a substantial number of people. Therefore, the impact would be less-than-significant.

4.3.2 Program-level Analysis

a) Conflict with or Obstruct Applicable Air Quality Plan – No Impact

As noted above, BAAQMD considers a project consistent with the CAP if it: 1) can be concluded that a project supports the primary goals of the CAP (by showing that the project would not result in significant and unavoidable air quality impacts); 2) includes applicable control measures from the CAP; and 3) does not disrupt or hinder implementation of any CAP control measure (BAAQMD 2017b).

Longer term activities proposed in the Management Plan include developing a forest management plan, vegetation management contract, or similar document to provide further specific management of the Preserve's forests and woodlands; managing the Preserve's forest, woodland, and chaparral communities with prescribed fire; maintaining shaded fuel breaks through mowing, thinning, and understory reduction; controlling fully-established populations of invasive species and addressing new outbreaks; and preventing type conversion in the Preserve's natural communities by removing encroaching coyote brush and Douglas fir within select areas, including serpentine bunchgrass habitat. These activities would not result in significant air quality impacts (see Impact b, below) and would comply with, and not hinder the implementation of, control measures set forth in the CAP. Therefore, there would be no impact.

b) Result in a cumulatively considerable net increase of any criteria pollutant – Less-than-significant

Thinning and understory reduction, coyote brush and Douglas fir removal, and invasive species control would be implemented with hand tools or handheld power tools. No substantial ground disturbance is proposed. However, some activities may require the limited use of construction equipment, trucks, and other vehicles. However, due to their natural and scale, the proposed program-level activities would not result in emissions that would exceed the applicable BAAQMD thresholds of significance. The impact from these activities would therefore be less-than-significant.

The expanded prescribed fire activities discussed in the Management Plan would have the potential to generate emissions and significant smoke that could temporarily affect air quality in the same manner as project-level activities. The forest, woodland, and chaparral prescribed fire activities would be guided by a forest management plan, vegetation management contract, or similar document that would be developed by a credentialed subject matter expert, such as a qualified registered professional forester. The impact analysis for program-level prescribed fire projects is the same as for project-level burns. Program-level prescribed burns would be subject to the same planning and approval process as required for project-level burns and as described in ***Project Measure 6 - Agency Coordination, Approvals, and Public Notification for Prescribed Fire***. The impact of expanded prescribed fire activities proposed in the Management Plan would be less-than-significant.

c) Expose Sensitive Receptors to Substantial Pollution Concentrations – Less-than-significant

The nearest sensitive receptor to the Preserve is Maria Carrillo High School, approximately three-quarters of a mile southwest of the Preserve's boundary. There are no sensitive receptors in the immediate vicinity of the Preserve.

The analysis for potential impacts of continued erosion control activities; control of tree and shrub encroachment through the use of prescribed fire, thinning, and mechanical treatment; control of invasive species; and development of more shaded fuel breaks as needed and maintenance of existing fuel breaks; on sensitive receptors is the same as discussed above. The majority of the longer term activities proposed in the Management Plan would require only the limited use of vehicles and equipment and would not expose any sensitive receptors to substantial pollution concentrations. Smoke emissions from prescribed fire activities would have the same potential to impact sensitive receptors as burns described above and would be subject to the same restrictions, reviews, and approvals. These controls would reduce the likelihood of any potential impacts to sensitive receptors from prescribed fire activities proposed in the Management Plan. The impact would be less-than-significant.

d) Result in other emissions (such as those leading to odors or dust) adversely affecting a substantial number of people? – Less-than-significant

Although the equipment used in some program-level activities such as selective thinning and creation of shaded fuel breaks may generate limited emissions and odors, work would occur entirely within the boundaries of the Preserve and would have a less-than-significant impact on surrounding landowners or a substantial number of people, due to the distance of these activities from homes and concentrated populations. Prescribed fire activities would produce smoke, but as described above in Impact c, smoke emissions from prescribed burns would be carefully controlled and approved by the BAAQMD, and would have a less-than-significant impact. Future prescribed fire would be conducted in a similar fashion and would be subject to the same planning and approval requirements as discussed above. Therefore, the impact would be less-than-significant.

4.4 Biological Resources

Biological Resources Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
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 California Department of Fish and Wildlife or 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, regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on state or federally protected wetlands (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?	☐	☐	☒	☐

Setting

The Saddle Mountain Preserve supports forests, woodlands, chaparral, grassland, riparian corridors, and wetlands. Most of these habitats are diverse in native flora and fauna, and are connected to extensive adjacent intact habitat as well, providing valuable connectivity and climate resilience. Serpentine grassland, chaparral, and Sargent cypress forest are present, as are a number of additional sensitive habitat types. Seven special-status plant species and six special-status wildlife species have been documented on the Preserve and others have high likelihood to occur. These include several federally and/or state-listed species. Key natural resource concerns on the Preserve are the protection of these

species and sensitive habitats; control of invasive or otherwise undesired species; road improvements to protect stream quality; limiting the spread of Sudden Oak Death; managing human uses; climate change impacts; and managing fuel loads and fire hazard to benefit habitat diversity while also protecting nearby human infrastructure. The Management Plan is expressly designed to address these concerns.

4.4.1 Project-level Impacts

a) Impacts on special-status species – Less-than-significant with Mitigation

Biological evaluations of the Preserve have identified the presence of or high potential to occur for a number of special-status plant and animal species. Information about special-status species and habitat types within the Preserve and surrounding areas was obtained from the following sources, and the results are shown in Section 2.3.7:

- California Department of Fish and Wildlife (CDFW), California Natural Diversity Database (CNDDB) (CDFW 2018a)
- U.S. Fish and Wildlife Services (USFWS 2018) online database for federal threatened and endangered species,
- California Native Plant Society Online Inventory of Rare and Endangered Plants (CNPS 2018)

Definitions

Special-status plants and animals refer to those species that are afforded legal protection and include:

- Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA);
- Species listed or proposed for listing as threatened or endangered under the California Endangered Species Act (CESA);
- Species that are recognized as candidates for future listing by agencies with resource management responsibilities, such as USFWS, the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries), and CDFW;
- Species defined by CDFW as California Species of Special Concern;
- Species classified as Fully Protected by CDFW;
- Plant species, subspecies, and varieties defined as rare or threatened by the California Native Plant Protection Act (California Fish and Game Code Section 1900, et seq.);
- Species that otherwise meet the definition of rare, threatened, or endangered pursuant to Section 15380 of the CEQA Guidelines; and
- Plant species listed by the California Native Plant Society (CNPS) (CEQA Guidelines Section 15380) according to the California Rare Plant Ranks (CRPR[11]).

[11] California Rare Plant Ranks are provided below; lower numbers (on a scale of 1-4) indicate greater rarity:

- Rank 1A: Presumed extirpated in California and rare or extinct elsewhere;
- Rank 1B: Rare, threatened or endangered in California and elsewhere;
- Rank 2A: Presumed extirpated in California, common elsewhere;
- Ranch 2B: Rare or endangered in California, more common elsewhere
- Rank 3: Plants about which more information is needed; a review list
- Rank 4: Plants of limited distribution; a watch list

In addition to special-status species, nesting native bird species are protected under both federal and state regulations. Under the federal Migratory Bird Treaty Act (MBTA), it is unlawful to take, kill, and/or possess migratory birds at any time or in any manner, unless the appropriate permits are obtained. Protections extend to active nests, eggs, and young birds still in the nest. Birds and their nests are also protected under the California Fish and Wildlife Code (§3503 and §3503.5), and federal Bald and Golden Eagle Protection Acts. Most bird species, with a few specific exceptions, are protected under the MBTA and California Fish and Game Code.

Special-status Plants

Nine special-status plant species are known to occur on the Preserve or have high potential to occur. These include one species (Clara Hunt's milk vetch), which is listed as federally endangered and state threatened; the remainder are considered rare by the California Native Plant Society. These plants are listed below, with proposed management activities that have the potential to adversely affect them. Activities of concern include ground-disturbing activities such as roadway erosion and drainage repair, invasive species control, prescribed fire, fuels reduction, and thinning. If management activities occur in habitats that support special-status plants, impacts on special-status plants could result, including direct loss of individual plants, loss of existing seedbanks, and alteration of habitat conditions.

Napa false indigo is a woodland species that occurs in areas where potential roadway erosion control and drainage improvement activities could occur. It also occurs in areas where shaded fuel breaks and invasive species removal activities may occur. Plants are known to occur along the Erland-Cleland Tie Road in areas along the proposed shaded fuel break. Any location where ground-disturbing activities could occur in Napa false indigo habitat, individual plants could be impacted.

Several special-status species have habitat within chaparral and Sargent cypress vegetation types. Potential impacts could occur to Sonoma canescent manzanita, narrow-anthered brodiaea, Mt. St. Helena morning glory, and Rincon Ridge ceanothus, Calistoga ceanothus, and Sonoma ceanothus. Potential impacts could occur during implementation of roadway erosion and drainage improvement activities and vegetation management activities including thinning of Douglas fir and bay laurel trees and saplings, fuels reduction, and prescribed fire.

Management activities that would occur in grasslands could impact Clara Hunt's milk vetch. Grassland invasive species management, roadway erosion and drainage improvements, and prescribed fire could all occur within grassland habitats.

Lobb's aquatic buttercup grows in vernal pools. Invasive species management in wetlands could impact this species.

The Management Plan includes establishment of buffers around sensitive features, including around habitat that supports special-status plants (i.e., at least 100 feet for upland features and 300 feet for riparian or wetland features), which would help reduce potential impacts; however, some management activities would occur within the buffers to meet management goals. However, direct loss of individual

special-status plants and disturbance to their habitat could result in impacts, and the impacts could be significant.

Implementation of ***Mitigation Measure BIO-1, Avoid Loss of Special-status Plants and their Habitats***, would reduce potential impacts on special-status plants to less-than-significant levels by maintaining buffer distances from known occurrences. The measure also requires surveys for work in any new areas not previously studied and requires oversight by a qualified botanist for any work within established buffers. Compensation for the loss of individual special-status plant is required to reduce impacts if impacts cannot be avoided.

Mitigation Measure BIO-1, Avoid Loss of Special-status Plants and their Habitats
The District shall ensure that the following protection measures for special-status plants and their habitat are implemented during management activities. Where avoidance of individuals or habitat is infeasible, the District shall compensate for loss as required by CDFW and USFWS:

- The District shall conduct a botanical survey to ensure that no special-status plants are present in the area of potential ground disturbance prior to initiation of work. If special-status plants or their habitat are not identified during initial site surveys, no further mitigation for impacts on target species is necessary under this measure. Surveys shall be conducted at the appropriate time for plant identification, and shall be conducted by a botanist experienced with Sonoma County sensitive species.
- Ensure that special-status plants and their habitat are not damaged during road erosion control and drainage improvement activities. Napa false indigo is most likely to occur in these locations. Train crews to recognize this species prior to ground-disturbing activities, and have a trained supervisor oversee all work in areas where this plant occurs.
- Ensure that special-status plants and their habitat are not damaged by invasive species control efforts. Invasive species control is planned in or near locations supporting Lobb's aquatic buttercup, Napa false indigo, and Clara Hunt's milk vetch. Ensure that control efforts do not damage these plants, their seedbank, or habitat conditions. Prior to invasive control work, determine whether any known special-status occurrences are present within 100 feet. If so, a natural resource specialist or botanist shall plan and supervise the work.
- Ensure that special-status plants and their habitat are not damaged by fuels reduction, prescribed fire, or other vegetation thinning efforts. Fuels reduction is proposed along the Erland-Cleland Tie Road, along which Napa false indigo occurs. Prior to work, determine whether any known special-status plant occurrences are present within 100 feet. If so, a natural resource specialist or botanist shall plan and supervise the work (in conjunction with other specialists as needed).
- Any herbicide application to treat non-native plants must ensure that no special-status plants are affected.

Implementation of prescribed fire in habitats that support special-status plants could result in loss of individual plants, and the impact could be significant. Implementation of ***Mitigation Measure BIO-2,***

Protect Special-status Plants during Prescribed Burning, would reduce potential impacts on special-status plants resulting from prescribed fire activities to less-than-significant levels by ensuring that appropriate measures are implemented to protect special-status plant species during burning.

Mitigation Measure BIO-2, Protect Special-status Plants during Prescribed Burning
The District shall ensure that the following protection measures for special-status plants are implemented prior to and during prescribed fire activities:

- Prior to conducting prescribed fire activities in habitat that supports special-status plant species, a qualified botanist or biologist shall survey the proposed burn area and identify any special-status plants or critical plant habitat that is present. If special-status species are present in the burn area, a botanist or qualified natural resource specialist shall work with professional fire personnel to plan and supervise the burn to protect special-status plants. Depending on the specific species' characteristics and response to fire, a botanist shall determine if the special-status plant(s) may be negatively impacted by prescribed fire activities. If prescribed fire is determined to have a potentially negative impact on the special-status plant species, measures shall be implemented to protect the plant(s) including, but not limited to, the following:
    - The location of special-status plant(s) will be flagged or otherwise marked
    - An appropriate buffer will be established with environmentally sensitive area (ESA) fencing or other means to identify the sensitive area
    - Locations of special-status plants or habitat that should not be included in the prescribed fire shall be clearly marked on burn plans and in the burn unit
    - Control lines or firebreaks shall be established at a sufficient distance to exclude fire from the area containing special-status plant species and their habitat
    - Sensitive locations containing special-status plant species shall be monitored during prescribed fire activities to ensure that fire is excluded from the area and to implement remedial actions, such as fire suppression, as needed.

Special-status Wildlife

Six special-status animal species have been identified on the Preserve to date, and four others are known to occur near the Preserve. Table 2-3 summarizes the special-status wildlife species that have the potential to occur within the Preserve. Vegetation management activities (e.g., invasive plant species removal or fuel load management) and ongoing activities have the potential to impact native wildlife through disturbance, direct mortality, and alteration of habitat. Impacts on native wildlife would be managed through preconstruction surveys, trainings, and biological oversight for construction and ongoing management activities.

Special-status Fish and Aquatic Wildlife Species

Creeks and wetlands on the Preserve provide documented and potential habitat for special-status amphibians, reptiles, and fish. Foothill yellow-legged frogs are present in Weeks Creek and suitable habitat is present in Alpine and Van Buren Creeks. California giant salamanders and red-bellied newts have been documented downstream in Mark West Creek and may be present in the creeks and uplands.

Northwestern ponds turtles have been observed on adjacent parcels and may use the aquatic habitats and nest in uplands. Steelhead have been documented in Alpine Creek. Suitable habitat may also be present in Weeks and Van Buren Creeks within the Preserve.

Roadway erosion control activities (such as stream crossing treatments), native revegetation and habitat enhancement, and invasive species treatments near creeks or wetlands could result in impacts on protected aquatic species if present in and near the work area during implementation. Potential impacts on aquatic species could result from direct disturbance or mortality to individual animals or through habitat alteration. Such potential impacts on protected aquatic species could be significant.

Implementation of ***Mitigation Measure BIO-3, Protect Fish and Aquatic Wildlife Species***, would reduce impacts on special-status aquatic species to less-than-significant levels by requiring preconstruction surveys by a qualified biologist prior to work in potential habitats to determine whether special-status species are present at or near the location of management activities on the Preserve. This mitigation measure also provides measures to avoid impacts on individuals. Where required, a qualified and permitted biologist would relocate listed wildlife to areas that have been predetermined to provide suitable habitat. Continued public access on the Preserve is unlikely to impact aquatic species, because permitted visitors would be restricted to the existing road and trail network.

Mitigation Measure BIO-3, Protect Fish and Aquatic Wildlife Species

The District shall ensure that the following measures for aquatic species protection are implemented for ground-disturbing management activities near creeks and wetlands:

- A preconstruction survey for foothill yellow-legged frog shall occur prior to beginning work in any wetted stream channel (e.g., wet crossing treatments, culvert replacement), and work shall only occur in areas that have been surveyed by a qualified biologist. Frogs surveys would be restricted to the stream channels. Frogs shall be relocated outside of the work area by a qualified biologist, which may require consultation with CDFW and USFWS. Ongoing monitoring during construction shall occur to ensure frogs have not moved back into the area, and they are not being impacted by activities.
- A preconstruction survey for steelhead and other native fish shall occur prior to beginning work in any perennial stream channel (i.e., wet crossing treatments, culvert replacement), and work shall only occur in areas that have been surveyed by a qualified biologist. Dewatering activities may be needed if fish are present during construction. Ongoing monitoring during implementation of restoration activities shall occur to ensure fish are not being impacted.
- If water is present during construction of the any project, fish and other vertebrate aquatic species shall be relocated up- and/or downstream prior to construction, species shall be excluded from the work area, and the stream shall be dewatered. A comprehensive aquatic species relocation and dewatering plan shall be developed in consultation with CDFW, USFWS, and NOAA Fisheries during acquisition of ecological permits.
- A preconstruction survey for adult northwestern pond turtles and nest sites shall occur prior to beginning work for all projects within or near streams and other permanent water bodies. Any adults found within the work area shall be relocated to suitable off-site habitat. Nest sites

discovered during the preconstruction survey or anytime during construction shall be avoided until vacated, as determined by a qualified biologist. Ongoing monitoring shall occur during construction to ensure no turtles have moved back into the area.

Protected Bird Species

Habitats on the Preserve provide potential nesting habitat for special-status bird species. Sharp-shinned hawk, oak titmouse, wrentit, Nuttall's woodpecker, and northern spotted owl are known to occur year-round on the Preserve. Ongoing management activities could result in tree removal or trimming, ground disturbance, or construction-related noise, which could result in impacts on protected nesting birds if present in and near the work area. Potential impacts on nesting birds could result from destruction of eggs or occupied nests, mortality of young, and abandonment of nests with eggs or young birds prior to fledging. Such potential impacts on protected nesting birds could be significant.

Implementation of ***Mitigation Measure BIO-4, Protect Nesting Birds***, would reduce potential impacts on nesting birds to less-than-significant levels by requiring preconstruction surveys by a qualified biologist to determine if nesting birds are present at or near activity sites and by identifying exclusionary zones around the nests or delaying work until the breeding season is over or nesting is complete. Timeframe limitations would also limit potential impacts to breeding birds by avoiding work during specific times of the year. Continued permitted public access on the Preserve is unlikely to impact nesting birds, because visitors would be restricted to the existing road and trail network where nesting is unlikely.

Mitigation Measure BIO-4, Protect Nesting Birds

The District shall ensure that the following protection measures for birds are implemented for ground-disturbing and/or vegetation management activities:

- Work shall occur outside of the critical breeding bird period (February 15 through August 31) for construction projects and during ongoing land management (e.g., vegetation trimming and removal, shaded fuel break development, etc.). If activities must occur during this period, work areas shall be surveyed by a qualified biologist prior to commencing. Surveys shall be required for all human-related ground disturbance activities in natural habitats and for vegetation trimming and removal. The surveys shall be conducted within one week prior to initiation of vegetation clearing, tree removal and trimming, shaded fuel break development, and other vegetation activities. If the biologist finds no active nesting or breeding activity, work can proceed without restrictions. If active raptor or owl nests are identified within 100 feet of the construction area or active nests of other special-status birds (e.g., passerines, woodpeckers, hummingbirds, etc.) are identified within 50 feet of the construction area, a biologist shall determine whether or not construction activities may impact the active nest or disrupt reproductive behavior. If it is determined that construction would not affect an active nest or disrupt breeding behavior, construction can proceed without restrictions. The determination of disruption shall be based on the species' sensitivity to disturbance, which can vary among species; the level of noise or construction disturbance; and the line of sight between the nest and the disturbance. If the biologist determines activities would be

detrimental, the nesting area and 250-foot buffer for larger nesting birds (e.g., owls, raptors, herons, egrets) and 50-foot buffer for small nesting songbirds shall be avoided until the nest has been vacated.

- If the work area is left unattended for more than one week following the initial surveys, additional surveys shall be completed. Ongoing construction monitoring shall occur to ensure no nesting activity is disturbed. If State and/or federally listed birds are found breeding within the area, activities shall be halted and consultation with the CDFW and USFWS shall occur.

Northern Spotted Owl

Northern spotted owls occupy the densely forested habitats within the Preserve. Activities which could affect owls include the prescribed fire and bay removal associated with the habitat enhancement activities and general forest thinning and tree removal. Implementation of these management activities may impact nesting owls if activities occur within 0.5 acre of an active nest during the breeding season, and the impact could be significant.

Implementation of ***Mitigation Measures BIO-4, Protect Nesting Birds***, would reduce potential impacts on nesting northern spotted owls to less-than-significant levels by requiring preconstruction surveys by a qualified biologist and changing implementation timeframes if management activities occur in suitable forested and woodland habitats and within one mile of a documented owl occurrence as described in U.S. Fish and Wildlife Service (USFWS) Revised Recovery Plan for the Northern Spotted Owl (*Strix occidentalis caurina*) (USFWS 2011).

Mitigation Measures BIO-4, Protect Nesting Birds

Implementation of **Mitigation Measure BIO-5, Protect Northern Spotted Owl**, would also mitigate potential impacts on northern spotted owls to less-than-significant levels by requiring preconstruction surveys by a qualified biologist to determine if nesting spotted owls are present at or near management activity sites and by identifying exclusionary zones around the nests. Implementation of management activities could also be delayed until the breeding season is over or nesting is complete. Continued permit-only public access on the Preserve is unlikely to impact owls because the Preserve would be closed from sunset to sunrise to protect nocturnal wildlife and most of the occupied habitat is not accessible.

Mitigation Measure BIO-5, Protect Northern Spotted Owl

The District shall ensure that the following protection measures for northern spotted owls are implemented for habitat disturbing management activities:

- Assume presence of northern spotted owl in Douglas fir, redwood, and mixed woodland habitats on the Preserve.
- Breeding northern spotted owls shall be protected in accordance with the measures outlined in ***Mitigation Measure BIO-4, Protect Nesting Birds***, above. Protection shall include focused breeding owl surveys for projects occurring from March 1 through August 31 in areas of suitable forested and woodland habitat and within 1 mile of a documented owl occurrence.

- If spotted owls are determined to be present during the breeding season within 0.5 miles of the work area, no work shall occur between March 1 and August 31 or until nesting completion has been verified by a qualified biologist.
- If the absence of northern spotted owl cannot be verified, the species shall be assumed to be present and either: 1) the work shall be performed after August 31 or 2) sound reduction measures shall be implemented in consultation with a qualified biologist, CDFW, and USFWS to ensure activities do not significantly raise noise above ambient levels.
- No trees or understory vegetation shall be removed within 500 feet of a documented active breeding location for northern spotted owl (either through previously confirmed sightings or project-specific verification by the project biologist).
- For projects proposed during the non-breeding season in suitable habitat, construction activities shall be overseen by a qualified biologist to ensure roosting and foraging birds are not being impacted.

Special-status Bats

There are approximately 15 bat species with known occurrences within northern California, and a number of these species have a high probability of occurring within the Preserve and adjacent lands. Bats are highly mobile, with many being migratory. All local Sonoma County species are insectivorous and feed by echolocation. Bats on the Preserve may use tree hollows and other natural and man-made (e.g., cabin) crevices for roosting. Two special-status bat species have reported occurrences near the Preserve—pallid bat and Townsend's big-eared bat. Additional bat species identified as having moderate to high priority for conservation by the Western Bat Working Group may also occur on the Preserve. Potential impacts on special-status and common bat species could be significant during implementation of the management actions that require tree removal or trimming.

Implementation of ***Mitigation Measure BIO-6, Protect Special-status Bats***, would reduce impacts on special-status bat species to less-than-significant levels by requiring preconstruction surveys and avoidance of disturbance to roosting bats. Continued permit-only public access on the Preserve is unlikely to impact bats because the Preserve would be closed from sunset to sunrise

Mitigation Measure BIO-6, Protect Special-status Bats

The District shall ensure that the following protection measures for bats are implemented during management activities on the Preserve:

- Complete presence/negative finding bat surveys prior to removal or significant trimming of any trees which are over 6 inches in diameter at breast height. Surveys shall be completed by a qualified biologist. Because each individual bat species may use different roosts seasonally and from night to day, surveys must be conducted by a qualified biologist at the appropriate times. If trees planned for trimming or removal are identified as active roost sites, appropriate and specific avoidance measures shall be developed. Avoidance measures may include, but would not be limited to, seasonal limitations on work when roosts are unoccupied and/or establishment of buffer areas around occupied roosts.

- For all trees previously identified as active roost sites and subject to trimming or removal, trees shall be taken down in a two-step process – limb removal on day one shall be followed by bole removal on day two. This approach would allow bats, if they are present, an opportunity to move out of the area prior to completing removal of the trees. No trees supporting special-status bats shall be removed without prior consultation with CDFW.
- If work is postponed or interrupted for more than two weeks from the date of the initial bat survey, the preconstruction survey shall be repeated.
- Construction shall be limited to daylight hours to avoid interference with the foraging abilities of bats.

b) Impacts on riparian habitat and sensitive natural communities – Less-than-significant

Sensitive natural communities on the Preserve include redwood forest, Sargent cypress woodland, California bay forest, Oregon oak woodland, valley oak woodland, manzanita chaparral, native grassland, and wetlands. Several streams and associated riparian habitat are also present. Both short-term and long-term management practices are designed to improve site conditions in riparian and sensitive natural communities on the Preserve. Native plantings and invasive species control are planned in riparian habitat, redwood habitat, and native grassland. Implementation of buffers as described in the Section 2.4.5 would provide protection of these sensitive resources.

Road drainage improvements and repairs are planned in many of these settings, and would cross drainages. ***Project Measure 1 - Planting and Revegetation after Soil Disturbance for Restoration*** and ***Project Measure 3 - Erosion Control, Sediment Detention, and Site Maintenance*****,** are included as part of the project and described in Section 2.6. These measures require including erosion control measures and the requirement to replant areas disturbed during management activities. Strict adherence to the measures would keep potential impacts on riparian and other sensitive communities to less-than-significant.

Prescribed fire may be used in many of these settings. The goal of using fire would be to maintain and improve habitat complexity by providing diverse native-dominated habitats. As discussed in the Project Description Section 2.4.3, the District would work with CalFire and a prescribed burn specialist to develop burn plans. If a burn were to take place near sensitive resources, the burn plan would be subject to appropriate resource review, such as consultation with a qualified botanist and relevant agencies. Conditions and environmental protection measures would be included in the burn plan if needed to protect sensitive habitat. Impacts to sensitive habitats would be less-than-significant.

c) Impacts on jurisdictional wetlands or waters – Less-than-significant with Mitigation

Sonoma County, State, and federal regulations require conservation of wetlands and compliance with a no-net loss policy through avoidance of sensitive habitats and compensatory mitigation such as enhancement or restoration.

Some erosion control and native vegetation plantings could be implemented within jurisdictional waters or wetlands. Erosion repair and roadway drainage improvement activities could result in temporary

disturbance and potential fill of federally and State-protected wetlands. By their nature, in-channel stabilization and roadway improvements would be located in or near stream channels and could impact adjacent wetlands depending on the site. These impacts could be significant.

Implementation of ***Mitigation Measure BIO-7, Protect Wetlands and Waters***, would reduce impacts to a less-than-significant level through implementation of a compensatory mitigation program for impacts on wetlands or waters that cannot be avoided.

> ***Mitigation Measure BIO-7, Protect Wetlands and Waters***
> The District shall conduct a wetlands survey for areas that would be permanently or temporarily disturbed to confirm the location, extent, and regulatory status of wetland and water features within the management activity area. Project impacts on wetlands and waters shall be avoided where feasible. If jurisdictional wetlands cannot be avoided, the project may require a Clean Water Act (CWA) Section 404 permit from the U.S. Army Corps of Engineers and a Section 401 permit from the Regional Water Quality Control Board. All permit requirements shall be implemented.
>
> In addition, compensation for impacts on wetlands and waters shall follow the requirements in the CWA Section 404/401 permits. Compensatory mitigation may consist of the following:
>
> - Providing compensatory mitigation through aquatic resource restoration, establishment, enhancement, and/or preservation.
> - Obtaining credits from a mitigation bank.

d) Impacts on the movement of fish or wildlife species – Less-than-significant

Sonoma County directs the preservation and restoration of elements of wildlife habitats and corridors throughout the county, and the District's plans are designed to enhance and protect existing wildlife migration corridors. Erosion control treatments are designed to improve instream habitat conditions for aquatic species and preserve adjacent habitats. Existing plant communities and habitats would be enhanced to support local wildlife populations through active vegetation management and invasive plant removal. Vegetation management could have a significant impact on wildlife movement. Vegetation management may temporarily cause wildlife to travel away from the disturbance area; however, the impact would be temporary and occur only for the duration of implementation of management actions. In the long-term, implementation of the management activities described in the Management Plan would reduce impacts on native and migratory wildlife species by maintaining habitat complexity by providing diverse multistory forest and woodland habitats for wildlife utilization and plant community diversity.

e, f) Conflict with local policies or ordinances or with a Habitat Conservation Plan or Natural Community Conservation Plan – Less-than-significant

The Sonoma County General Plan 2020 contains numerous goals, policies, and action items to protect biological resources. The policies require conservation of wetlands and waterways so that there is no net loss of wetlands, preservation of significant vegetation and trees, and specific measures for construction in and adjacent to sensitive habitats, such as stream channels. Implementation of the management actions could conflict with applicable county policies protecting biological resources, as identified in the

previous impact discussions regarding special-status species, riparian vegetation, and wetlands. However, the mitigation measures identified in the impacts analysis above would ensure that management actions comply with county policies, and the impact would be less-than-significant.

Actions proposed would not 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 impacts would occur.

4.4.2 Program-level Impacts

a) Impacts on special-status species – Less-than-significant with Mitigation

Special-status Plants

The impacts for future management activities on special-status plants would be the same as described above in the project-level analysis. Long-term management of the Preserve including continued implementation of future erosion control activities; control of tree and shrub encroachment through the use of prescribed fire, thinning, and mechanical treatment; invasive species control; and maintenance of existing fuel breaks, could affect Napa false indigo stands along roads. Implementing stated setbacks and measures described in ***Mitigation Measure BIO-1, Avoid Loss of Special-status Plants and their Habitats*** and ***Mitigation Measure BIO-2, Protect Special-status Plants during Prescribed Burning*** would ensure that any impacts would be less-than-significant.

Mitigation Measure BIO-1, Avoid Loss of Special-status Plants and their Habitats
Mitigation Measure BIO-2, Protect Special-status Plants during Prescribed Burning

Special-status Wildlife

Long-term management of the Preserve, including continued implementation of future erosion control activities; control of tree and shrub encroachment through the use of prescribed fire, thinning, and mechanical treatment; invasive species control; and creation of new and maintenance of existing fuel breaks, would have the same impacts as described above for more short-term actions. Implementation of management activities would be subject to the project and mitigation measures described above in Section 4.4.1, Project-Level Impacts. Implementation of the mitigation measures would reduce impacts to less-than-significant levels.

Mitigation Measure BIO-3, Protect Fish and Aquatic Wildlife Species
Mitigation Measure BIO-4, Protect Nesting Birds
Mitigation Measure BIO-5, Protect Northern Spotted Owl
Mitigation Measure BIO-6, Protect Special-status Bats

b) Impacts on riparian habitat and sensitive natural communities – Less-than-significant

Proposed Management practices are designed to improve site conditions in riparian and sensitive natural communities on the Preserve. These include removal of encroaching woody vegetation to protect native

grassland and use of fire and thinning to control Douglas fir encroachment into oak woodland. Forest thinning to reduce fuel loads is also planned. Forest thinning and prescribed fire could have impacts on sensitive natural communities. As discussed in the Project Description Section 2.4.3, the District would work with CalFire and a prescribed burn specialist to develop burn plans and vegetation management plans. If work were to take place near sensitive resources, the plan would be subject to appropriate resource review, such as consultation with a qualified botanist and relevant agencies. Conditions and environmental protection measures would be included in the burn or vegetation management plan if needed to protect sensitive habitat. Impacts to sensitive habitats would be less-than-significant.

c) Impacts on jurisdictional wetlands or waters – Less-than-significant with Mitigation

No additional program-level activities (i.e., beyond the project-level activities) are planned that would affect wetlands and waters. Future management activities would be subject to Mitigation Measure BIO-7, Protect Wetlands and Waters. See project-level analysis in Section 4.4.1.

Mitigation Measure BIO-7, Protect Wetlands and Waters

d) Impacts on the movement of fish or wildlife species – No impact

No additional program-level activities (i.e., beyond the project-level activities) are planned that would affect fish and wildlife movement. See project-level analysis, Section 4.4.1.

e, f) Conflict with local policies or ordinances or with a Habitat Conservation Plan or Natural Community Conservation Plan – Less-than-significant

The Sonoma County General Plan 2020 contains numerous goals, policies, and action items to protect biological resources. The policies require conservation of wetlands and waterways so that there is no net loss of wetlands, preservation of significant vegetation and trees, and specific measures for construction in and adjacent to sensitive habitats, such as stream channels. Implementation of the management actions could conflict with applicable County policies protecting biological resources, as identified in the previous impact discussions regarding special-status species, riparian vegetation, and wetlands. However, the mitigation measures identified in the impacts analysis above would ensure that management actions comply with County policies, and the impact would be less-than-significant.

Proposed program-level actions would not 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 impacts would occur.

4.5 Cultural Resources

Cultural Resources Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historic resource pursuant to §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Setting

Archaeology is the systematic study of past human life and culture through recovery and examination of remaining material evidence, such as graves, buildings, tools, and pottery. In Sonoma County, archaeological research generally involves study of the Native American inhabitants of the land from roughly 8,000 years ago to the early 1800s when the County was settled by American, Russian, Spanish, and Mexican colonists, and most Native Americans were brought into the mission system.

The Preserve's natural characteristics, including multiple sources of freshwater and a mosaic of habitat types, have made it a prime location for human occupation throughout the millennia. Prior to European settlement, the land that includes the Preserve was occupied by the Southern Pomo, hunter-gatherers with complex social structures (Tom Origer & Associates 2008, 2018). The Southern Pomo typically settled in permanent villages with dense populations and established seasonal camps and smaller sites throughout the region. The Southern Pomo and other Native American tribes in the vicinity also influenced the landscape through the frequent use of fire to facilitate hunting, cultivation, and other uses. These interventions represented a continuation of the natural process of landscape alteration caused by grazing and lightning strike-induced fires that occurred prior to indigenous land management. Thus, fire and grazing have shaped the landscape on and around the Preserve for millennia.

Historic resources, as distinguished from archaeological resources, include antiques, buildings, structures, and sites generally from the past two centuries, marking the successive eras of Russian, Mexican, and North American occupation. The historic period brought with it large-scale changes to the landscape, with logging, clearing of the land for agriculture, importation of livestock, and fire suppression leading to drastic alterations in the vegetation and habitat types in the Preserve and the surrounding area. Throughout the historic period, the Preserve was used for timber operations and livestock ranching.

Tom Origer & Associates conducted cultural resources surveys of the Preserve in 2008 and 2018 (Tom Origer & Associates 2008; Tom Origer & Associates 2018). The 2008 survey documented four previously recorded prehistoric sites, four isolated specimens, two stone fences, six historic sites, and one prehistoric site on the Preserve. The survey was unable to confirm two prehistoric sites recorded during previous

studies conducted in the 1970s. The 2018 survey included evaluation of seven erosion control project locations proposed in the Management Plan, as well as the previously recorded six prehistoric sites, six historic sites, and two stone fences.

4.5.1 Project-level Analysis

a) Cause a substantial change to historical resources – Less-than-significant with Mitigation

The Management Plan identifies seven historic resources within the Preserve: two stone fences; two mid-20th century camps; one mid-to-late 20th century camp; one collapsed barn; Plum Ranch Orchard, a complex with one small wood frame building, stone foundation, artificial pond, and cistern; and an outhouse. The latter two historic resources represent the only structures located on the Preserve.

The Management Plan recommends the establishment of buffers around sensitive features, including 100-foot cultural resource avoidance buffers for visible sites. Any potential intensification of visitor use would be directed outside of buffer areas and modification of the environment should be avoided within buffers to the greatest extent possible. The Management Plan also restricts ground disturbance in areas where cultural resources occur but are not visible. However, as shown in Table 5.4 of the Management Plan (Appendix A), some of the proposed erosion control activities would by necessity take place within the 100-foot buffer of a cultural or historic resource. However, the 2018 survey found that no historic resources would be impacted during construction of these erosion control projects.

Additionally, road and trail improvements, erosion control efforts, and development of shaded fuel breaks involve ground-disturbing construction activities and there is a chance that a previously undiscovered historical site could be impacted during these construction activities.

Mitigation Measure CUL-1, Identify and Avoid or Minimize Impacts on Historic Resources, would be implemented to reduce these potential impacts on historical resources to less-than-significant levels by providing standard practices for the protection of both documented and as of yet undiscovered historical resources during ground-disturbing activities. ***Mitigation Measure CUL-2, Avoid Impacts on Previously Undiscovered Historic Resources***, would be implemented to reduce potential impact on previously undiscovered historical resources to less-than-significant levels by providing standard procedures to protect such resources if discovered during ground-disturbing activities.

> ***Mitigation Measure CUL-1, Identify and Avoid or Minimize Impacts on Historic Resources***
>
> Prior to ground-disturbing activities within 100 feet of a documented historic resource, the District shall examine the site to determine if the resource is within or outside the area of disturbance. If the historic resource is outside the area of disturbance or can be avoided, temporary fencing shall be placed around the historic resource and the project shall be designed and constructed to avoid impairment of the historic resource.
>
> If the historic resource is determined to be within the area of disturbance and cannot be avoided, *The Secretary of the Interior's Standards for the Treatment of Historic Properties* shall be followed. A qualified historic preservation professional shall be retained to develop a treatment plan. Such

professionals may include architects, architectural historians, historians, historic engineers, archaeologists, and others who have experience in working with historic structures. Mitigation measures recommended by the qualified historic preservation professional shall be implemented. These measures could include, but not necessarily be limited to:

- Avoidance of significant historic resources;
- Graphic documentation (photographs, drawings, etc.); and/or
- Restoration, stabilization, repair, and reconstruction.

If subsurface historic materials are encountered during project activities, the piece of equipment or crew member that encountered the materials shall stop and the find shall be inspected by a qualified historian/archaeologist. Project personnel shall not collect historic materials. If the historian/archaeologist determines that the find qualifies as a unique historic resource for the purposes of CEQA (Guidelines Section 15064.5(c)), all work shall be stopped in the immediate vicinity to allow the archaeologist to evaluate the find and recommend appropriate treatment. Such treatment and resolution shall include either modifying the project to allow the materials to be left in place or undertaking data recovery of the materials in accordance with standard archaeological methods. The preferred treatment is protection and preservation.

Mitigation Measure CUL-2, Avoid Impacts on Previously Undiscovered Historic Resources

The District shall ensure that if previously unknown historic resources are encountered during construction, the piece of equipment or crew member that encountered the materials shall stop and the find shall be inspected by a qualified archaeologist. Project personnel shall not collect historic materials. If the archaeologist determines that the find potentially qualifies as a unique historic resource for the purposes of CEQA (Guidelines Section 15064.5(c)), all work shall be stopped in the immediate vicinity to allow the archaeologist to evaluate the find and recommend appropriate treatment. Such treatment and resolution shall include either project modification to allow the materials to be left in place or undertaking data recovery of the materials in accordance with standard archaeological methods. The preferred treatment is protection and preservation.

The Management Plan includes prescribed fire within grassland units on the Preserve to manage invasive species and enhance native habitat by restoring historic landscape disturbance patterns. Prescribed fire activities would be designed to use existing firebreaks (e.g., roads and trails) and natural breaks (e.g. creeks and wetlands) to the extent possible. However, the installation of small, shallow control lines and other firebreaks around some burn units would likely be necessary. As a result, the use of prescribed fire would be unlikely to impact below-ground resources and human remains, but could have the potential to affect historical and archaeological resources, particularly above-ground resources if fire is used within the vicinity of these resources. ***Mitigation Measure CUL-3, Minimize Impacts of Prescribed Fire on Cultural Resources***, would reduce the potential impacts to historical and archaeological resources to a less-than-significant level by identifying and avoiding cultural resources during burning operations.

Mitigation Measure CUL-3, Minimize Impacts of Prescribed Fire on Cultural Resources

The District shall, prior to the implementation of prescribed fire activities, ensure that a qualified archaeologist surveys the proposed burn unit to identify any historic and archaeological resources present. A qualified archaeologist shall mark locations, and all fire and staging activities shall be excluded in marked areas. Prior to conducting a prescribed burn, wildland fire officials shall receive training on the location of cultural resources and measures necessary to protect them. Upon completion of burning activities, markings designating the location of cultural resources shall be removed.

b) Cause a substantial change to archaeological resources – Less-than-significant with Mitigation

As noted above, five archaeological sites and four isolated archaeological specimens were documented on the Preserve during the most recent survey (Tom Origer & Associates 2008, 2018). Some proposed project-level activities in the Management Plan, including erosion control and road and trail improvement, require ground disturbance and limited excavation. There are known archaeological sites in the vicinity of the roadways where project activities would take place; however, 2018 site surveys indicate no known resources in the disturbance area of the proposed erosion control sites. Other project-level activities may be located in areas where previously undiscovered archaeological resources exist. Thus, the potential impact on archaeological resources could be significant, given the potential for damage to previously undiscovered resources during ground-disturbing activities.

Mitigation Measure CUL-4, Identify and Avoid or Minimize Impacts on Archaeological Resources, would reduce any impact on recorded or as of yet undiscovered archaeological resources to a less-than-significant level by identifying, protecting, preserving, or recovering significant archaeological resources.

Mitigation Measure CUL-4, Identify and Avoid or Minimize Impacts on Archaeological Resources

The District shall avoid known archaeological resources where feasible and follow the treatment recommendations presented in the cultural resources reports for the Preserve (Tom Origer & Associates 2008, 2018). All projects shall be designed, constructed, and operated to avoid damage to the resource as guided by the cultural resources treatment measures. Measures may include, but are not limited to, temporary protective barriers, construction worker training, or relocation of the project itself.

If avoidance of the location of a known archaeological resource is not feasible, a qualified archaeologist shall be retained to perform an evaluation of the resource and to determine its significance. The resource would be subject to archaeological research and testing in order to adequately document the site and its scientific data. Mitigation measures recommended by the qualified archaeologist shall be implemented and may include graphic documentation, avoidance of the resource, or accession of materials.

If previously unknown archaeological materials are encountered during construction, the piece of equipment or crew member that encountered the materials shall stop, and the find shall be inspected by a qualified archaeologist. Project personnel shall not collect archaeological

materials. If the archaeologist determines that the find potentially qualifies as a unique archaeological resource for the purposes of CEQA (Guidelines Section 15064.5(c)), all work shall be stopped in the immediate vicinity to allow the archaeologist to evaluate the find and recommend appropriate treatment. Such treatment and resolution shall include either project modification to allow the materials to be left in place or undertaking data recovery of the materials in accordance with standard archaeological methods. The preferred treatment is protection and preservation.

As noted above, project-level activities include the use of prescribed fire within the Preserve's grasslands, which has the potential to significantly affect historical and archaeological resources. ***Mitigation Measure CUL-3, Minimize Impacts of Prescribed Fire on Cultural Resources***, would reduce the potential impacts from prescribed fire to historical and archaeological resources to a less-than-significant level.

Mitigation Measure CUL-3, Minimize Impacts of Prescribed Fire on Cultural Resources

c) Disturb any human remains – Less-than-significant with Mitigation

No human remains have been documented on the Preserve during any of the previous cultural resource surveys on the area. However, ground disturbing activities related to erosion control or road treatment projects could potentially disturb previously undocumented buried human remains. These activities could therefore have a potentially significant impact on human remains. ***Mitigation Measure CUL-5, Procedures for Encountering Human Remains***, would reduce impacts on human remains to a less-than-significant level by requiring the implementation of standard procedures if human remains are encountered.

Mitigation Measure CUL-5, Procedures for Encountering Human Remains

The District shall implement the following actions should human remains be encountered during project activities:

The treatment of any human remains and associated or unassociated funerary objects discovered during soil-disturbing activities shall comply with applicable State laws. If human graves are encountered, the District shall ensure that all work stops in the vicinity and the Sonoma County Coroner is notified. A qualified archaeologist shall evaluate the remains. If human remains are of Native American origin, the Coroner shall notify NAHC within 24 hours of identification, pursuant to PRC §5097.98. NAHC would appoint a Most Likely Descendant. A qualified archaeologist, the District, and the Most Likely Descendant shall make all reasonable efforts to develop an agreement for the treatment, with appropriate dignity, of any human remains and associated or unassociated funerary objects (CEQA Guidelines §15064.5[d]). The agreement would take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, and final disposition of the human remains and associated or unassociated funerary objects. The PRC allows 48 hours to reach agreement on these matters. If the Most Likely Descendant and the other parties cannot not agree on the reburial method, the District shall follow PRC §5097.98(b), which states that "the landowner or his or her authorized representative shall reinter the human

remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance."

4.5.2 Program-level Analysis

a-c) Cause a substantial change to historical resources, archaeological resources, and human remains – Less-than-significant with Mitigation

Program-level activities proposed in the Management Plan include targeted thinning, maintenance of shaded fuel breaks, control of well-established invasive species and new outbreaks, and application of prescribed fire to woodland, forest, and chaparral habitats. These program-level activities would not require significant ground-disturbance, though some limited ground-disturbance would be associated with prescribed burning, thinning, and invasive control activities. As a result, program-level activities could have a significant impact on historical resources, archaeological resources, and human remains. In particular, prescribed fire could have a potentially significant impact on above-ground archaeological and historical resources. Implementation of

Mitigation Measures CUL-1, Identify and Avoid or Minimize Impacts on Historic Resources, CUL-2, Avoid Impacts on Previously Undiscovered Historic Resources, CUL-3, Minimize Impacts of Prescribed Fire on Cultural Resources, CUL-4, Identify and Avoid or Minimize Impacts on Archaeological Resources, and ***CUL-5, Procedures for Encountering Human Remains***, as described above, would reduce the potential impact of longer term activities on historical resources, archaeological resources, and human remains, to a less-than-significant level.

Mitigation Measure CUL-1, Identify and Avoid or Minimize Impacts on Historic Resources
Mitigation Measure CUL-2, Avoid Impacts on Previously Undiscovered Historic Resources
Mitigation Measure CUL-3, Minimize Impacts of Prescribed Fire on Cultural Resources
Mitigation Measure CUL-4, Identify and Avoid or Minimize Impacts on Archaeological Resources
Mitigation Measure CUL-5, Procedures for Encountering Human Remains

4.6 Energy

Energy Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Setting

The utility provider for both natural gas and electricity in the area encompassing the Preserve is Pacific Gas and Electric (PG&E). There is an above-ground PG&E transmission line running east-west across the southern portions of the Preserve. However, there are no existing utility services to the Preserve itself. The Preserve does not receive electrical or natural gas hookups and ongoing operation of the Preserve would not consume electricity or natural gas. The electronic gate at the entrance to the Preserve at the intersection of Calistoga and Cleland Ranch roads is solar-powered.

The Energy Action Plan 2008 Status Update, produced by the California Public Utilities Commission and the California Energy Commission, provides statewide guidance on meeting energy needs while achieving energy efficiency (California Public Utilities Commission and California Energy Commission 2008). Assembly Bill 32, also known as the Global Warming Solutions Act of 2006, addresses greenhouse gas emissions throughout different sectors of California's economy and sets emission reduction goals. Assembly Bill 32 is further addressed in the Section 4.8 Greenhouse Gas Emissions. Locally, the Open Space and Resource Conservation Element of the Sonoma County General Plan sets forth policies to achieve the County's goal of promoting energy conservation and reducing demand for energy (Sonoma County 2016).

4.6.1 Project-level Impacts

a) Result in environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources – Less-than-significant

There is no existing electricity or natural gas service on the Preserve and implementation of Management Plan activities would not result in the development or ongoing use of electricity or natural gas utility services on the Preserve. Therefore, project-level activities would result in no environmental impact due to wasteful, inefficient, or unnecessary consumption of electricity and natural gas resources.

Construction of road treatment and erosion control projects would require the use of construction equipment and would therefore result in the consumption of petroleum-based fuels. Additionally, project-level prescribed fire activities in the Preserve's grasslands would require the use of small amounts

of petroleum-based fuels for ignition, as well as for vehicles and support equipment. Other management activities, including invasive species control, targeted thinning, and creation of shaded fuel breaks, would require the use of vehicles and equipment that would also consume petroleum-based fuels. However, ***Project Measure 2 - Reduction of Construction Emissions*** requires that equipment is maintained in good working order and limits the idling of equipment and vehicles to a maximum of five minutes to avoid wasteful use of equipment. The project-level activities are small-scale and would not result in wasteful, inefficient, or unnecessary consumption of petroleum and transportation fuels. As a result, the impact from project-level activities would be less-than-significant.

b) Conflict with renewable energy or energy efficiency plans – No Impact

Project-level activities proposed in the Management Plan would not increase the use of electricity or natural gas utilities, and would result in only a minor increase in the consumption of petroleum-based fuels for vehicles and equipment. These activities would not conflict with or obstruct any renewable energy or energy efficiency plan. There would be no impact.

4.6.2 Program-level Impacts

a) Result in environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources – Less-than-significant

Longer-term activities proposed in the Management Plan would not result in the development or ongoing use of electricity or natural gas utility services on the Preserve. Therefore, activities would result in no environmental impact due to wasteful, inefficient, or unnecessary consumption of electricity and natural gas resources.

Future prescribed fire activities in the Preserve's forest, woodland, and chaparral communities would require the use of small amounts of petroleum-based fuels for ignition, as well as for vehicles and support equipment. Other activities, including ongoing invasive species control, targeted thinning and control of encroaching species, and continued maintenance of shaded fuel breaks, would require the use of vehicles and equipment that would consume petroleum-based fuels. However, ***Project Measure 2 - Reduction of Construction Emissions*** requires that equipment is maintained in good working order and limits the idling of equipment and vehicles to a maximum of five minutes. Program-level activities are small-scale and would not result in wasteful, inefficient, or unnecessary consumption of petroleum and transportation fuels. As a result, the impact from program-level activities would be less-than-significant.

b) Conflict with renewable energy or energy efficiency plans – No Impact

Program-level activities proposed in the Management Plan would not increase the use of electricity or natural gas utilities, and would result in only a minor increase in the consumption of petroleum-based fuels for vehicles and equipment. These activities would not conflict with or obstruct any renewable energy or energy efficiency plan. There would be no impact.

4.7 Geology and Soils

Geology and Soils Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
a) Directly or indirectly cause 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 Division of Mines and Geology 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), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Setting

Two geologic units, the Franciscan Complex and Sonoma Volcanics, underlie the majority of the Preserve. Additionally, smaller portions of the Preserve are composed of the Glen Ellen Formation and the Merced Formation. The Preserve's soils consist primarily of loams and clay loams, with slopes ranging from 5% to 75%. These soils have erosion hazards that range from slight to high and slow to rapid runoff potential. Serpentine soils are present within three of the Preserve's soil map units, Montara cobbly clay loam (30-75% slopes), Raynor-Montara complex (0-30% slopes), and Yorkville clay loam (30-50% slopes).

Paleontology is the study of the forms of life existing in prehistoric or geologic times as represented by the fossils of plants, animals, and other organisms. Paleontological remains in Sonoma County include plants, invertebrates and vertebrates ranging in age from approximately 140 million years to less than 8,000 years before the present. Within the County, paleontological remains have been primarily recovered from the following geologic formations (Sonoma County 2006):

- Franciscan complex – The Franciscan formation largely covers the northern part of the County, except for Alexander Valley and the northern Santa Rosa Plain;
- Wilson Grove – Paleontological resources are common in the Wilson Grove formation that is located in the western part of the County;
- Ohlson Ranch and Petaluma – Resources are also commonly located in the Ohlson Ranch and Petaluma formations in the vicinity of Occidental, Sebastopol, and the coast and at the base of Sonoma Mountain; and
- Sonoma Volcanics – The Sonoma Volcanics formation is found in the Sonoma Mountains and the Sonoma/Napa Mountains that form the eastern border of the County.

Within the Preserve, there are three geologic units that are associated with the Sonoma Volcanics and Franciscan complex geologic formations.

4.7.1 Project-level Analysis

a) Cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
a.i-iii) Rupture of a known earthquake fault, strong seismic ground shaking, and seismic-related ground failure – No Impact

The Preserve is not located on any known earthquake fault, though it lies approximately three miles from the Rodgers Creek Fault and the Redwood Hill Fault. As a result, the Preserve could be subject to very strong seismic ground shaking and seismic-related ground failure if significant seismic activity were to occur along one of the nearby faults (ABAG 2018).

Implementation of the Management Plan activities would not cause the rupture of any known earthquake fault and would not result in adverse effects involving strong seismic ground shaking or seismic-related ground failure. No new or significantly altered structures are proposed and activities recommended in the Management Plan would not change the local impacts of earth-shaking events. Therefore, there would be no impact.

a.iv) Landslides – No Impact

Landslide potential on the Preserve ranges from high to extremely high in the southwestern portion of the Preserve, moderate to extremely high in the middle portion, and low to extremely high in the eastern portion (California Geological Survey, 2018). As noted in the Management Plan (Appendix A), one naturally occurring landslide has been noted on the Preserve, on the slope above the south bank of Van Buren Creek near the eastern property boundary.

Activities proposed in the Management Plan would not result in additional landslides or exacerbate any existing landslide. Road and trail treatments would improve drainage and reduce runoff, erosion, and

sedimentation. Erosion control measures would be implemented for any ground-disturbing activities and disturbed areas would be promptly stabilized and re-vegetated as necessary. Therefore, there would be no impact.

b) Result in substantial soil erosion or the loss of topsoil – Less-than-significant

The Management Plan identifies soil erosion as a significant management challenge on the Preserve. Topography on the Preserve is varied and includes steep ridges, relatively flat creek beds, and gently rolling hills. Soils are typically characterized by a moderate to very high erosion potential. Numerous sites of road-related erosion have been identified on the Preserve.

As a result, measures to control soil erosion are an integral component of the Management Plan. Erosion control activities and road treatments are designed to address known sources of erosion and sedimentation on the Preserve. These activities would reduce soil erosion and the loss of topsoil on the Preserve relative to existing conditions.

Invasive species control, encroaching thatch removal, and prescribed fire in grassland habitats could temporarily result in areas of exposed soil. As described in ***Project Measure 1 - Planting and Revegetation after Soil Disturbance for Restoration*** and ***Project Measure 3 - Erosion Control, Sediment Detention, and Site Maintenance***, disturbed areas would be immediately stabilized and, if appropriate, re-seeded. BMPs to prevent erosion would be implemented and would include native re-seeding, installation of straw wattles and jute netting, and silt fencing near streams and creeks. Implementation of these measures would ensure that the impact would be less-than-significant.

c) Located on a geologic unit or soil that is unstable, resulting in landslide, lateral spreading, subsidence, liquefaction, or collapse – No Impact

The Preserve is not located on a geologic unit or soil that is unstable and project-level activities proposed in the Management Plan would not cause instability or result in landslide, lateral spreading, subsidence, liquefaction, or collapse. According to the Association of Bay Area Governments (ABAG 2018), portions of the Preserve are potential debris flow areas (i.e., susceptible to rainfall induced landslides). None of the activities in the Management Plan would increase the risk of debris flows as proposed activities are designed to improve drainage and reduce erosion. The Management Plan does not propose the construction of any structures or buildings, and construction of the proposed erosion control activities would not cause or be impacted by any landslides. There would be no impact.

d) Located on expansive soil – No Impact

As noted above, soils on the Preserve consist primarily of loams and clay loams. These soils are not known to be expansive. There would be no impact.

e) Have soils incapable of adequately supporting wastewater disposal systems where sewers are not available – No Impact

No septic tanks or wastewater disposal systems are proposed in the Management Plan. There would be

no impact.

f) Destroy a unique paleontological resource or site or unique geologic feature – Less-than-significant with Mitigation

Sonoma County has paleontologically rich formations and portions of the Preserve are underlain by geologic formations known to potentially contain paleontological remains, including units of Sonoma Volcanics and Franciscan complex. When located in these geologic formations, the project-level activities proposed in the Management Plan that entail ground disturbance, primarily erosion and sedimentation control activities, would have slight potential to unearth and degrade paleontological resources. Therefore, the impact of project-level activities on paleontological resources could be significant.

Mitigation Measure GEO-1, Avoid or Document Paleontological Resources, would reduce the potential impact of project-level activities on paleontological resources by requiring evaluation and salvage of any paleontological resources found during construction. The impact on paleontological resources would be less-than-significant.

> ***Mitigation Measure GEO-1, Avoid or Document Paleontological Resources***
>
> If a paleontological resource is discovered during construction, the District shall halt all ground-disturbing activities within 50 feet of the find. The District shall notify a qualified paleontologist who would document the discovery, evaluate the potential resource, and assess the nature and significance of the find. Based on scientific value or uniqueness, the paleontologist may record the find and allow work to continue or recommend salvage and recovery of the material. The paleontologist shall make recommendations for any necessary treatment that is consistent with currently accepted scientific practices.

4.7.2 Program-level Analysis

a) Cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
a.i-iv) Rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, and landslides – No Impact

Implementation of management activities recommended in the Management Plan would not cause the rupture of any known earthquake fault and would not result in adverse effects involving strong seismic ground shaking, seismic-related ground failure, or landslides. No new or significantly altered structures are proposed and program-level activities would not change the local impacts of or potential for earth-shaking events or landslides. Therefore, there would be no impact.

b) Result in substantial soil erosion or the loss of topsoil – Less-than-significant

As noted above, soil erosion is identified as a significant management challenge on the Preserve and measures to control erosion are an integral component of the Management Plan. Invasive species control, thinning and thatch removal, and prescribed fire in forest, woodland, and chaparral habitats, could temporarily result in areas of exposed soil. As described in ***Project Measure 1 - Planting and Revegetation after Soil Disturbance for Restoration*** and ***Project Measure 3 - Erosion Control, Sediment Detention, and***

Site Maintenance, disturbed areas would be immediately stabilized and, if appropriate, re-seeded and revegetated. BMPs include installation native re-seeding, installation of straw wattles and jute netting, and silt fencing near streams and creeks. Implementation of these BMPs would ensure that the impact would be less-than-significant.

c, d, e) Located on a unstable soils, expansive soils, or soils incapable of supporting wastewater disposal systems – No Impact

The Preserve is not located on soils that are unstable or expansive. Program-level activities proposed in the Management Plan would not cause instability or result in landslide, lateral spreading, subsidence, liquefaction, or collapse. No septic tanks or wastewater disposal systems are proposed in the Management Plan There would be no impact.

f) Destroy a unique paleontological resource or site or unique geologic feature – Less-than-significant with Mitigation

The analysis for the potential impact of longer-term management activities on paleontological resources is the same as those described above. Management activities that entail ground disturbance would have the potential to unearth and degrade paleontological resources. However, the implementation of **Mitigation Measure GEO-1, Avoid or Document Paleontological Resources**, described above, would reduce the potential impact of program-level activities on paleontological resources by requiring evaluation and salvage of any paleontological resources found during ground disturbance. The impact on paleontological resources would be less-than-significant.

Mitigation Measure GEO-1, Avoid or Document Paleontological Resources

4.8 Greenhouse Gas Emissions

Greenhouse Gas Emissions Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

Setting

Global climate change is the observed increase in average global temperatures, along with other changes in climatic factors such as wind, precipitation, and storm frequency and intensity. Climate change can result from natural factors and processes, but recent trends in global climate change, including the marked increase in global temperatures over the past half-century, are primarily attributable to human activities. By trapping heat in the atmosphere, greenhouse gas emissions (GHGs), which result from a wide array of human activities such as the burning of fossil fuels and deforestation, are a primary cause of human-induced climate change.

GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_20), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). Known as Global Warming Potential (GWP), the potency of GHGs and its relative contribution to global climate change can vary widely, depending on the ability of the GHG to trap heat in the atmosphere and its atmospheric lifetime. GWP is measured relative to CO_2, the most abundant GHG, and therefore has a GWP of 1. Methane has a GWP of 28-36, nitrous oxide has a GWP of 265-298, and the GWP of HFCs and PFCs can be in the tens of thousands (EPA 2017).

There are two means for reducing GHGs in the atmosphere: cutting emissions of GHGs and increasing sequestration, the process by which atmospheric GHGs are stably incorporated into non-mobile forms such as trees and soil. In California, there are four significant pieces of legislations seeking to address climate change and GHG emissions:

- Assembly Bill (AB) 32, the Global Warming Solutions Act, addresses total GHG emissions across the State and throughout different sectors of California's economy, with the goal of reducing emissions to 1990 levels by 2020.
- Senate Bill (SB) 375 requires reduction of emissions from automobiles and light trucks.
- SB 97 requires consideration of climate change in all environmental assessments under CEQA, regardless of the specific source of GHGs or other climate change effects.
- SB 32 sets a GHG emissions reduction target of 40% below 1990 levels by 2030.

The California Air Resources Board (CARB) is tasked with the implementation of AB 32 through the development of a Scoping Plan, which is to be updated every five years. CARB produced its second update to the Scoping Plan in 2017 (CARB 2017). The Scoping Plan identifies natural and working (i.e., agricultural) lands as a critical component to the State's climate change strategy and notes their potential to be both a source and a sink for GHG emissions. In recent years, natural and working lands in California have experienced significant carbon loss, primarily as a result of wildfire. The Scoping Plan states that the objective for natural lands such as the Preserve is to promote their role as a carbon sink while minimizing GHG and other emissions associated with factors such as management and wildfire. Certain management and restoration activities, such as forest fuel reduction treatments and prescribed fire, are highlighted as helping achieve GHG emissions reductions. The Scoping Plan points to the California Forest Carbon Plan (FCP) as a collaborative, multi-agency effort to promote the role of forests in emissions reductions and carbon sequestration. The FCP proposes a range of goals and actions to address GHG emissions and climate change through forest management. Goals include increasing fuels treatments, such as prescribed fire, and restoring conditions within forest communities through actions such as selective thinning (Forest Climate Action Team 2018).

GHG emissions are also regulated by the Bay Area Air Quality Management District (BAAQMD). No quantitative thresholds of significance for potential construction GHG emissions are set forth, but the BAAQMD has established a threshold of 1,100 metric tons per year of CO_2-equivalent (CO_2E) for operational emissions (BAAQMD 2017b). The BAAQMD 2017 Climate Action Plan (CAP) addresses climate change and GHG emissions. For the natural and working lands, the CAP focuses primarily on increasing carbon sequestration on lands such as the Preserve (BAAQMD 2017c).

Finally, the Sonoma County Regional Climate Protection Authority's Climate Action 2020 document provides planning and guidance for reducing GHGs and addressing climate change locally in Sonoma County (RCPA 2016). Climate Action 2020 provides measures to preserve natural open space, enhance natural resources including open and timber lands, and increase carbon sequestration.

4.8.1 Project-level Analysis

a) Generate greenhouse gas emissions that may have a significant impact on the environment – Less-than-significant

Some management activities proposed in the Management Plan would result in small increases in GHG emissions. These activities include construction of erosion control and sediment reduction projects, shaded fuel break development, prescribed fire in grasslands, and use of equipment during vegetation management and invasive species removal. Other activities, such as revegetation projects, are anticipated to increase carbon sequestration on the Preserve.

During construction of the erosion control projects and shaded fuel breaks proposed in the Management Plan, GHG emissions would result from the use of construction equipment and from vehicle trips to and from the Preserve. These emissions were estimated using CalEEMod, and the full results of this analysis are included as Appendix B. Based on this analysis, construction activities would generate approximately

38.77 metric tons of CO_2E during the year of construction and shaded fuel break development would generate approximately 3.58 metric tons of CO_2E in a year. As noted above, the BAAQMD has not established thresholds for construction activities, however the projected emissions would be well below the 1,100 metric tons per year of CO_2E threshold of significance for operational emissions.

The Management Plan proposes prescribed fire activities in the Preserve's grassland communities for the purpose of controlling invasive vegetation and promoting native habitat conditions. These activities would emit GHGs, primarily CO_2. The exact quantity of GHGs emitted would vary depending on a range of factors, including number of acres burned, prevailing weather conditions, and vegetation composition/fuel type. While such prescribed fire activities cause short-term GHG emissions, the CARB Scoping Plan notes that prescribed fire can have a long-term beneficial impact on GHG reduction, by reducing the risk of wildfire and increasing carbon sequestration through restoration of native habitat conditions (CARB 2017). Utilizing prescribed fire to manage the Preserve's grasslands would reduce the risk of catastrophic wildfire by controlling invasive species, reducing shrub and thatch encroachment, managing fuel loads, and maintaining open native grassland habitat conditions. As a result, such activities would lead to long-term reductions in potential GHG emissions.

Other Management Plan activities, such as mechanical vegetation management and invasive species removal, would result in limited GHG emissions from the use of equipment and vehicles. Invasive species removal would be conducted with herbicides, hand-pulling, and, when necessary, hand tools. Mechanical vegetation control, including the select removal of encroaching Douglas fir, bay laurel, and coyote brush, would be accomplished with hand tools and chainsaws. Thinned material would be treated (e.g., chipped or cut, or piled and burned) and remain on-site; off-haul of materials would not be necessary. Short-term reductions in carbon storage would result from these activities, but are expected to be offset by the long-term benefits of reducing wildfire hazards and promoting native regeneration and regrowth of remaining vegetation. GHG emissions that would result from these activities would be minimal and well below the BAAQMD threshold for operations.

Ongoing operation of the Preserve requires occasional vehicle trips for maintenance and management activities, as well as occasional docent-led tours. These activities occur now and are not anticipated to substantively increase as a result of the Management Plan.

Shorter-term management activities proposed in the Management Plan would have a less-than-significant impact on GHG emissions.

b) Conflict with an applicable greenhouse gas reduction plan, policy, or regulation – No Impact

As described above, the erosion control and invasive species control activities would result in only minor increases in GHG emissions and would not conflict with any GHG reduction plan, policy, or regulation.

Vegetation management activities, including select thinning of Douglas fir, bay laurel, and coyote brush, and prescribed fire activities in grassland communities would also not conflict with applicable GHG reduction plans and regulations. CARB's Scoping Plan encourages the management of vegetation on natural lands like the Preserve to reduce the risk of wildfire and to promote native habitat conditions.

Select thinning, fuel management, and small-scale grassland prescribed fire on the Preserve would promote the goals set forth in the Scoping Plan.

Additionally, all prescribed fire activities on the Preserve would be subject to further specific burn planning, including the development of a smoke management plan, and all burns would be registered with and approved by the BAAQMD. All individual prescribed burns would be planned and executed in conformance with all applicable CARB, BAAQMD, and CalFire rules and regulations, which are designed to ensure that projects are implemented in a manner consistent with GHG reduction plans and policies.

Shorter-term management activities proposed in the Management Plan would not conflict with any applicable GHG reduction plan, policy, or regulation. Therefore, there would be no impact.

4.8.2 Program-level Analysis

a) Generate greenhouse gas emissions that may have a significant impact on the environment – Less-than-significant

Managing the Preserve's forest, woodland, and chaparral communities with prescribed fire; controlling fully-established populations of invasive species and addressing new outbreaks; and preventing type conversion in the Preserve's natural communities by removing encroaching coyote brush and Douglas fir within select areas, including serpentine bunchgrass habitat are all included in the Management Plan.

Invasive species control and mechanical vegetation management would result in a minor increase in GHG emissions as a result of the use of vehicles and equipment, including wood chippers and chainsaws. The GHG emissions that would result from these activities would be minimal and well below the BAAQMD threshold for operations. The short-term reduction in carbon storage that would be result from these activities is expected to be offset by the long-term benefits of reducing wildfire hazards and promoting native regeneration and regrowth.

The Management Plan proposes prescribed fire activities in the Preserve's forest, woodland, and chaparral communities for the purpose of controlling invasive vegetation, reducing fuel loads, and promoting diverse habitat conditions. These activities would emit GHGs, primarily CO_2. As with the analysis presented above, the exact quantity of GHGs emitted would vary depending on a range of factors, including number of acres burned, prevailing weather conditions, and vegetation composition/fuel type. All prescribed fire would be subject to specific burn planning, and all burns would be executed in conformance with all applicable CARB, BAAQMD, and CalFire rules and regulations to reduce the risk of adverse impacts. The CARB Scoping Plan notes that prescribed fire can have a long-term beneficial impact on GHG reduction, by reducing the risk of wildfire and increasing carbon sequestration through restoration of native habitat conditions (CARB 2017). CARB has identified fuel management activities as critical to meeting the State's climate goals and achieving long-term reductions in potential GHG emissions. Additionally, research has indicated managing forests with a combination of targeted thinning and prescribed fire can increase carbon stability and reduce potential wildfire emissions, particularly given the effects of climate change and the increase in severe wildfire events (Krofcheck et al. 2017; Liang et al. 2018).

Therefore, longer-term activities proposed in the Management Plan would have less-than-significant impacts from GHG emissions.

b) Conflict with an applicable greenhouse gas reduction plan, policy, or regulation – No Impact

Vegetation management and invasive species control activities would result in only minor increases in GHG emissions and would not conflict with any GHG reduction plan, policy, or regulation.

Vegetation management activities, including targeted thinning, maintenance of shaded fuel breaks, and forest and woodland prescribed fire, would also not conflict with applicable GHG reduction plans and regulations, as these activities are included in a number of applicable GHG reduction and climate change adaption plans. The CARB Scoping Plan identifies "forest fuel reduction" and "prescribed fire and managed ignition" as management actions that are important to meeting the State's GHG reduction targets (CARB 2017, p. 87). Further, the California Forest Carbon Plan proposes to increase the rate of forest fuels treatments and states that "fuel reduction in forests, whether through mechanical thinning, use of ecologically beneficial fire, or sustainable commercial timber harvest to achieve forest health goals, involves some immediate loss of forest carbon, but these treatments can increase the stability of the remaining and future stored carbon" (Forest Climate Action Team 2018, p. 2).

Vegetation management activities proposed in the Management Plan would not conflict with any applicable GHG reduction plan, policy, or regulation.

4.9 Hazards and Hazardous Materials

Hazards and Hazardous Materials Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
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 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 or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☒	☐	☐

Setting

The Preserve encompasses 960 acres of undeveloped land. The Management Plan includes activities that work with two kinds of hazardous materials:

- Gasoline, oil, diesel, and other fluids associated with vehicle use, including cars and construction equipment; and
- Herbicides used in limited quantities to control invasive plant species.

4.9.1 Project-level Analysis

a, b) Hazardous materials and accidental spill conditions – Less-than-significant

The Management Plan does not propose the routine use, storage, transport, or disposal of hazardous materials. However, erosion control, thinning, and prescribed fire would include the use of hazardous materials such as fuels, lubricants, and solvents. Transport of hazardous materials to and from the Preserve as a part of these activities could result in an incremental increase in the potential for accidents. However, both the State and Sonoma County have policies and laws that relate to the storage, transport, use, and disposal of hazardous materials. Caltrans and the California Highway Patrol (CHP) regulate the transportation of hazardous materials and wastes, including container types and packaging requirements, as well as licensing and training for truck operators, chemical handlers, and hazardous waste haulers. Worker safety regulations cover hazards related to the prevention of exposure to hazardous materials and a release to the environment from hazardous materials use. Regulations and criteria for the disposal of hazardous materials mandate disposal at an appropriate landfill. Cal-OSHA also enforces hazard communication program regulations, which contain worker safety training and hazard information requirements, such as procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees. ***Project Measure 4 - Pollution Prevention***, described in Section 2.6, requires the implementation of BMPs for staging, maintenance, fueling, and spill containment of potentially hazardous materials used on the Preserve. ***Project Measure 4 - Pollution Prevention***, and the rules and regulations described above, would reduce the risk of accidental spill conditions to a less-than-significant level.

Additionally, invasive species control activities proposed in the Management Plan would include the limited use of herbicides, which could lead to potential for an accidental release of hazardous or toxic materials. ***Project Measure 7 - Herbicide Use*** would be implemented whenever and wherever herbicides are used on the Preserve. This measure places strict parameters on the use of herbicides and mandates that herbicides are only applied by a licensed and qualified professional. These requirements, and the application of herbicides in accordance with all local agency and manufacturer usage restrictions, would reduce the risk of accidental release into the environment to a less-than-significant level.

c) Emit hazardous materials within one-quarter mile of a school – No Impact

The school closest to the Preserve, Maria Carrillo High School, is approximately three-quarters of a mile away. There are no existing or planned schools within one-quarter mile of the Preserve. Therefore, there would be no impact.

d) Included on a List of Hazardous Materials Sites – No Impact

The online data resources that provide information on the location of hazardous materials release sites pursuant to Section 65962.5 of the Government Code indicate that there are numerous leaking underground storage tanks and other contaminated soil and groundwater sites located throughout Sonoma County; however no hazardous sites occur on the Preserve and the nearest such site is over a mile away. Therefore, there would be no impact.

e) Safety Hazard for People Residing or Working within Two Miles of an Airport – No Impact

The Preserve is not located within an airport land use plan or within two miles of a public or private airport. The closest airport is Sonoma County Airport, which is approximately nine miles away. Proposed management activities identified in the Management Plan do not involve any new potential hazards to people residing or working within two miles of an airport. Therefore, there would be no impact.

f) Impair or Interfere with an Adopted Emergency Response/Evacuation Plan – No Impact

The size and nature of the activities proposed in the Management Plan would not require the closure of public roadways or otherwise interfere with emergency evacuation plans for the surrounding area. Erosion control and roadway treatment activities (e.g., culvert replacement, rock armoring, rolling dips, etc.) could result in temporary road closures within the Preserve, but would not impact roadways outside of the Preserve's boundaries. Prescribed burning could lead to increased smoke on nearby roadways and temporarily decreased visibility. However, smoke would be carefully managed in accordance with an approved smoke management plan and measures such as public notification of burn days and smoke warning signage would be implemented. Project-level activities could cause a slight increase in vehicle use during construction activities and potential short-term reduced visibility from prescribed fire, but this would not impair emergency response plans or evacuation plans. Therefore, there would be no impact on emergency response or evacuation plans.

g) Increase Exposure to Wildfires – Less-than-significant with Mitigation

According to CalFire mapping, the Preserve has high to very high fire danger (CalFire 2007) and is located within the wildland urban interface (ABAG 2018). Most activities proposed in the Management Plan are intended to reduce fire hazard severity on the Preserve. Activities that would benefit fire safety include restoring grasslands by reducing thatch layers and removing encroaching coyote brush; select thinning of encroaching Douglas fir and bay laurel; creating shaded fuel breaks; controlling invasive species; and enhancing riparian habitat.

However, construction activities for erosion control and roadway treatment could temporarily increase the possibility of wildfire as a result of equipment sparks in dry vegetation. Implementation of ***Mitigation Measure HAZ-1, Reduce Wildland Fire Hazards during Construction***, would require the use of construction techniques that would reduce the likelihood of wildland fires during construction. Implementation of this measure would reduce the impact to a less-than-significant level by removing combustible vegetation from staging and other construction areas to minimize the risk of fire.

> ***Mitigation Measure HAZ-1, Reduce Wildland Fire Hazards during Construction***
>
> Prior to construction activities, the District shall remove and clear away dry, combustible vegetation from the construction site with specific focus on the staging areas for heavy equipment. Grass and other vegetation less than 18 inches in height shall be maintained where necessary to stabilize the soil and prevent erosion. Vehicles shall not be parked in areas where exhaust systems can contact combustible materials. Fire extinguishers and fire suppression tools shall be available on the site when conducting construction activities.

Implementation of the Management Plan's proposed activities would include the development of a prescribed fire program within the Preserve's grassland units to manage invasive species and enhance grassland habitat. These prescribed fire activities are anticipated to decrease the long-term risk of wildfire on the Preserve by reducing fuel loads. However, implementation of individual prescribed fire projects could result in wildfire if not properly managed. ***Project Measure 6 - Agency Coordination, Approvals, and Public Notification for Prescribed*** mandates that the Preserve's prescribed fire program would be developed in consultation with CalFire and the BAAQMD. A burn plan would be developed by a qualified professional, and approved by CalFire and the BAAQMD, for each individual burn and would include measures to prevent escape and escalation of prescribed fire. All burns would be carried out as described in the Project Description, natural firebreaks would be utilized wherever possible and adequate control lines and artificial firebreaks would be established around burn units as necessary. Burns would take place only when weather conditions, such as moisture levels and the direction and speed of winds, are appropriate as determined by the BAAQMD and CalFire. All prescribed fire activities would be implemented by qualified prescribed fire specialists from CalFire or other professional organizations. Burning would only occur as approved by regulatory agencies and only when conditions meet strict regulatory standards. The implementation of prescribed fire as described in the Project Description and subject to ***Project Measure 6 - Agency Coordination, Approvals, and Public Notification for Prescribed,*** in conjunction with the planning and approval process for each individual prescribed fire project, would ensure that prescribed fire in the Preserve's grasslands would not increase the risk of wildfire. The impact would be less-than-significant.

4.9.2 Program-level Analysis

a, b) Hazardous materials and accidental spill conditions – Less-than-significant

The analysis of the impact of longer term activities on hazards and spill conditions is the same as the analysis for project-level activities. Longer term activities in the Management Plan do not propose the routine use, storage, transport, or disposal of hazardous materials. The implementation of ***Project Measure 4 - Pollution Prevention*** would reduce the risk of pollution and accidental spills and the implementation of ***Project Measure 7 - Herbicide Use*** would ensure that herbicides are properly used within narrow parameters. The impact would be less-than-significant.

c, d, e, f) Emit hazardous materials within one-quarter mile of a school, on a list of hazardous material sites, safety hazard near an airport, or interfere with emergency response/evacuation plan – No Impact

The Preserve is not within one-quarter mile of a school or two miles of an airport and does not contain any hazardous materials sites. No longer term activities would interfere with an adopted emergency response or evacuation plan. There would be no impact.

g) Increase Exposure to Wildfires – Less-than-significant with Mitigation

Most management activities proposed by the Management Plan are intended to reduce fire hazard severity on the Preserve. Activities that would benefit fire safety include thinning areas of overly-dense

forest and controlling encroachment; maintaining shaded fuel breaks; controlling well-established and new outbreaks of invasive species; and prescribed burning.

However, ground disturbing activities associated with longer-term actions could increase the possibility of wildfire through the use of vehicles and equipment. Implementation of ***Mitigation Measure HAZ-1, Reduce Wildland Fire Hazards during Construction***, described above, would require the use of techniques that would reduce the likelihood of wildland fires during construction and ground disturbance. Implementation of this measure would reduce the impact to a less-than-significant level by removing combustible vegetation from staging areas to minimize the risk of fire.

Implementation of the Management Plan's program-level activities would include the expanding the prescribed fire program to manage the Preserve's forest, woodland, and chaparral habitats. The exact locations, objectives, and prescriptions of these prescribed fire activities would be determined through the development of a Forest Management Plan, Vegetation Management Plan contract, or similar document, as described in the Project Description (Section 2.4.3). These prescribed fire activities are anticipated to decrease the long-term risk of wildfire on the Preserve by reducing ground and ladder fuels and reducing basal areas in overstocked stands of forest. The potential impacts from program-level prescribed fire activities are the same as those described above for project-level burns. The implementation of ***Project Measure 6 - Agency Coordination, Approvals, and Public Notification for Prescribed Fire*** and the extensive planning and approval process for each individual prescribed fire project would ensure that program-level prescribed fire projects would not increase the risk of wildfire. The impact would be less-than-significant.

Mitigation Measure HAZ-1, Reduce Wildland Fire Hazards during Construction

4.10 Hydrology

Hydrology and Water Quality: Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	☒	☐
iii) 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?	☐	☐	☒	☐
iv) impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

Setting

The Preserve is located in the Mark West Creek and Santa Rosa Creek watersheds, set within the larger Russian River Hydrologic Unit, and contains portions of four creeks (Alpine, Ducker, Van Buren, and Weeks creeks), as well as several of their unnamed tributaries. Alpine Creek's headwaters are located in the Preserve's mountainous northeastern parcel and the Creek's subwatershed encompasses approximately

380 acres in the central portion of the Preserve. Alpine Creek flows out of the Preserve, into a reservoir, and eventually drains via an outlet stream into Mark West Creek. Ducker Creek drains a small area in the southeastern corner of the southwestern portion of the Preserve, eventually emptying into the Santa Rosa Creek watershed. The seasonal Van Buren Creek drains approximately 125 acres of the northeastern portion of the Preserve and flows into Mark West Creek. Weeks Creek, which is also seasonal, drains approximately 170 acres of the southern portion of the Preserve and flows into Mark West Creek just north of the intersection of St. Helena and Calistoga roads. Other surface water features on the Preserve include several springs and a small, man-made and year-round pond near the historic hunting cabin.

The southwestern portion of the Preserve is located within Federal Emergency Management Agency (FEMA) Flood Zone X, an area with low flood hazard and a 0.2% annual chance of flooding (FEMA, 2018). The northeastern portion of the Preserve is located within FEMA Flood Zone D, an area of undetermined but possible flood hazards.

4.10.1 Project-Level Analysis

a) Violate water quality standards or degrade water quality – Less-than-significant

Implementation of erosion control and road drainage improvement, native plant revegetation, tree and shrub encroachment reduction, prescribed fire in grasslands, and invasive species management would temporarily disturb soils and, if not properly managed, could result in localized areas of soil erosion or siltation that could degrade water quality. Invasive species control, thinning and thatch removal, and erosion control projects. In particular, construction activities associated with erosion control projects have the potential to impact water quality. However, ***Project Measure 3 - Erosion Control, Sediment Detention, and Site Maintenance,*** requires implementation of construction-period control measures that would limit disturbance to only the areas required to complete the project, require erosion and sedimentation control, and preserve vegetation as an effective form of erosion control (see Project Description Section 2.6). If needed, temporary soil stabilizing and erosion and sedimentation reduction methods, such as silt fences or straw barriers, would be installed. Post-construction erosion and sedimentation control measures would also be required for all actions that disturb vegetation or soil. Implementation of ***Project Measure 1 - Planting and Revegetation after Disturbance for Restoration***, would require the prompt revegetation of soils disturbed as a result of management activities. Because implementation of ground disturbing activities would require implementation of these project measures, including revegetation, water quality, and soil erosion protection measures, impacts from construction and ground disturbance on water quality would be less-than-significant.

Prescribed fire activities in the Preserve's grasslands would also result in areas of exposed soil and could cause erosion and impacts to water quality if not properly managed. As described in ***Project Measure 3 - Erosion Control, Sediment Detention, and Site Maintenance*** straw wattles, jute netting, silt fencing, and native reseeding would be utilized to prevent erosion following ground disturbance, including as a result of prescribed burning. Implementation of these measures would ensure that prescribed fire activities have a less-than-significant-impact on water quality.

Thinning and other forest management activities could disturb soils; however, water quality would be protected during implementation. Trees that are thinned or pruned would be left on site to provide soil cover and prevent erosion. Trees and limbs would be either chipped or lopped and scattered across the landscape or piled and burned depending on the individual site and landscape conditions as determined by a Registered Professional Forester or professional fire personnel. Ground cover following thinning would reduce erosion potential and protect water quality. Selection of forest management areas would also be subject to streamside buffers, which are designed to protect water quality and riparian resources through forest management practices designed specifically for these sensitive areas.

Road treatments and erosion control projects require the use of heavy equipment. ***Project Measure 4 - Pollution Prevention,*** would be implemented during use of petroleum-powered equipment in and near waterways and would include monitoring equipment for leaks, storing equipment away from waterways, and having spill and containment materials on-hand. These measures would protect water quality during construction of erosion control and road upgrade projects. As a result, the impact would be less-than-significant.

b) Substantially decrease groundwater supply or interfere with groundwater recharge – No Impact

No wells or structures that would remove groundwater are proposed in the Management Plan. No project-level activities would interfere with groundwater recharge. Therefore, there would be no impact.

c.i-iv) Substantially alter drainage patterns resulting in erosion or siltation, increased flooding, additional sources of polluted runoff or runoff that exceeds the capacity of stormwater drainage systems, or impeded or redirected flood flows – Less-than-significant

Channels and drainage patterns within the Preserve would not be substantially altered by the activities identified in the Management Plan. Erosion control activities planned for roads and gullies are designed to alter stormwater in ways that would reduce erosion and silt-laden runoff. Riparian enhancement and planting activities would also reduce erosion. Project-level activities would not increase storm waters or influence flooding. As described above, soil that is exposed as a result of activities, including prescribed fire, invasive species control, erosion control and road treatments, and thinning, would be stabilized and, when necessary, re-seeded through the implementation of ***Project Measure 1 - Planting and Revegetation after Disturbance for Restoration***. The impact of management activities on drainage patterns resulting in erosion, siltation, altered flood flows, or polluted runoff would be less-than-significant.

d) Release pollutants due to inundation in flood hazard, tsunami, or seiche zones– No Impact

The Preserve is not located in a flood hazard zone or an area prone to inundation by seiche or tsunami. Activities proposed in the Management Plan would not result in the release of pollutants due to inundation. There would be no impact.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan – No Impact

The Preserve is not located in a groundwater basin with a sustainable groundwater management plan or under the jurisdiction of a Groundwater Sustainability Agency. The Preserve is located within the jurisdiction of the North Coast Regional Water Quality Control Board (NCRWQCB), which has produced a Water Quality Control Plan for the North Coast Region (NCRWQCB 2011). This Water Quality Control Plan delineates objectives for inland surface waters, including prevention of sedimentation, pollution, and other water quality impacts. Activities proposed in the Management Plan would not conflict with or obstruct implementation of this Water Quality Control Plan. As a result, there would be no impact.

4.10.2 Program-Level Analysis

a) Violate water quality standards or degrade water quality – Less-than-significant

Potential water quality impacts associated with expanded erosion control and restoration activities, forest thinning, prescribed fire in grasslands and forest lands, and continued limited visitor access to the Preserve would be the same as those described above for project-level activities. Management activities would be subject to the Project 1, 3, and 4 to protect water quality. Prescribed fire, forest thinning, restoration, and ongoing invasive species management would be less-than-significant.

b) Substantially decrease groundwater supply or interfere with groundwater recharge – No Impact

No wells or structures that would remove groundwater are proposed in the Management Plan. No program-level activities would interfere with groundwater recharge. Therefore, there would be no impact.

c.i-iv) Substantially alter drainage patterns resulting in erosion or siltation, increased flooding, additional sources of polluted runoff or runoff that exceeds the capacity of stormwater drainage systems, or impeded or redirected flood flows – Less-than-significant

Channels and drainage patterns within the Preserve would not be substantially altered by the program-level activities identified in the Management Plan. Additionally, program-level activities would not increase storm waters or influence flooding. As described above, soil that is exposed as a result of program-level activities, including prescribed fire, invasive species control, and thinning, would be stabilized and, when necessary, re-seeded through the implementation of ***Project Measure 1 - Planting and Revegetation after Disturbance for Restoration*** and ***Project Measure 3 - Erosion Control, Sediment Detention, and Site Maintenance***. The impact of program-level activities on drainage patterns resulting in erosion, siltation, altered flood flows, or polluted runoff would be less-than-significant.

d) Release pollutants due to inundation in flood hazard, tsunami, or seiche zones– No Impact

The Preserve is not located in a flood hazard zone or an area prone to inundation by seiche or tsunami. Program-level activities proposed in the Management Plan would not result in the release of pollutants due to inundation. There would be no impact.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan – No Impact

As noted above, the Preserve is not located in a groundwater basin with a sustainable groundwater management plan, but is subject to the NCRWQCB's Water Quality Control Plan for the North Coast Region (NCRWQCB 2011). Program-level activities proposed in the Management Plan would not conflict with or obstruct implementation of this Water Quality Control Plan. As a result, there would be no impact.

4.11 Land Use and Planning

Land Use and Planning Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Setting

The Preserve is comprised of four parcels totaling approximately 960 acres. The property was acquired in 2006 by the District through a fee title purchase and is managed as an open space preserve. The Preserve is located in eastern Sonoma County, northeast of Santa Rosa as shown on Figure 1. Project Location. Nearly land uses are primarily low density rural residential and agricultural lands. The zoning and land use designations for the Preserve's parcels are shown in the table below.

Table 4-3. Preserve Zoning and Land Use

APN	Zoning	Land Use
028-380-008	RRD B6 40, RC50/50 RC200/50 SR	RRD 40
028-390-028	RRD B6 40, BH RC50/50 RC100/50 RC200/50 SR	RRD 40
028-160-080	RRD B6 40, BH RC100/50 RC200/50 SR	RRD 40
028-160-044	RRD B6 40, SR	RRD 40

Parcel zoning include Resources and Rural Development (RRD), Riparian Corridor (RC) with widths ranging from 50 feet along smaller tributaries to 200 feet along Weeks and Van Buren Creeks. The Preserve also have a Biotic Habitat (BH) and Scenic Resource (SR) combining districts established to protect and enhance biotic resources for habitat and environmental values and to preserve the visual character and scenic resources on the property.

4.11.1 Project-level and Program-level Analysis

a) Divide a community – No Impact

The Preserve is not located within an established community and no action proposed in the Management Plan would divide or otherwise affect an established community. Therefore, there would be no impact.

b) Cause a significant environmental impact due to conflict with any land use plans, policies, or regulations – No Impact

The Sonoma County General Plan designates the lands comprising the Preserve as Resources and Rural Development, a land use category that includes lands designated for resource protection and public

recreation. Implementation of Management Plan activities would not conflict with this designated land use, or any other land use plan, policy, or regulation. Therefore, there would be no impact.

A number of conservation plans cover the area comprised by the Preserve, including the Sonoma County Biodiversity Action Plan, the Franz Valley Area Plan, and the Upper Mark West Watershed Management Plan, Phase 1. None of the project-level activities proposed by the Management Plan would conflict with any of these plans or any other applicable habitat conservation plan. Many actions proposed in the Management Plan, including erosion control activities and habitat enhancement, would ultimately benefit the goals set forth in these plans. Therefore, there would be no impact.

4.12 Mineral Resources

Mineral Resources Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
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?	☐	☐	☐	☒

Setting

Mineral resources occur throughout Sonoma County and extraction of these resources has occurred throughout the history of human habitation of the area. Presently, mining operations are primarily related to the extraction of rock, sand, and earth for use in construction and related activities. The California Geological Survey has mapped and classified areas of significant mineral resources as MRZ-2 (CGS 2013). No portion of the Preserve is designated MRZ-2. The nearest mine in the vicinity of the Preserve is the Mark West Quarry, approximately 3.5 miles to the north.

4.12.1 Project-level and Program-level Analysis

a, b) Result in the Loss of Availability of Mineral Resources – No Impact

The Preserve is managed by the District as an open space preserve and no mineral extraction currently occurs or is proposed to occur on the site. Implementation of erosion control, native plant revegetation, tree and shrub encroachment reduction, forest thinning, prescribed fire in grasslands and forest lands, and invasive species management would not interfere with any operational mine or otherwise result in the loss of availability of valuable or locally important mineral resources. Therefore, there would be no impact.

4.13 Noise

Noise Would the project result in:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒

Setting

Noise is defined as unwanted sound, and is a subjective reaction to the physical phenomenon of sound. Noise interferes with sleep, speech, recreation, and tasks demanding concentration or coordination. The result is an increase in public annoyance with the noise source and a decrease in environmental quality.

Sound is compression waves that can travel through air, earth, and water. The most common unit of sound measurement is the decibel (dB). The threshold of hearing is considered to be 0 dB, and the range of sounds in normal human experience is 0 to 140 dB. Each 10 decibels reflects a 10-fold increase in noise intensity.

Sound waves travel at different frequencies. Because the human ear is not as sensitive at some frequencies, different sound weighting scales (dBA) have been developed. The "A" weighting scale is the most commonly used for environmental noise assessment, as it correlates well with human response to noise sources such as aircraft and traffic. Because sound drops off with distance, all sound measurements are reported with distance from the source. The decibel scale is further refined to measure human hearing by using an A-weighted scale (dBA) that counts sounds within the center of human hearing frequencies as louder.

How humans perceive noise can be further influenced by how quiet background sound levels are and the kind of sound being generated. For instance, the same noise source would tend to sound louder at night. Noise standard levels may be adjusted upward for high ambient noise and downward for very simple, repetitive sounds. Some people and circumstances are more vulnerable to the adverse effects of noise than others. “Sensitive receptors” include residences, schools, hospitals, long-term care facilities, places of public worship, and libraries. Noise level is generally evaluated at the nearest sensitive receptor.

Table 4-4. Noise levels from Common Activities and Local Noise Standards, Noise Levels from Common Activities and Local Noise Standards, shows expected noise from these uses, other common uses, and local standards for comparison.

Table 4-4. Noise levels from Common Activities and Local Noise Standards

Common Activities	dBA	Local Standards
Rock band (near amplifier)	110	Unacceptable noise levels
Jet fly-over at 1,000 feet	105	
	100	
Gas lawnmower at 3 feet	95	
	90	
Diesel truck 50 mph at 50 feet	85	
	75	
Gas lawnmower at 100 feet	70	
Normal Speech at 3 feet	65	Sonoma County day L_2=65
Heavy traffic at 300 feet	60	Sonoma County night L_2=60;
Large business office	55	
Quiet urban area in day	50	Sonoma County day L_{50}=50
Normal speech at 50 feet	45	Sonoma County night L_{50}=45
Quiet urban area at night	40	Acceptable
Quiet rural area at night	25	

Sources: Sonoma County 2016, Caltrans 2009

The various noise exposure limits of different State and federal agencies range from 75 to 90 dBs to protect hearing over the long term. However, the EPA recommends a level of 55 dB to protect against non-auditory health effects such as hypertension, cardiovascular disease, and nervous disorders.

The ambient (or background or pre-project) noise level is defined as the noise from all sources near and far and usually refers to the noise level that is present before a noise source being studied is introduced. In very quiet environments, virtually any change in local activities would cause an increase in noise levels and a loss of "peace and quiet." Such increases may be considered significant by residents in these areas, even if the measured increase is small.

The Sonoma County General Plan 2020 (General Plan) Noise Element, adopted in 2008 and amended in 2012, establishes the measures and standards to be incorporated into a countywide noise ordinance. These noise standards define acceptable levels with different day and night standards; see Table 4-4 below.

Table 4-5. Sonoma County General Noise Limits

Property Type or Zone	Daytime Limits	Nighttime Limits
Residential	60 dBA Intermittent 50 dBA Intermittent	50 dBA Constant 40 dBA Constant
Commercial/Mixed Use	65 dBA Intermittent 55 dBA Constant	65 dBA Intermittent 55 dBA Constant
Public Property	Most restrictive noise limit applicable to adjoining private property	

(Ord. 03-2006 § 2, 2006).

The area around the Preserve consists primarily of rural, single-family homes and large landholdings. There are no sensitive receptors located in the vicinity of the Preserve. Residences are located away from the Preserve boundary. The Santa Rosa city limits lie adjacent to the southwestern edge of the Preserve and relatively dense, single-family residential communities can be found approximately ½ mile southwest of the area.

4.13.1 Project-level Analysis

a) Generate noise levels in excess of established standards – Less-than-significant with Mitigation

Some of the activities proposed in the Management Plan, including erosion control projects and road and trail treatments, would require the use of construction equipment that may generate noise. Other activities, such as invasive vegetation control, targeted thinning and thatch removal, and creation of shaded fuel breaks, may also necessitate the use of power tools, including chainsaws. Short-term prescribed fire activities would not require the use of heavy equipment but would temporarily increase vehicle traffic to the Preserve as fire personnel and trucks are moved to and around the site. Continued access to the Preserve by permitted users would not affect existing noise levels in the area.

Road drainage improvements and erosion control projects would increase noise levels in the immediate vicinity of the project site; however, the elevated sound levels would be temporary and would not substantially impact surrounding landowners or any sensitive receptors given the distance of the projects away from the Preserve boundaries in most locations. The proposed road drainage improvements along Plum Ranch Road, near the western edge of the Preserve, would be located within 230 feet of a residence. Erosion control and road drainage improvement activities would require use of light-duty construction equipment, generating noise levels from about 74 to 86 dBA at 50 feet from the project site. Since noise decreases by 6 dB with each doubling of distance (AIHA 2013), peak construction noise would be 86 dBA at the property line and approximately 50 dBA at the residence. The remainder of the proposed erosion control and roadway drainage improvements would be located in the Preserve interior along the Erland-Cleland Tie and along smaller spur roads and trails (See Figure 6, Erosion Control Treatment Areas) and would not impact local residences or sensitive receptors.

Invasive vegetation control and creation of shaded fuel breaks would require the use of power tools; these management activities could occur near residences along the Preserve's northern and western boundaries (see Figures 9 and 10). Implementation of a shaded fuel break along Erland Road on the northeastern Preserve boundary would require the use of chainsaws and chippers, which generate about 95-100 decibels at the tool operator (EMC 2014). This equates to 58 dBA at about 400 feet[12]. Most residences are located more than 400 feet away from the Preserve boundary; however, several residences along Erland Road are located within 250 feet of the proposed shaded fuel break. Temporary noise at these residences during tree removal and tree trimming could range from 60 to 70 dBA. This is slightly louder than a lawn mower. It does not have the potential to adversely influence human health, but it may be annoying and be experienced as a significant impact from excessive noise.

Potential noise impacts from vegetation management and other Management Plan actions requiring use of construction equipment would be reduced to less-than-significant by implementation of the measures in ***Mitigation NOI-1***.

Mitigation Measure NOI-1, Reduce Noise

The District shall ensure that noise reduction actions are implemented for all activities that use construction equipment within 200 feet of the Preserve boundary. Noise reduction measures may include the following:

- Equip internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and are appropriate for the equipment.
- Locate stationary noise-generating equipment as far as possible from sensitive receptors in the vicinity.
- Utilize "quiet" air compressors and other stationary noise sources where technology exists.
- Provide signs at the Preserve entrance to inform users of the noise-producing activities, the location of the activities, and the duration.
- Inform residences in the areas near noise-generating actions to inform residents of the noise-producing activities, location of the activities, and the duration.
- Designate a "disturbance coordinator" responsible for responding to complaints about construction noise and taking reasonable measures to correct the problem. Conspicuously post a telephone number for the disturbance coordinator near management activities.

Management activities that involve the use of heavy equipment on the Preserve would be limited to the hours between 8:00 a.m. and 6:00 p.m., Monday through Friday, and between 9:00 a.m. and 6:00 p.m. on Saturday, as noted in the County Noise ordinance. Therefore, noise generated from the use of heavy equipment would result in less-than-significant noise impacts.

[12]Noise attenuates about 6 dB for each doubling of the distance from the source. Figuring that the distance from the power tool to the operator is 3 feet (common in OSHA calculations), starting with 100 dB, and reducing by 6 dB at 6, 12, 24, 48 (about 50), 100, 200, and 400 feet, leads to a reduction of 42 dB.

b) Generate excessive groundborne vibration or groundborne noise –No Impact

Noticeable or distressing groundborne vibration is commonly caused by heavy construction such as pile driving, blasting, or heavy-tracked construction equipment, as well as trains and other vehicles with mass and speed. Vibration can cause damage to buildings and roadways depending on the proximity to the vibration-producing action. None of the proposed management activities would generate groundborne noise or vibration, except for use of heavy equipment needed to implement the erosion control and road drainage improvements. However, there are no structures close enough to the proposed activities to have impacts from vibration. There would be no impact from groundborne vibration.

4.13.2 Program-level Analysis

a) Generate noise levels in excess of established standards – Less-than-significant with Mitigation

Similar to the shorter term management activities, some of the longer-term activities proposed in the Management Plan, including ongoing invasive vegetation control, thinning and mechanical vegetation control, maintenance of shaded fuel breaks, and fuels management, would necessitate the use of power tools, including chainsaws, and vehicles. The exact location of these management activities is undefined; however, these activities could occur within 200 to 400 feet of residences surrounding the Preserve in similar areas as those described for the short-term impacts above. Noise producing management activities could occur up to the boundary of the Preserve and, therefore, could be heard by residences adjacent to the Preserve. The noise would be occasional and of limited duration; nonetheless, the impact could be significant. ***Mitigation Measure NOI-1, Reduce Noise***, would reduce potential impacts to less-than-significant levels and would require notification of residences and Preserve users of the noise-producing actions and the duration of the activities.

Mitigation Measure NOI-1, Reduce Noise

b) Generate excessive groundborne vibration or groundborne noise –No Impact

None of the proposed longer-term management activities would generate groundborne noise or vibration, except for use of heavy equipment needed to implement future erosion control and road drainage improvements. There are no structures close enough to the proposed activities to have impacts from vibration. There would be no impact from groundborne vibration.

4.14 Population and Housing

Population and Housing Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
a) Induce substantial unplanned 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 people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Setting

The Preserve is located in a sparsely populated rural area just northeast of Santa Rosa and is managed by the District for its open space, natural resource, and scenic values. There are no residences on the Preserve and the construction of residences or structures is not proposed in the Management Plan or otherwise planned for the area. Nearby land uses are primarily low density rural residential and agricultural. The Santa Rosa city limits adjoin the southwestern edge of the Preserve and relatively dense residential communities lie approximately one-half mile from the Preserve's southwestern corner.

4.14.1 Project-level and Program-level Analysis

a, b) Induce population growth, displace people or displace housing – No Impact

The Preserve is currently managed by the District as an open space preserve and there are no residences within the Preserve's boundaries. The immediate vicinity of the Preserve consists primarily of rural, low-density residences and large landholdings. The Management Plan proposes no changes to population or housing.

Activities proposed in the Management Plan are designed primarily to improve natural resources and habitats and reduce erosion and sedimentation. Implementation erosion control and road restoration, native plant revegetation, tree and shrub encroachment reduction, invasive species management, forest thinning, and prescribed fire in grasslands and forest lands would not result in the construction of roads for future development and would not induce population growth or displace people or housing. Therefore, there would be no impact.

4.15 Public Services

Public Services Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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:				
i. Fire protection?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☐	☒
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

Setting

The Preserve is located adjacent to, but outside of, the Santa Rosa city limits. Fire protection services are provided by the Sonoma County Fire and Emergency Services Department and CalFire. The Preserve is located in a High to Very High Fire Hazard Severity Zone and is designated as a State Responsibility Area (CalFire 2007). Police services are provided by the Sonoma County Sheriff's Department. The nearest school to the Preserve is Maria Carrillo High School, approximately three-quarters of a mile southwest.

4.15.1 Project-level Analysis

a.i) Create adverse physical impacts associated with maintaining public fire protection service – Less-than-significant

As noted above, the Preserve is located in a High to Very High Fire Hazard Severity Zone and is designated as a State Responsibility Area (CalFire 2007). Implementation of erosion control, native plant revegetation, tree and shrub encroachment reduction, invasive species management, and providing permit-only public access activities proposed in the Management Plan would not increase the need for new facilities or new public services. The activities would not increase response times for fire or police protection or increase the need for public services. Invasive species control, targeted timber thinning, creation of shaded fuel breaks, and thatch control, would reduce fuel loads and fire hazards throughout the area.

Prescribed fire activities that would be implemented as a part of the Management Plan would take place in the select units of grassland throughout the site. Prior to each prescribed burn, fuel loads may be mechanically reduced, as necessary, and firebreaks and control lines would be established around the

burn unit. Specific burn plans would be developed for each individual prescribed burn and would include provisions for fuel management and fire containment as described in the project description. All prescribed fire activities would be planned in cooperation with CalFire and executed by trained prescribed fire professionals. Implementation of prescribed burns would require cooperation with public fire protection services, but would not necessitate the development of new or expanded facilities. Prescribed fire activities, as well as all other project-level activities proposed by the Management Plan, would have a less-than-significant impact on fire protection services.

a.ii-v) Create Adverse Physical Impacts Associated with Maintaining Public Police Protection, Schools, Parks, or Other Public Services – No Impact

Erosion control, native plant revegetation, tree and shrub encroachment reduction, invasive species management, and providing permit-only public access proposed in the Management Plan would not result in population increases or the demand for increased public services. The management activities do not include increased public use of the Preserve and would, therefore, not impact police or Sheriff services. The Management Plan would not create a need for additional schools, parks, or other public facilities. There would be no impact.

4.15.2 Program-level Analysis

a.i) Create adverse physical impacts associated with maintaining public fire protection service – Less-than-significant

Implementation of expanded invasive species management, erosion control, tree and shrub encroachment, forest thinning, shaded fuel break maintenance, and future permit-only public access activities proposed in the Management Plan would not result in the construction of structures or an increase of population in the area and would therefore not increase the area's overall fire hazard severity or require an expansion of public fire protection services.

Implementation of prescribed fire to manage forest, woodland, and chaparral habitats on the Preserve would undergo an extensive planning and approval process and mechanical vegetation control, including the establishment of firebreaks and control lines, would take place as necessary prior to burning. Further, the use of prescribed fire to manage forests, woodland, and chaparral on the Preserve would be guided by the development of a Forest Management Plan, Vegetation Management Plan contract, or similar document, as described in Section 2.4.3 of the Project Description. Implementation of prescribed burns would require cooperation with public fire protection services, but would not necessitate the development of new or expanded facilities. As a result, these prescribed fire activities, as well as all other program-level activities proposed in the Management Plan, would have a less-than-significant impact on fire protection services.

a.ii-v) Create Adverse Physical Impacts Associated with Maintaining Public Police Protection, Schools, Parks, or Other Public Services – No Impact

Expanded invasive species management, erosion control tree and shrub encroachment reduction, forest thinning, and permit-only public access proposed in the Management Plan would not result in population

increases or the demand for increased public services. These activities do not include a substantial increase in public use of the Preserve and would, therefore, not impact police or Sheriff services. The Management Plan would not create a need for additional schools, parks, or other public facilities. There would be no impact.

4.16 Recreation

Recreation Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
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?	☐	☐	☒	☐

Setting

The District manages the Preserve primarily to conserve and enhance its natural and scenic value. Public access to the Preserve is limited primarily to docent-led outings and trained volunteer patrols. A number of existing parks and other recreational facilities are located in relatively close proximity to the Preserve. Rincon Valley Community Park is less than one mile southwest, Annadel State Park is approximately 2 miles south, Hood Mountain Regional Park is approximately 2 miles southeast, and Bothe-Napa Valley State Park is approximately 2 miles northeast. There are no parks or recreational facilities directly adjacent to the Preserve.

4.16.1 Project-level Analysis

a, b) Create Adverse Physical Impacts from Increased Park Usage or from Construction or Expansion of Recreational Facilities – Less-than-significant

As noted above, public access to the Preserve is limited primarily to docent-led outings and trained volunteer patrols. The District intends to continue this level of public access and use of the Preserve. Erosion control, native plant revegetation, tree and shrub encroachment reduction, and invasive species management would not increase the use of nearby recreational facilities. The Management Plan includes continuing to provide for volunteer patrols and maintaining a docent program to train volunteers and provide permit-only access opportunities. In order to reduce potential impacts from visitors, Management Plan activities include upgrading certain roads and trails to reduce erosion and improve drainage, while also decommissioning and closing segments of roads and trails to provide buffers around sensitive resources and to direct use to less sensitive areas of the Preserve. No new trails, roads, or other recreational facilities would be constructed. Implementation of these activities would have a less-than-significant impact on the Preserve's natural and recreational resources.

Additionally, management activities proposed in the Management Plan would have no impact on other parks beyond the Preserve itself, and would not cause increased use or physical deterioration to any other park.

4.16.2 Program-level Analysis

a, b) Create Adverse Physical Impacts from Increased Park Usage or from Construction or Expansion of Recreational Facilities – Less-than-significant

Expanded invasive species management, erosion control tree and shrub encroachment reduction, forest thinning, prescribed fire in grassland and forest lands, and maintenance of shaded fuel breaks would not create physical impacts from increased use. Long-term activities in the Management Plan include encouraging environmental education opportunities on the Preserve and planning and hosting Open Space days to offer hikes and tours to the general public. These proposed activities would not substantially increase visitation or public use of the Preserve throughout the year. No new trails, roads, or other recreational facilities would be constructed. Implementation of these activities would have a less-than-significant impact on the Preserve's natural and recreational resources.

Additionally, the activities proposed in the Management Plan would have no impact to other parks beyond the Preserve itself, and would not cause increased use or physical deterioration to any other park.

4.17 Transportation

Transportation Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
a) Conflict with a plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle lanes and pedestrian paths?	☐	☐	☐	☒
b) For a land use project, would the project conflict with or be inconsistent with CEQA Guidelines section 15064.3(b)(1)?	☐	☐	☒	☐
c) For a transportation project, would the project conflict with or be inconsistent with CEQA Guidelines section 15064.3(b)(2)?	☐	☐	☐	☒
d) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐

Setting

Access to the Preserve is limited, as the property frontage along public roads is restricted to two small areas. There is an approximately 500-foot frontage along Calistoga Road, which is a public road, at the junction with Cleland Ranch Road, which is a private road. There is another approximately 500-foot frontage along St. Helena Road. Public access to the Preserve is only available from Cleland Ranch Road at the southern portion of the property. Cleland Ranch Road is located at a sharp curve on Calistoga Road and limited visibility and fast moving traffic on Calistoga Road make this turnoff difficult for access by large vehicles and trailers. According to Sonoma County, Calistoga Road in the vicinity of the Preserve has an average daily traffic volume of 4,649 (Sonoma County 2018).

4.17.1 Project-level Analysis

a) Conflict with a plan, ordinance, or policy addressing the circulation system – No Impact

Currently, the Preserve generates very small amounts of traffic along Calistoga Road from ongoing management operations and occasional volunteer and guided access. Traffic from visitation and ongoing operation of the Preserve would not increase substantially as a result of continued limited public access, erosion control and roadway drainage improvement, native plant revegetation, tree and shrub encroachment reduction, and invasive species management activities proposed in the Management Plan.

Implementation of these activities would generate short-term increases in traffic along Calistoga Road as equipment and workers are moved to and from the Preserve. The proposed erosion control and road treatment projects are anticipated to require heavy construction equipment, including a bulldozer, loader, and excavator, and would result in a short-term increase in construction-related vehicle trips along Calistoga Road. Additionally, tree thinning, creation of shaded fuel breaks, and prescribed fire would all require the movement of workers and vehicles to and from the Preserve. However, these management and construction activities would not generate enough truck and vehicle traffic to cause a substantial change in existing traffic load along Calistoga Road. Further, all the activities would take place on the Preserve and no public road closures would be necessary. No bicycle lanes or pedestrian paths would be impacted by these activities. As a result, the implementation of the activities proposed by the Management Plan would not conflict with any plans, ordinances, or policies addressing the circulation system in the vicinity of the Preserve. There would be no impact.

b) Conflict with CEQA Guidelines section 15064.3(b)(1) – Less-than-significant

Erosion control and roadway drainage improvement, native plant revegetation, tree and shrub encroachment reduction, grassland prescribed fire, and invasive species management activities proposed in the Management Plan would result in a minor increase in vehicle miles traveled (VMT). Construction related to erosion control and road treatment projects, as well as implementation of mechanical vegetation management, prescribed burning, and invasive species control activities, would require the movement of small numbers of workers and equipment to and from the Preserve. However, these increases in VMT would be minor, involving only a small number of vehicles, and temporary in nature. Continued limited public access would not change VMT. As a result, the impact on VMT would be less-than-significant.

c) Conflict with CEQA Guidelines section 15064.3(b)(2) – No Impact

The proposed Management Plan is not a transportation project. Therefore, there would be no impact.

d) Increase hazards due to a geometric design feature or incompatible uses – Less-than-significant

As noted above, Cleland Ranch Road, which provides the primary access point to the Preserve, is located at a sharp curve on Calistoga Road. Limited visibility and relatively dense, fast moving traffic along Calistoga Road can make turning off and onto Cleland Ranch Road hazardous. However, activities proposed in the Management Plan would not substantially increase this hazard. Erosion control and roadway drainage improvement, native plant revegetation, tree and shrub encroachment reduction, grassland prescribed fire, and invasive species management activities would not include a substantial increase in the number of visitors to the Preserve. Public use of the Preserve would remain limited to docent-led outings and trained volunteers, and horse trailers would continue to be prohibited from accessing the Preserve.

Prescribed burning, mechanical vegetation management, invasive species control, and erosion control projects would require the movement of workers, vehicles, and construction trucks to and from the Preserve along the intersection of Cleland Ranch Road and Calistoga Road. However, this minor increase

in vehicle traffic would be short-term in nature and would not substantially increase the hazard caused by the turnout along a sharp curve. The impact would be less-than-significant.

e) Result in inadequate emergency access – Less-than-significant

All management activities would take place within the boundaries of the Preserve and would cause only short-term, minor increases in vehicles moving to and from the Preserve. Prescribed burning could lead to increased smoke on nearby roadways and temporarily decreased visibility. However, smoke would be carefully managed in accordance with an approved smoke management plan and measures such as public notification of burn days and smoke warning signage would be implemented. Emergency access along nearby roads and to residences would not be impeded. No roadways would be blocked or otherwise become impassible due to management activities.

Implementation of ***Project Measure 10 - Ensure Adequate Emergency Access*** would ensure that emergency access to and from the Preserve would be maintained during all construction and ground-disturbing activities associated with management actions proposed by the Management Plan. As a result, the impact would be less-than-significant.

4.17.2 Program-level Analysis

a) Conflict with a plan, ordinance, or policy addressing the circulation system – No Impact

Traffic from visitation and ongoing operation of the Preserve would not increase substantially as a result of longer term management activities proposed in the Management Plan.

Expanded invasive species management, erosion control, tree and shrub encroachment reduction, forest thinning, and forest prescribed burning would generate short-term increases in traffic along Calistoga Road as equipment and workers are moved to and from the Preserve. The proposed thinning and prescribed fire activities would require the movement of workers and vehicles to and from the Preserve. However, these activities would not generate enough truck and vehicle traffic to cause a substantial change in existing traffic load along Calistoga Road. Further, all activities would take place on the Preserve and no public road closures would be necessary. No bicycle lanes or pedestrian paths would be impacted by these activities. As a result, the implementation of the activities proposed in the Management Plan would not conflict with any plans, ordinances, or policies addressing the circulation system in the vicinity of the Preserve. There would be no impact.

b) Conflict with CEQA Guidelines section 15064.3(b)(1) – Less-than-significant

Expanded invasive species management, erosion control, tree and shrub encroachment reduction, forest thinning, and forest prescribed burning activities proposed in the Management Plan would result in a minor increase in vehicle miles traveled (VMT). Thinning, prescribed burning, and ongoing invasive species control activities would require the movement of small numbers of workers and equipment to and from the Preserve. However, these increases in VMT would be minor, involving only a small number of vehicles, and temporary in nature. As a result, the impact of the management activities on VMT would be less-than-significant.

c) Conflict with CEQA Guidelines section 15064.3(b)(2) – No Impact

The proposed Management Plan is not a transportation project. Therefore, there would be no impact.

d) Increase hazards due to a geometric design feature or incompatible uses – Less-than-significant

As noted above, the turnoff to and from Cleland Ranch Road can be hazardous due to a sharp curve along Calistoga Road. However, expanded invasive species management, erosion control, tree and shrub encroachment reduction, forest thinning, and forest prescribed burning activities proposed in the Management Plan would not substantially increase this hazard. Public use of the Preserve would remain limited to docent-led outings, trained volunteers, environmental education, and designated Open Space days, and horse trailers would continue to be prohibited from accessing the Preserve.

Thinning, prescribed burning, and ongoing invasive species control, would require the movement of workers, vehicles, and construction trucks to and from the Preserve along the intersection of Cleland Ranch Road and Calistoga Road. However, this minor increase in vehicle traffic would be short-term in nature and would not substantially increase the hazard caused by the turnout along a sharp curve. The impact would be less-than-significant.

e) Result in inadequate emergency access – Less-than-significant

All activities would take place within the boundaries of the Preserve and would cause only short-term, minor increases in vehicles moving to and from the Preserve. Prescribed burning in the Preserve's forest, woodland, and chaparral communities could lead to increased smoke on nearby roadways and temporarily decreased visibility. However, smoke would be carefully managed in accordance with an approved smoke management plan and measures such as public notification of burn days and smoke warning signage would be implemented. Emergency access along nearby roads and to residences would not be impeded. No roadways would be blocked or otherwise become impassible due to program-level activities.

Implementation of ***Project Measure 10 - Ensure Adequate Emergency Access*** would ensure that emergency access to and from the Preserve would be maintained during all ground-disturbing activities associated with program-level actions proposed by the Management Plan. As a result, the impact would be less-than-significant.

4.18 Tribal Cultural Resources

Tribal Cultural Resources Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	☐	☒	☐	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Setting

As of July 2015, Assembly Bill (AB) 52 requires that lead agencies consider the effects of projects on tribal cultural resources and that consultation with federally and non-federally recognized Native American tribes take place early in the environmental review process. As defined in PRC §21074, tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing, on the national, state, or local register of historical resources.

Tom Origer & Associated originally conducted a cultural resources survey of the Preserve in 2008 and updated this survey in 2018. The Native American Heritage Commission (NAHC), the Federated Indians of Graton Rancheria, the Lytton Band of Pomo Indians, and the Ya-Ka-Ama were contacted; the NAHC responded that they have no record of tribal cultural resources in the Preserve. The field survey

documented four previously recorded prehistoric sites, one new prehistoric site, and four isolated prehistoric specimens on the Preserve.

4.18.1 Project-level Analysis

a.i, ii) Result in a substantial adverse change in a tribal cultural resource that is listed or eligible for listing or that is determined by the lead agency to be significant – Less-than-significant with Mitigation

As per Public Resources Code 21080.3.1(d), the District notified local tribes with a cultural affiliation with the area about the proposed management plan via letter on July 17, 2017.

Table 4-6: Native American Tribal Outreach

Contact	Tribe
Greg Saris, Chairperson	Federated Indians of Graton Rancheria
Gene Buvelot	Federated Indians of Graton Rancheria
Scott Gabaldon, Chairperson	Mishewal-Wappo Tribe of Alexander Valley

As noted above, five prehistoric sites and four isolated prehistoric specimens have been documented on the Preserve. It is possible that undiscovered significant tribal cultural resources are present on the Preserve. Erosion control and road and trail improvement, require ground disturbance and limited excavation. Known erosion control sites were evaluated for the presence of known archaeological and tribal resources (Tom Origer & Associates 2018). No resources were identified during the site visits. There are known prehistoric sites and potentially undiscovered tribal cultural resources near the roadways where project activities would take place. Thus, the potential impact on tribal cultural resources could be significant, given the potential for damage to such resources during ground-disturbing activities.

Although cultural resource surveys of the area found no remnants of cultural or historical resources, the Preserve could contain currently unknown buried artifacts or remains. Ground-disturbing construction activities associated with native plant revegetation, tree and shrub encroachment reduction, grassland prescribed fire, and invasive species management activities could disturb tribal resources if the resources are located in the construction area. Therefore, the potential impact on tribal resources is considered potentially significant if a resource is present and disturbed during construction.

Mitigation Measure TCR-1, Consult with Native American Tribes if Previously Undiscovered Artifacts are Discovered, would be implemented to reduce the potential impacts from management activities. Implementation of this mitigation measure would ensure that local tribes are notified and consulted to determine the most appropriate treatment of any encountered tribal resource. Therefore, the potential impact on tribal resources would be less-than-significant with mitigation.

> ***Mitigation Measure TCR-1, Consult with Native American Tribes if Previously Undiscovered Artifacts are Discovered***
>
> In the event that any Native American archaeological remains are discovered during implementation of management activities, the District shall contact and consult with local tribes

who have a traditional and cultural affiliation with the Project area including Cloverdale Rancheria of Pomo Indians, Dry Creek Rancheria of Pomo Indians, Lytton Rancheria of California, and Mishewal-Wappo Tribe of Alexander Valley. If the tribe(s) considers the resource to be a tribal resource, the City shall consult with the tribe to develop appropriate mitigation measures in accordance with Public Resources Code 21080.3.2.

Mitigation Measure TCR-2, Identify and Avoid or Minimize Impacts on Tribal Cultural Resources, would be implemented to reduce the potential impacts on tribal cultural resources from ground disturbance associated with project-level activities.

Mitigation Measure TCR-2, Identify and Avoid or Minimize Impacts on Tribal Cultural Resources

The District shall consult annually with representatives from interested tribes to relay information about the upcoming management activities and to allow for the tribes to provide information about the specific area. If the review identifies that a project may cause substantial adverse change to a tribal cultural resource, the District shall avoid or minimize adverse impacts in one of the following ways:

1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context.
2) Treatment of the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
    a. Protecting the cultural character and integrity of the resource
    b. Protecting the traditional use of the resource
    c. Protecting the confidentiality of the resource

4.18.2 Program-level Analysis

a.i, ii) Result in a substantial adverse change in a tribal cultural resource that is listed or eligible for listing or that is determined by the lead agency to be significant – Less-than-significant with Mitigation

Expanded invasive species management, erosion control, tree and shrub encroachment reduction, forest thinning, and forest prescribed burning activities proposed in the Management Plan would result in ground disturbance. As a result, these activities have the potential to impact known prehistoric resources and potential undiscovered tribal cultural resources on the Preserve. Thus, the potential impact on tribal cultural resources could be significant, given the potential for damage to such resources during ground-disturbing activities. ***Mitigation Measure TCR-1, Consult with Native American Tribes if Previously Undiscovered Artifacts are Discovered***, and ***Mitigation Measure TCR-2, Identify and Avoid or Minimize Impacts on Tribal Cultural Resources***, described above, would be implemented to reduce the potential impacts on tribal cultural resources from ground disturbance.

Mitigation Measure TCR-1: Consult with Native American Tribes if Previously Undiscovered Artifacts are Discovered

Mitigation Measure TCR-2, Identify and Avoid or Minimize Impacts on Tribal Cultural Resources

4.19 Utilities and Service Systems

Utilities and Service Systems Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒
c) Result in a determination by the wastewater treatment provider which 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?	☐	☐	☐	☒
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Setting

The Preserve is managed by the District to conserve and enhance its natural and scenic values. There are no operational buildings on the Preserve or utility infrastructure currently in use. There is one developed well located in the southeastern portion of the property, one developed spring box located in the northeastern portion of the property, and two capped wells presumably drilled when a subdivision was being planned on the Preserve.

4.19.1 Project-level Analysis

a) Require relocation, construction, or expansion of new utility facilities – No Impact

Erosion control and roadway drainage improvement, native plant revegetation, tree and shrub encroachment reduction, and invasive species management activities proposed in the Management Plan would not generate wastewater and would not require additional connections to, or expand the use of, any utility facilities. These activities would not increase impervious surfaces on the Preserve or increase

stormwater runoff. Continued limited public access would not require relocation, construction, or expansion of new utilities. There would be no impact.

b) Have sufficient water supplies available –No Impact

Erosion control and roadway drainage improvement, native plant revegetation, tree and shrub encroachment reduction, and invasive species management activities would require only minimal use of water. Some irrigation may be necessary during the establishment period for planting and re-vegetation efforts, but this water use would be short-term and would not result in insufficient water supplies. Construction of erosion control activities would require watering of disturbed areas to limit fugitive dust emissions, however this would be accomplished with a water truck and tank brought from off-site and would not result in insufficient water supplies. Continued limited public access would not require water supplies. As a result, there would be no impact on water supplies.

c) Have access to adequate wastewater treatment capacity – No Impact

Erosion control and roadway drainage improvement, native plant revegetation, tree and shrub encroachment reduction, and invasive species management activities would not generate wastewater or require treatment of wastewater. Continued limited public access would not change the wastewater treatment capacity. There would be no impact.

d) Generate solid waste in excess of local infrastructure capacity – No Impact

Implementation of some management activities, including invasive species control and mechanical vegetation treatments (thinning, creation of shaded fuel breaks, thatch reduction) would generate solid waste in the form of green and wood waste. Continued limited public access would not exceed infrastructure capacity.

Invasive vegetation would be piled onsite and either chipped, burned, or allowed to naturally decay depending on the species and amount of material.

Byproducts of mechanical vegetation treatment, including felled trees and thatch and underbrush material, would also be kept onsite. Felled trees would be cut into sections or chipped and scattered in appropriate locations. Thatch and underbrush would also be chipped and scattered. If an oak tree infected with sudden oak death is determined to be a hazard it would be felled, cut and chipped, and left to dry in a location with adequate sun.

No green or wood waste from these activities would be hauled offsite and would therefore not affect the capacity of local infrastructure. There would be no impact.

e) Comply with statutes related to solid waste – No Impact

The solid waste generated by erosion control and roadway drainage improvement, native plant revegetation, tree and shrub encroachment reduction, and invasive species management activities would be composed primarily of green and wood waste and would not be hauled offsite. Disposal of green and wood waste onsite would comply with applicable federal, state, and local regulations. In the event that

any solid waste would need to be disposed of offsite, it would be hauled to a licensed landfill or disposal site for recycling or disposal in compliance with federal, state, and local regulations. There would be no impact.

4.19.2 Program-level Analysis

a) Require relocation, construction, or expansion of new utility facilities – No Impact

Expanded invasive species management, erosion control, tree and shrub encroachment reduction, forest thinning, forest prescribed burning, and shaded fuel break maintenance activities proposed in the Management Plan would not generate wastewater and would not require additional connections to, or expand the use of, any utility facilities. These activities would not increase impervious surfaces on the Preserve or increase stormwater runoff. Continued limited public access would not require relocation, construction, or expansion of new utilities. There would be no impact.

b) Have sufficient water supplies available – No Impact

Expanded invasive species management, erosion control, tree and shrub encroachment reduction, forest thinning, forest prescribed burning, and shaded fuel break maintenance activities would require only minimal use of water. Some irrigation may be necessary during the establishment period for planting and re-vegetation efforts following ground disturbance, but this water use would be short-term and would not result in insufficient water supplies. There would be no impact on water supply availability.

c) Have access to adequate wastewater treatment capacity – No Impact

Expanded invasive species management, erosion control, tree and shrub encroachment reduction, forest thinning, forest prescribed burning, and shaded fuel break maintenance activities would not generate wastewater or require treatment of wastewater. There would be no impact.

d) Generate solid waste in excess of local infrastructure capacity – No Impact

Implementation of some activities, including continued invasive species control and mechanical vegetation treatments (forest thinning, ongoing maintenance of shaded fuel breaks, and felling of diseased oaks, if necessary) would generate solid waste in the form of green and wood waste.

Invasive vegetation would be piled onsite and either chipped, burned, or allowed to naturally decay depending on the species and amount of material.

In accordance with the Forest Management Plan or similar document that would be developed, byproducts forest thinning and ongoing mechanical vegetation management, including felled trees and underbrush material, would also be kept onsite. Felled trees would be cut into sections or chipped and scattered in appropriate locations. Thatch and underbrush would also be chipped and scattered. If an oak tree infected with sudden oak death is determined to be a hazard it would be felled, cut and chipped, and left to dry in a location with adequate sun.

No green or wood waste from expanded invasive species management, erosion control, tree and shrub encroachment reduction, forest thinning, forest prescribed burning, and shaded fuel break maintenance activities would be hauled offsite and would therefore not affect the capacity of local infrastructure. There would be no impact.

e) Comply with statutes related to solid waste – No Impact

The solid waste generated by expanded invasive species management, erosion control, tree and shrub encroachment reduction, forest thinning, forest prescribed burning, and shaded fuel break maintenance activities would be composed primarily of green and wood waste and would not be hauled offsite. Disposal of green and wood waste onsite would comply with applicable federal, state, and local regulations. In the event that any solid waste would need to be disposed of offsite, it would be hauled to a licensed landfill or disposal site for recycling or disposal in compliance with federal, state, and local regulations. There would be no impact.

4.20 Wildfire

Wildfire	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☒	☐	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

Setting

The Preserve is located in a High to Very High Fire Hazard Severity Zone and is designated as a State Responsibility Area (CalFire 2007).[13] As noted in the Sonoma County General Plan 2020 Public Safety Element, wildland fire is a significant hazard in Sonoma County due to a combination of factors, including weather, topography, and accumulated fuel loads (Sonoma County 2016). A number of significant wildfire events have caused extensive damage in Sonoma County, with nearly 100,000 acres burned and 2,000 structures lost to large fires between 2000 and 2015. In October 2017, Sonoma County experienced several large and devastating wildfires, with both the Nuns Fire and the Tubbs Fire starting the night of October 8, 2017. The Tubbs Fire started near Calistoga and, travelling along a corridor just north of the Preserve, spread to portions of Santa Rosa within six hours, destroying 5,636 structures, burning 36,807

[13] CalFire has legal responsibility for providing fire protection and wildland fire management in any designated State Responsibility Area.

acres, and leading to at least 23 deaths (CalFire 2018b). The Nuns Fire started near Glen Ellen and burned north into Annadel Park just south of the Preserve, destroying 1,355 structures and burning 56,556 acres.

Policy documents and plans for addressing wildfire risks in Sonoma County include the Sonoma County General Plan 2020 Public Safety Element (Sonoma County 2016), the Sonoma County Hazard Mitigation Plan (Sonoma County 2016), the Sonoma County Community Wildfire Protection Plan (Fire Safe Sonoma 2016), and Strategic Fire Plan Sonoma-Lake-Napa Unit (CalFire 2015).

4.20.1 Project-level Analysis

a) Impair an emergency response plan or evacuation plan – No Impact

The size and nature of the erosion control and roadway drainage improvement, prescribed fire in grasslands, native plant revegetation, tree and shrub encroachment reduction, invasive species management, and shaded fuel break development activities proposed in the Management Plan would not require the closure of public roadways or otherwise interfere with emergency evacuation plans for the surrounding area. Erosion control and roadway treatment activities (e.g., culvert replacement, rock armoring, rolling dips, etc.) could result in temporary road closures within the Preserve, but would not impact roadways outside of the Preserve's boundaries. Prescribed burning could lead to increased smoke on nearby roadways and temporarily decreased visibility. However, smoke would be carefully managed in accordance with an approved smoke management plan and measures such as public notification of burn days and smoke warning signage would be implemented. These activities could cause a slight increase in vehicle use during construction activities and potential short-term reduced visibility from prescribed fire but would not impair emergency response plans or evacuation plans. Therefore, there would be no impact on emergency response or evacuation plans.

b) Exacerbate wildfire risks – Less-than-significant with Mitigation

The Preserve has no occupants and, therefore, erosion control and roadway drainage improvement, prescribe fire in grasslands, native plant revegetation, tree and shrub encroachment reduction, invasive species management, and shaded fuel break development activities proposed in the Management Plan would not expose any project occupants to an exacerbated risk of wildfire. Most of the activities are intended to reduce fire hazard severity on the Preserve. Activities that would benefit fire safety include restoring grasslands by reducing thatch layers and removing encroaching coyote brush; select thinning of encroaching Douglas fir and bay laurel; creating shaded fuel breaks; controlling invasive species; and enhancing riparian habitat.

However, construction activities for erosion control and roadway treatment could temporarily increase the possibility of wildfire due to the use of construction equipment in wildland areas. Implementation of ***Mitigation Measure HAZ-1, Reduce Wildland Fire Hazards during Construction***, described in Section 4.9.1, would require the use of construction techniques that would reduce the likelihood of wildland fire starts during construction. Implementation of this measure would reduce the impact to a less-than-significant level by removing combustible vegetation from staging and other construction areas to minimize the risk of fire.

Mitigation Measure HAZ-1, Reduce Wildland Fire Hazards during Construction

Implementation of the Management Plan's would include the development of a prescribed fire program within the Preserve's grassland units to manage invasive species and enhance grassland habitat. These prescribed fire activities are anticipated to decrease the long-term risk of wildfire on the Preserve by reducing fuel loads. However, prescribed fire can have a significant impact on the potential for wildfires if it is not managed properly. The Preserve's prescribed fire program would be developed in consultation with CalFire as described in the Project Description and included in ***Project Measure 6 - Agency Coordination, Approvals, and Public Notification for Prescribed Fire***. A burn plan would be developed by a qualified professional and approved by CalFire, for each individual burn and would include fire control measures to prevent escape and escalation of prescribed fire. All burns would be carried out as described in the Project Description, natural firebreaks would be utilized wherever possible, and adequate control lines and artificial firebreaks would be established around burn units as necessary. Burns would take place only when weather conditions, such as moisture levels and the direction and speed of winds, are appropriate as determined by CalFire and the Bay Area Air Quality Management District. All prescribed fire activities would be implemented by qualified prescribed fire specialists or CalFire personnel. The implementation of prescribed fire as described in the Project Description, in conjunction with the planning and approval process for each individual prescribed fire project would ensure that prescribed fire in the Preserve's grasslands would not increase the risk of wildfire. The impact would be less-than-significant.

c) Require infrastructure as a result of wildfire risk – Less-than-significant

As noted above, prescribed fire in grasslands, native plant revegetation, tree and shrub encroachment reduction, invasive species management, and shaded fuel break development activities proposed in the Management Plan are intended to reduce the risk of wildfire on the Preserve. None of the activities would require the installation of infrastructure that would exacerbate wildfire risks or that would have a significant ongoing impact on the environment.

The Management Plan includes the development of shaded fuel breaks, which would provide areas to slow fire progression and allow fire fighters access to fight wildfire. The shaded fuels breaks would be located along Plum Ranch Road, Erland-Cleland Tie Road, and the Preserve frontage road along Erland Road. No infrastructure would be needed to develop the fuel breaks. Individual prescribed burn units would be designed and selected to maximize the use of natural or pre-existing fire breaks to the extent possible when conducting prescribed fire activities. However, to ensure safety and to reduce the potential for escape or escalation of prescribed burns, some prescribed fire projects may require digging control lines and fire breaks. Areas impacted by control lines and fire breaks would be restored and re-vegetated immediately following prescribed fire activities, in accordance with ***Project Measure 1 - Planting and Revegetation after Soil Disturbance for Restoration***. As a result, the impact would be less-than-significant.

d) Expose people or structures to risks as a result of runoff, post-fire slope instability, or drainage changes – Less-than-significant

As noted above, erosion control and roadway drainage improvement, prescribe fire in grasslands, native plant revegetation, tree and shrub encroachment reduction, invasive species management, and shaded fuel break development activities proposed in the Management Plan are intended to reduce the risk of wildfire on the Preserve. These activities would not increase the risk of downslope flooding or landslides as a result of runoff, post-wildfire slope instability, or drainage changes.

However, some activities would involve ground-disturbance and result in areas of exposed soil, including construction of erosion control projects, prescribed burning in grasslands, and invasive species control. If not properly managed, these activities could cause erosion and slope instability. Implementation of ***Project Measure 1 - Planting and Revegetation after Soil Disturbance*** and ***Project Measure 3 - Erosion Control, Sediment Detention, and Site Maintenance*** would require that disturbed areas be immediately stabilized and, if appropriate, re-seeded. As a result, project-level activities proposed in the Management Plan would not expose people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes. The impact would be less-than-significant.

4.20.2 Program-level Analysis

a) Impair an emergency response plan or evacuation plan – No Impact

Implementation of the of the expanded invasive species management, erosion control, tree and shrub encroachment reduction, forest thinning, forest prescribed burning, and shaded fuel break maintenance would have no impact on emergency response or evacuation plans as described above.

b) Exacerbate wildfire risks – Less-than-significant with Mitigation

Expanded invasive species management, erosion control, tree and shrub encroachment reduction, forest thinning, and shaded fuel break maintenance activities proposed in the Management Plan would not increase risk of wildfire. These activities are intended to reduce fire hazard severity on the Preserve.

Ground disturbing activities associated with use of construction equipment could increase the possibility of wildfire through the use of vehicles and equipment. Implementation of ***Mitigation Measure HAZ-1, Reduce Wildland Fire Hazards during Construction***, would require the use of techniques that would reduce the likelihood of wildland fires during construction and ground disturbance. Implementation of this measure would reduce the impact to a less-than-significant level by removing combustible vegetation from staging areas to minimize the risk of fire.

Mitigation Measure HAZ-1, Reduce Wildland Fire Hazards during Construction

Implementation of the Management Plan's expanded forest prescribed burning activities would include the expanding the prescribed fire program to manage the Preserve's forest, woodland, and chaparral habitats. The exact locations, objectives, and prescriptions of these prescribed fire activities would be determined through the development of a Forest Management Plan, Vegetation Management Plan

contract, or similar document. Implementation of prescribed fire would be subject to the same requirements described in the Project Description and ***Project Measure 6 - Agency Coordination, Approvals, and Public Notification for Prescribed Fire*** and evaluated for the project-level impact activities.

c, d, e) Require infrastructure as a result of wildfire risk, expose people or structures to risks as a result of runoff, post-fire slope instability, or drainage changes – Less-than-significant

Implementation of the expanded invasive species management, erosion control, tree and shrub encroachment reduction, forest thinning, and shaded fuel break maintenance would have the same impacts as those described for shorter term project-level activities. The impact would be less-than-significant.

5 Mandatory Findings of Significance

Mandatory Findings of Significance	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-Significant Impact	No Impact
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, substantially reduce the number or restrict the range of a rare or endangered plant or animal 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, current, and probable future projects.)	☐	☒	☐	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

a) Degrade the environment – Less-than-significant with Mitigation

With implementation of the mitigation measures, the activities proposed in the Management Plan do not have the potential to degrade the quality of the environment, including wildlife species or their habitat, plant or animal communities, or important examples of major periods of California history or prehistory, either directly or indirectly.

b) Cause cumulatively considerable impacts – Less-than-significant with Mitigation

Cumulative impacts are defined as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts” (CEQA Guidelines Section 15355). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. This Initial Study/Proposed MND utilizes the “plan” approach, per CEQA Guidelines Section 15130(d), to determine if the proposed Management Plan project-level actions as a whole make a considerable contribution to a significant cumulative impact. Cumulative impacts have been identified using the summary of impacts in the Sonoma County General Plan 2020 Draft and Final EIR (Sonoma County 2006).

The General Plan 2020 Final EIR identified significant cumulative impacts related to land use/population/housing, transportation, air quality, biological resources, noise, water quality/hydrology, agriculture, soils/geology, and public services. Each of these cumulative impacts is summarized in more detail below.

Transportation Impacts

Significant and unavoidable transportation impacts were identified in the General Plan EIR related to increased traffic volumes, delay, and decreases in levels of service (LOS) along major highways in the County. Implementation of the Management Plan would not contribute to congestion identified in the General Plan EIR. The LOS standards regulate long-term impacts due to future development and do not apply to temporary, construction-related traffic. As described in the Project Description and in the transportation section, the magnitude of management actions are small and would require a minimal number of vehicles to implement and/or construct. Most management actions would not change operations on the Preserve and would not change traffic levels. Therefore, the Management Plan as a whole would not contribute to the County's cumulative traffic impact.

Cultural and Native American Tribal Resources Impacts

Significant and unavoidable impacts on cultural resources were identified in the General Plan EIR related to increased development throughout the County. Implementation of the Management Plan would not contribute to impacts on cultural resources identified in the General Plan EIR. Implementation of ***Mitigation Measure CUL-1, Identify and Avoid or Minimize Impacts on Historic Resources; Mitigation Measure CUL-2, Avoid Impacts on Previously Undiscovered Historic Resources; Mitigation Measure CUL-3, Minimize Impacts of Prescribed Fire on Cultural Resources; Mitigation Measure CUL-4, Identify and Avoid or Minimize Impacts on Archaeological Resources; Mitigation Measure CUL-5, Procedures for Encountering Human Remains***; ***Mitigation Measure TCR-1, Consult with Native American Tribes if Previously Undiscovered Artifacts are Discovered***; and ***Mitigation Measure TCR-2, Identify and Avoid or Minimize Impacts on Tribal Cultural Resources*** require protection of cultural resources through identification of known resources in the area for all management activities prior to construction, and through a process to protect resources if encountered during construction. Therefore, the Management Plan as a whole would not contribute to cumulative impacts on cultural resources.

> ***Mitigation Measure CUL-1, Identify and Avoid or Minimize Impacts on Historic Resources***
> ***Mitigation Measure CUL-2, Avoid Impacts on Previously Undiscovered Historic Resources***
> ***Mitigation Measure CUL-3, Minimize Impacts of Prescribed Fire on Cultural Resources***
> ***Mitigation Measure CUL-4, Identify and Avoid or Minimize Impacts on Archaeological Resources***
> ***Mitigation Measure CUL-5, Procedures for Encountering Human Remains***
> ***Mitigation Measure TCR-1, Consult with Native American Tribes if Previously Undiscovered Artifacts are Discovered***
> ***Mitigation Measure TCR-2, Identify and Avoid or Minimize Impacts on Tribal Cultural Resources***

Air Quality Impacts

Significant and unavoidable air quality impacts were identified in the General Plan EIR related to the emission of ozone precursors, odors/toxic air contaminants, and diesel emissions. Growth in cities and cumulative projects would contribute to all of these impacts, resulting in a significant cumulative impact on air quality, particularly for those impacts related to automobile traffic. The Management Plan would not involve a sustained increase in traffic, and therefore, would not contribute to cumulative air quality impacts.

Biological Resources Impacts

Significant biological resources impacts were identified in the General Plan EIR related to special-status species, the loss of sensitive natural communities, and reduction in migration. Implementation of ***Mitigation Measure BIO-1, Avoid Loss of Special-status Plants and their Habitats; Mitigation Measure BIO-2, Protect Special-status Plants during Prescribed Burning; Mitigation Measure BIO-3, Protect Fish and Aquatic Wildlife Species; Mitigation Measure BIO-4, Protect Nesting Birds; Mitigation Measure BIO-5, Protect Northern Spotted Owl; Mitigation Measure BIO-6, Protect Special-status Bats***; and ***Mitigation Measure BIO-7, Protect Wetlands and Waters*** would require protection of listed species through preconstruction surveys and protection measures during construction. Therefore, implementation of Management Plan project- and program-level activities, along with required mitigation measures, would not contribute to cumulative impacts on special-status species.

Mitigation Measure BIO-1, Avoid Loss of Special-status Plants and their Habitats

Mitigation Measure BIO-2, Protect Special-status Plants during Prescribed Burning

Mitigation Measure BIO-3, Protect Fish and Aquatic Wildlife Species

Mitigation Measure BIO-4, Protect Nesting Birds

Mitigation Measure BIO-5, Protect Northern Spotted Owl

Mitigation Measure BIO-6, Protect Special-status Bats

Mitigation Measure BIO-7, Protect Wetlands and Waters **Water Quality**

Hydrology and Water Quality Impacts

Significant water quality and hydrologic impacts were identified in the General Plan EIR related to groundwater consumption, well interference, streambank erosion, and erosion from redirected flood flows. The Management Plan would have no impacts or less-than-significant impacts related to water quality and hydrology. Some project- and program-level activities would improve water quality and reduce streambank erosion. Therefore, the project would not contribute to any significant cumulative impacts on water quality or hydrology.

Geology and Soils Impacts

Significant geologic impacts were identified in the General Plan EIR related to geologic hazards associated with planned infrastructure expansion. The Management Plan does not propose any activities that would result in infrastructure expansion; therefore, the project would not contribute to any significant cumulative impacts on geology.

Public Services Impacts

Significant impacts associated with the demand for and expansion of public services were identified in the General Plan EIR. Public services would not be significantly affected with implementation of the Management Plan. Therefore, the project would not contribute to any significant cumulative impacts on public services.

c) Have substantial adverse effects on human beings – Less-than-significant with Mitigation

With implementation of the mitigation measures, the management activities proposed in the Management Plan do not have the potential to, either directly or indirectly, cause substantial adverse effects on human beings.

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Appendix A - Saddle Mountain Preserve Draft Management Plan

Appendix B - Air Quality and Greenhouse Gas Calculations

Appendix C - Biological Resources

Appendix D - Cultural Resource Reports

Due to their large file size, the appendices are not included with this online version of the CEQA document. All appendices are available upon request to monica.delmartini@sonoma-county.org. Additionally, the Saddle Mountain Preserve Draft Management Plan is available at http://www.sonomaopenspace.org/saddle-plan.