Attachment B

Cooley Ranch CalVTP # 2022-29

FRONTIER RESOURCE MANAGEMENT
FRMFORESTRY.COM | 707.391.9883 | JACOB@FRMFORESTRY.COM
PO BOX 175 UKIAH, CALIFORNIA 95482

Biological Resource Assessment

As per SPR BIO-1, a reconnaissance level survey was conducted by the RPF, to determine what habitats were present within the project area. This habitat analysis informed the subsequent listed and non-listed species impact analysis. During the field reconnaissance, the following animal species were identified either visually or otherwise (i.e. scatt, tracks, etc…):

Black tail deer, wild pig, black bear, tree squirrel, ground squirrel, coyote, mountain lion, bobcat, bald eagle, red tail hawk, crow, raven, pileated woodpecker, blue jay, starling, oriole, robin, hummingbird, rainbow trout, and foothill yellow legged frog.

- The following are all rare, threatened, endangered, and Species of Special Concern with potential to occur within the project area. Species listed in the CNDDB within 3 miles of the project area were included along with species within the 9-quad with a high potential for occurrence, based on the results of reconnaissance level habitat surveys.

Birds

- A note on birds of prey and the treatments proposed on this project: The treatments proposed will have very little effect on the habitat types these species rely on. Most of the treatments are focused on removing dead and down debris, along with understory vegetation. The result will be the creation of better foraging habitat for birds of prey, due to the decrease in places for food sources to hide. A high degree of LWD will be retained throughout the units, as it is infeasible to treat all of this material. Also, LWD is not responsible for causing high intensity wildfire. This will ensure habitat is retained for prey species.

  These species usually create nests high off the ground in large old trees. These types of trees are not targeted for removal unless they are a rotten snag near a ridgeline fuel break. These trees will be assessed by an RPF or qualified biologist prior to removal.

Bald Eagle (*Haliaeetus leucocephalus*)
Status: State Endangered
Habitat Requirements: Bald eagles require large bodies of water or free-flowing rivers with abundant fish and adjacent snags, cliffs, or perches (Zeiner et al. 1990a). Perches are often high in large-limbed trees on snags, broken-topped trees, or on rocks near water. Nests are found in large, old-growth, or dominant live trees with open branches (Call 1978). Nest stands frequently have less than 40% canopy, with some foliage shading the nest, and are within a mile of a permanent water source. In the winter, they roost communally in dense, sheltered, remote conifer stands often within 10 to 12 miles from feeding areas. Although bald eagle populations are recovering in the western U.S., nesting bald eagles are still very rare in this region. Bald eagles are tolerant of human activity when feeding, and may congregate around fish processing plants, dumps, and below dams where fish concentrate. In winter, bald eagles can also be seen in dry, open uplands if there is access to open water for fishing.

Potential for Occurrence: There is a high potential for occurrence within treatment areas, particularly around the class I watercourses. During reconnaissance surveys a juvenile bald eagle was observed on two separate occasions near a class I watercourse. Each sighting was approximately 0.5 miles from one another. The RPF believes this individual to be occupying this particular habitat area, as shown in Attachment C maps. A survey was conducted to locate bald eagle nests and other large raptor nests throughout the property. None were identified.

Potential Project Impact: Due to the level of treatments proposed, the potential for impact is very low. Nevertheless, the area where these sightings were made will be protected with SPR BIO-10, focused surveys up to 14 days prior to treatment activity. During focused surveys an RPF or qualified biologist will search for bald eagle nests within the area shown as the bald eagle STZ in the attachment C maps. If a bald eagle nest is located, mitigation measure BIO-2a will be implemented. MM BIO-2a would require a 300-foot seasonal restriction buffer from the nest site. treatment within this zone would be implemented outside the bald eagle breeding season (February-July).

Prior to treatment within the mapped area represented by the bald eagle STZ, an RPF or biologist will identify any habitat features that are necessary for survival (e.g. habitat necessary for breeding, foraging, shelter, movement) of the bald eagle. Trees with nesting platforms, complex structure, large cavities, snags, or visible raptor nests will be retained. Also, large woody debris and a high degree of ground cover will be retained, to ensure food source protection. Due to the protection measures afforded to class I watercourses, the bald eagles main food source (fish) will not be impacted. With the implementation of these mitigation measures, it is not anticipated there would be a significant negative impact to this species.

Tricolored Blackbird (*Agelaius tricolor*)
Status: California Threatened
Habitat Requirements: The tricolored blackbird is a breeding resident in most of California, primarily in the Central Valley, and coastal areas from southern Sonoma County along the coast to San Diego County. They breed and forage in a variety of habitats, including salt marshes, moist grasslands, freshwater marshes, bay-shore habitats, riparian forests, and oak savannahs. This species commonly builds nests just above ground or water and up to several meters high in trees. Usually, nests are close to water or near spiny vegetation to inhibit access by predators.

Potential for Occurrence: There is a low potential for habitat within the project area, mainly around the various wet areas, and ponds. No individuals or nests were observed during reconnaissance and the closest known occurrence is more than 5 miles from the project area.

Potential Project Impact: The potential for the proposed activities to impact this species is highly unlikely. If habitat exists within the treatment units, watercourse and wetland protection measures will prevent damage to this species crucial habitat.

Northern Goshawk *(Accipiter gentilis)*
Status: None
Habitat Requirements: Northern goshawks hunt in forested areas where they use snags and trees with large perching platforms. Goshawks use dense, mature and old-growth stands of conifer and deciduous habitats at middle to high elevations for cover and nesting. Nests are

usually on cooler (northerly or easterly) moderate slopes in dense vegetation or within riparian zones, but close to openings (Squires and Reynolds 1997). Stick nests are often in a fork or by the trunk of the tree and may be used consecutively each year.

Goshawks are casual winter visitors along the coast, throughout the foothills of the Central Valley and in the northern deserts (Zeiner et al. 1990a). A few goshawks have been known to nest in redwood forest habitat types on the Mendocino Coast near Fort Bragg, although they are rare in stands with coastal influence. Occasionally goshawks have been reported in similar habitat in central Mendocino County but have not been recorded to occur in Sonoma County.

Potential for Occurrence: There is a very low potential for this species to occur within the treatment units. No individuals were observed during reconnaissance and the closest known occurrence is more than 8 miles NW of the project area.

Potential Project Impact: The potential for the proposed activities to impact this species is highly unlikely. See note above regarding project impacts to birds of prey.

Marbled murrelet *(Brachyramphus marmoratus)*
Status: Federally Threatened; State Endangered
Habitat Requirements: Sonoma County falls within zone 5 of the marbled murrelet recovery effort. Marbled murrelets forage in the ocean often close to shore during the summer months. In the nonbreeding season, murrelets often forage farther from shore. Marbled murrelets will fly inland (up to 35 miles) to nest in late seral stage forests or forests with late seral stage characteristics (Zeiner et al. 1990a). Murrelet nests are a depression partly encircled by guano. Nests are most commonly located on large-horizontal limbs in Douglas-fir and redwood trees. Limbs covered by moss or lichens provide stability for the egg and chick. In addition, nests have been located on witch's broom (mistletoe), old squirrel nests, and on large burls that have collected organic debris. Murrelet nests have been found in as few as 4 acres of late seral redwood/Douglas-fir stands; however, US Fish and Wildlife Service has determined that for the long-term survival of the species, greater than 500 acres of older growth forest (late seral connected canopy) is required. Potential nest trees are greater than 32" dbh, as large diameter trees are necessary for the production of potential nesting platforms. Over 40% overstory canopy cover is necessary to protect the nest site from predation and other environmental conditions.

Potential for Occurrence: The project area lacks the habitat required for this species. There are a few mostly scattered old growth trees within the property, but they lack the connectivity and high-quality nesting structure required by the species.

Mammals

Sonoma Tree Vole (*Arborimus pomo*)
Status: None
Habitat Requirements**:** Red Tree Voles are entirely arboreal. They live, nest, and feed in the forest canopy and have been found in various stand size classes of Douglas-fir, bishop pine and grand fir. This species feeds on the vascular cambium of their host tree's needles while the

unconsumed resin ducts (from the needles) are used for nest lining. Over-time resin ducts accumulate in the nest and the surplus is discarded from the nest by the animal. A visual search of the forest canopy for active Red Tree Vole nests is usually complimented by an inspection of the forest floor, upon which, matted clusters of resin ducts can usually be observed.

Potential for Occurrence**:** There is a moderate potential for the Sonoma tree vole to exist within the project area. A visual search of the canopy for stick nests and the forest floor for discarded resin ducts, which accumulate below vole nests was conducted. Resin ducts or nests were not observed during reconnaissance surveys.

Potential Project Impact: There is a very low potential for this species to be negatively impacted by the proposed activities. Large trees are not planned for removal unless dead or dying within a shaded fuel break. Nevertheless, this species will be included in the SPR BIO-2 worker training. If detected, nest trees and screen trees will be retained.

Pallid Bat (*Antrozous pallidus*)
Status: None

Habitat Requirements: Pallid bats occupy a wide variety of habitats, such as grasslands, shrublands, and forested areas of oak and pine, but prefer rocky outcrops with desert scrub (Zeiner et al. 1990b). The pallid bat roosts in caves, mines, crevices, buildings, under bridges, and occasionally in hollow trees. Day roosts are located at sites that provide protection from the heat of the day; Night roosts are in more open areas such as porches or open buildings (Zeiner et al. 1990b). They roost in small groups of 20 or more. They need water, but have a good urine-concentrating ability, so they don't have to roost within close vicinity of a water source (Geluso 1978). In California, pallid bats do not migrate, but make local movements to hibernacula and during post-breeding. Pallid bats feed on a wide variety of relatively large ground dwelling or slow flying insects and arachnids (Zeiner et al. 1990b). Colonies of *A. pallidus* will typically emerge about 1 hour after sunset, return to roost, and then forage again before dawn. Specializes in foraging on insects on the ground, versus in the air, by listening for the insect footsteps. The pallid bat is found throughout most of the western U. S. and Mexico. In California, the bat is widespread in low elevations with the exception of the high Sierra Nevadas from Shasta to Kern counties and in the northwestern corner of the state from Del Norte and western Siskiyou counties to northern Mendocino County (Zeiner et al. 1990b).

Potential for Occurrence: There is a low to moderate potential for occurrence within the treatment area. No individuals were located during field reconnaissance and the closest known location is 6 miles from the project area.

Potential Project Impact: There is no potential for this species to be impacted by the project. Roosts would occur within rocky outcrops and caves, which would not be affected by treatments.

Townsend's Big-Eared Bat (*Corynorhinus townsendii)*
Status: None

Habitat Requirements: *C. townsendii* inhabits southwestern British Columbia, Canada and most of the western U.S., east to the Great Plains, and south from western Texas into central Mexico. Isolated populations of central and eastern U.S. Townsend's big-eared bats are most common in mesic sites but are found in a variety of habitats including coastal conifer and broad-leaf forests, oak and conifer woodlands, arid grasslands and deserts, and high-elevation forests and meadows. Roosting, maternity and hibernacula sites in California include limestone caves, lava tubes, mine tunnels, buildings, and other man-made structures.

Roost structures that could be classified as cave analogues and that function as maternity roosts or hibernacula include large trees (minimum dbh of 8 ft.; adapted from maternity roosts in large redwood trees) with large basal hollows and an internal roost area large enough for flying forays (larger than the entrance). The roost ceiling must be dome-like (allowing for multiple bats to roost in clusters) and occur at least 1 ft. above the top of the entrance (allows for better protection from predators and changing microclimates). The only light penetrating the roost area must originate from the roost entrances so that the internal roost area remains semi-dark to dark. Suitable habitat is described as basal hollows in trees 42" dbh and greater having all of the following characteristics:

- An opening equal to or greater than 2 square feet.
- An internal cavity extending above the entrance equal to or greater than 12 inches.
- An internal cavity equal to or greater than 3 feet above the ground.

Potential for Occurrence: There is a very low potential to locate this species or suitable roost trees. There are no known Townsend's big-eared bat colonies and no known mine shafts, caves or large trees with basal hollows the project area. No potential trees within or adjacent to the plan area that meet the criteria for this species roosting habitat were observed. The closest known occurrence is just over 3 miles from the project area.

North American Porcupine (*Erethizon dorsatum*)
Status: SSC
Habitat Requirements: North American porcupines range from Canada, Alaska, and into northern Mexico, and primarily west of the Rocky Mountains. They are commonly found in coniferous and mixed forested areas, but have adapted to harsh environments such as shrublands, tundra, and deserts. They make their dens in hollow trees, decaying logs, and caves in rocky areas.
Potential for Occurrence: There is a low to moderate potential for this species to occur within the treatment units. No individuals were observed during field reconnaissance and the closest known occurrence is more than 4 miles from the project area.

Potential Project Impact: There is a low potential for this species to be impacted by operations. SPR BIO-2 will ensure workers are trained on identifying and retaining potential habitat for this species. The use of prescribed fire will likely create new potential habitat by enhancing tree and log basal hollows.

Amphibians and Reptiles

Western Pond Turtle *(Emys marmorata)*
Status: None
Habitat Requirements: The pond turtle is associated with permanent ponds, lakes, streams, or permanent pools along intermittent streams in a wide variety of habitats. It requires basking sites in the aquatic environment, grassy openings for nest sites, and nests are typically within 100 meters of a water source, although nests up to 500 meters have been recorded (Thomas et al. 2016).

Potential for Occurrence: There is a high potential for occurrence along Dry Creek and the many ponds within the property. The RPF noted individuals basking on logs along Dry Creek during the field reconnaissance.

Potential Project Impact: The potential for the project to impact this species is low. The watercourse protection measures, particularly SPR HYD-4 will ensure protection of individuals and critical habitat from damaging effects of treatments. Nest sites near the project area have the potential to be impacted if located outside of the WLPZ. SPR BIO-2 will require training for workers to identify and avoid nesting sites during treatment.

Red-Bellied Newt (*Taricha rivularis*)
Status: SSC
Habitation Requirements: The red-bellied newt ranges within Mendocino, Sonoma, Humboldt, and Lake Counties. They are predominantly found in redwood forests, along the coast, however have also been detected in Douglas-fir, tan oak, mixed conifer, valley-foothill woodland, montane woodland, hardwood-conifer and madrone forest types, particularly when near streams. The preferred aquatic breeding habitats are moderate to fast-flowing streams with rocky substrates. Breeding coincides with the receding of streams after heavy winter rains. Adults are terrestrial and the aquatic breeding phase lasts from February to May. After breeding, adults leave streams but usually stay in the same drainage; however, they are also known to travel several kilometers between breeding years. Underground retreats are used from May to October, and adults forage on the surface before and as they migrate to streams. (Thomas et al. 2016).

Potential for Occurrence: There is a moderate potential for individuals to occur within the treatment areas near ponds and class II or greater watercourses. No individuals were encountered during field reconnaissance.

Potential Project Impact: The potential for the project to impact this species is low. The watercourse protection measures, particularly SPR HYD-4 will ensure protection of individuals and critical habitat from damaging effects of treatments. Also, SPRs GEO-1, GEO-2, and GEO-3 will prevent ground disturbance during periods of soil saturation. This will protect this species during its breeding period, immediately following heavy winter rain events.

California Giant Salamander (*Dicamptodon ensatus*)
Status: SSC
Habitation Requirements: California *Dicamptodon* salamanders are year round residents of California. In 1989, these salamanders were split into two species – California giant salamander (*Dicamptodon ensatus*) occurring south of the Mendocino County line and the coastal giant

salamander (*Dicamptodon tenebrosus*) occurring in the north (Thomas et al. 2016). A hybrid zone exists approximately 6 miles north of Gualala; however outside of this area, the two species are known to be distinct (Thomas et al. 2016).
This species occurs in wet coastal forests in or near clear, cold permanent and semi-permanent streams and seepages.

Potential for Occurrence: There is a moderate potential for this species to exist within the project area. No individuals were observed during field reconnaissance.

Potential Project Impact: The potential for the project to impact this species is low. The watercourse protection measures, particularly SPR HYD-4 will ensure protection of individuals and critical habitat from damaging effects of treatments. Also, SPRs GEO-1, GEO-2, and GEO-3 will prevent ground disturbance during periods of soil saturation, when this species may wander outside the WLPZ.

Foothill Yellow-Legged Frog *(Rana boylii)*
Status: SSC; CDFW determined this species not to be special status within the coastal range.
Habitation Requirements**:** Foothill Yellow-Legged Frogs (FYLF) are associated with lower elevation streams draining the Pacific slope from west-central Oregon to northwestern Baja California. They have declined from over 50% of their historic range. Foothill yellow-legged frogs occupy a diverse range of ephemeral and permanent streams, rivers, and adjacent moist terrestrial habitats over the course of their complex life history. FYLF reproduce in the spring by depositing egg masses into glide habitats within larger watercourses (typically Class I waters). Egg masses are deposited on the down-stream side of cobble size rocks during April-May. Larval forms (tadpoles) rear in watercourses until early fall. Post-metamorphic frogs tend to stay in close proximity to their water source. Adults can migrate down the drainage network to channels that are broad and more sunlit. Seasonal variation in streamflow has a strong influence on life history and movement. Breeding and rearing typically occur in open sunny protions of class I and II watercourses which are gently flowing and low-gradient.

Potential for Occurrence: The foothill yellow legged frog is known to exist along Dry Creek within the project area. In 2018 egg masses where located along Dry Creek at the southern boundary of the project area. During field reconnaissance, this species was identified along a class I tributary to Dry Creek. There is a high potential for this species and habitat to exist along other class I and Class II watercourses.

Potential Project Impact: The potential for the project to impact this species is very low. The watercourse protection measures, particularly SPR HYD-4 will ensure protection of individuals and critical habitat from damaging effects of treatments. Also, SPRs GEO-1, GEO-2, and GEO-3 will prevent ground disturbance during periods of soil saturation, when this species may wander outside the WLPZ.

Fish

Coho salmon *(Oncorhynchus kisutch)* Central California Coast ESU
Status: State and Federally Endangered.
Habitat: Class I watercourses.

Life history: Adults return to their natal watercourses to spawn in the winter. Juveniles spend one year rearing in the freshwater environment before migrating towards the ocean. At age 3 most coho salmon return to their natal watercourses again to spawn.
Potential for Occurrence: There is no potential for occurrence within the project area. Although there are class I watercourses with fish present, these creeks flow into Lake Sonoma, which is cutoff from the ocean.

Steelhead *(Oncorhynchus mykiss)* Central California Coast DPS
Status: Federally Threatened/Species of Special Concern.
Habitat: Class I watercourses.
Life history: Adults return to their natal watercourses in the winter and spring to spawn. Juveniles spend from 1 year to their entire lives rearing in freshwater environments before migrating to the ocean.

Potential for Occurrence: There is no potential for occurrence within the project area. Although there are class I watercourses with fish present, these creeks flow into Lake Sonoma, which is cutoff from the ocean. All rainbow trout present are blocked by the dam and are thus non-anadromous.

Insects

Obscure Bumblebee (*Bombus caligninosus)*
Status: SSC
Habitat Requirements**:** The obscure bumble bee is a species of bumblebee native to the west coast of the United States, where its distribution extends from Washington through to Southern California. The workers are most often seen on Fabaceae, the legume family, while queens are most often seen on Ericaceae, the heath family, and males have been observed most often on Asteraceae, the aster family. Common plants visited by the workers include ceanothus, thistles, sweet peas, lupines, rhododendrons, Rubus, willows, and clovers.
Potential for Occurrence: There is a moderate potential for occurrence within the grasslands and oak woodland habitats. No individuals or hives were encountered during field reconnaissance. This species is non-listed. Negative impact to this species is not expected as a result of the project. Habitat creation is expected to occur due to removal of small conifer trees from oak woodlands allowing for the expansion of grasslands within the project area. Overall, the project should have a net benefit to this species, through habitat creation and conservation.

Botanical Report for the Cooley Ranch CalVTP

5/22/2023

Prepared for:

Northern Sonoma County Fire Protection District

20975 Geyserville Ave.

Geyserville, CA 95441

Prepared by:

Jacob Harrower | RPF #3070

Frontier Resource Management

Special Status Plants Within the CNDDB 9 Quad Search:

Scientific Name	Common Name	Taxon Group	Fed List	State List	Rare Plant Rank
Tracyina rostrata	beaked tracyina	Dicots	None	None	1B.2
Carex comosa	bristly sedge	Monocots	None	None	2B.1
Eriogonum cedrorum	Cedars buckwheat	Dicots	None	None	1B.3
Calochortus raichei	Cedars fairy-lantern	Monocots	None	None	1B.2
Arctostaphylos bakeri ssp. sublaevis	Cedars manzanita	Dicots	None	Rare	1B.2
Lupinus sericatus	Cobb Mountain lupine	Dicots	None	None	1B.2
Layia septentrionalis	Colusa layia	Dicots	None	None	1B.2
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	Dicots	None	None	1B.2
Allium peninsulare var. franciscanum	Franciscan onion	Monocots	None	None	1B.2
Harmonia guggolziorum	Guggolz's harmonia	Dicots	None	None	1B.1
Streptanthus glandulosus ssp. hoffmanii	Hoffman's bristly jewelflower	Dicots	None	None	1B.3
Entosthodon kochii	Koch's cord moss	Bryophytes	None	None	1B.3
Arctostaphylos manzanita ssp. elegans	Konocti manzanita	Dicots	None	None	1B.3
Usnea longissima	Methuselah's beard lichen	Lichens	None	None	4.2
Streptanthus morrisonii ssp. morrisonii	Morrison's jewelflower	Dicots	None	None	1B.2
Viburnum ellipticum	oval-leaved viburnum	Dicots	None	None	2B.3
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	Dicots	None	None	1B.1
Ceanothus confusus	Rincon Ridge ceanothus	Dicots	None	None	1B.1
Trifolium buckwestiorum	Santa Cruz clover	Dicots	None	None	1B.1
Cryptantha dissita	serpentine cryptantha	Dicots	None	None	1B.2
Kopsiopsis hookeri	small groundcone	Dicots	None	None	2B.3
Campanula californica	swamp harebell	Dicots	None	None	1B.2
Horkelia tenuiloba	thin-lobed horkelia	Dicots	None	None	1B.2
Sulcaria spiralifera	twisted horsehair lichen	Lichens	None	None	1B.2
Brasenia schreberi	watershield	Dicots	None	None	2B.3
Piperia candida	white-flowered rein orchid	Monocots	None	None	1B.2

Habitat Analysis and Project Impact Determination

Beaked tracyina *(Tracyina rostrata)*
Status: None
Habitat requirements and description: This species is recorded throughout the inner and north coast ranges of Northern California where it is native and endemic. It commonly grows on grassy slopes in oak woodland and foothill woodland ecosystems. It is an annual flowering plant.
Potential for Occurrence: This species was observed and recorded in 1998. Location is described as the confluence of Galloway and Dry Creeks, 1.1 air miles NE of White Mountain summit, approximately 8 air miles west of Cloverdale. 20 plants located on grassy slope above confluence of creeks.
Potential Project Impact: The potential for this species to be impacted by operations is very low. The recorded individuals were not located during botany surveys in May of 2023. Nevertheless, potential species will be protected via WLPZ protection measures outlined in Attachment A. Due to the habitat requirements of this species, it is anticipated that there will be a net benefit through grassland expansion and the reduction of invasive species. Burning oak woodlands will have the potential to create new grassy openings and meadows; this will create new opportunities for this species to establish. This species will be included in SPR BIO-2 trainings, which will also reduce the potential for accidental removal of individuals.

Methuselah's beard lichen (*Usnea longissimi)*
Status: None
Habitat requirements and description: This species is a pale grayish green lichen which grows abundantly along the California north coast range. Its distribution is limited despite its local abundance. It is found in coastal mixed conifer forests, mostly growing on Douglas-fir trees.
Potential for Occurrence: There is potential for Methuselah's beard lichen to occur within the Douglas-fir stands within the project area. These habitats were surveyed for this species during reconnaissance surveys, and none were located. Common witch's hair was identified throughout, which is very similar looking, but lacks the characteristic single vein phenology.
Potential Project Impact: The potential for the proposed activities to impact this species is highly unlikely. Due to the local abundance of this species, when present, and the scope of tree removal proposed (i.e. mostly suppressed trees and brush removal), the impacts would be negligible.

Cedars Buckwheat (*Eriogonum cedrorum)*
Status: None
Cedars fairy-lantern (*Calochortus raichei)*
Status: None
Cedars manzanita (*Arctostaphylos bakeri ssp. Sublaevis)*
Status: State Rare
The following analysis is for the three "cedars" plants listed above:
Habitat requirements and description: These species are only known to occur within the Cedars area near Guerneville, in Sonoma County. They require a serpentine habitat.
Potential for Occurrence: There is a low potential for occurrence within the serpentine area of the property. See map for location.
Potential Project Impact: No potential to impact these species. The serpentine area will be mapped and no treatment will occur within that area.

bristly sedge *(Carex comosa)*
Status: None
Habitat requirements and description: A perennial sedge which occurs in wetlands, lake margins, and riparian habitats. It is distinguishable by its large, cylindrical, hairy flower during the summer months.
Potential for Occurrence: There is potential for this species within the wetlands, ponds, and class II/Class I watercourses throughout the project.
Potential Project Impact: There is no potential for the project to impact the species. Watercourse and wetland protection measures will prevent damage to this species habitat. Also, sedges aren't targeted for removal due to their being a low category fuel (burning with low intensity).

Cobb Mountain lupine *(Lupinus sericatus)*
Status: None
Habitat requirements and description: A perennial flowering plant growing up to half a meter tall. Palmately leaved with 4-7 wide spoon shaped leaflets 3-5 cm long. Contains purple flower clusters. Requires full sun and is found from woodland forests to chaparral.
Potential for Occurrence: There is potential for this species to occur throughout the property, mainly within oak woodlands, and forest openings.
Potential Project Impact: The potential for the proposed activities to impact this species is highly unlikely due to the scope of vegetation removal and treatment methods prescribed. It is anticipated that habitat for this species will improve as a result of the treatments, as competing vegetation is reduced. This Species will be included in SPR BIO-2 trainings, which will reduce the potential for accidental removal of individuals.

Colusa layia *(Layia septentrionalis)*
Status: None
Habitat requirements and description: Annual flowering daisy, endemic to California. It is known to only occur north of San Francisco Bay Area from the Sutter Buttes in the central valley to east of Highway 101. Often grows in serpentine soils.
Potential for Occurrence: There is potential for occurrence in the Serpentine area of the property. See map for location.
Potential Project Impact: There is no potential for impact to this species as a result of treatment activities. The serpentine area is mapped, and no treatments will occur within that area.

Congested-headed hayfield tarplant (*Hemizonia congesta ssp. Congesta)*
Status: None
Habitat requirements and description: This species is a flowering plant approximately 10 cm tall with white daisy like flowers approximately 1 cm. It occurs most often in grassy openings or along marsh edges throughout most of California's coast range along with the northern California interior. It is restricted to < 300 ft elevations. *https://ucjeps.berkeley.edu/eflora*
Potential for Occurrence: There is no potential for this species to occur within the project area. The lowest elevation within the property is 500 ft.

Franciscan onion (*Allium peninsulare var. franciscanum)*
Status: None

Habitat requirements and description: This species occurs mostly around the San Francisco Bay Area and in central California although there are a few occurrences in northern Sonoma County. It is a perennial bulbiferous herb with purple flowers growing in valley and foothill grassland. It is often found in serpentine or volcanic soils.
Potential for Occurrence: There is potential for occurrence in the serpentine area of the property and within grassy openings.
Potential Project Impact: There is no potential for this species to be impacted by operations. The serpentine area is mapped, and no treatments will occur within that area. Furthermore, it is a geophytic species which will resprout from the bulb if disturbed. While mechanical treatment operations will occur as part of this PSA, grading will not, thus damage to any potential underground bulb is highly unlikely. Also, See GEO and HYD SPRs restricting heavy equipment use during saturated soil conditions. These protections will prevent compaction, and damage to soil resources.

Guggolz's harmonia (*Harmonia guggolziorum)*
Status: None
Habitat requirements and description: A California plant species in the Aster family, endemic to Mendocino County, discovered in 2000. It is known from two occurrences near Hopland, Ca. It grows in serpentine soils of chapparal habitat. The yellow flowers of this tarweed are small at less than 5 mm and spring forth from the many stems. The plant stands approximately 10-30 cm tall.
Potential for Occurrence: There is potential for occurrence in the serpentine area of the property. See map for location.
Potential Project Impact: There is no potential for treatment activities to impact this species. The serpentine area is mapped, and no treatments will occur within that area.

Hoffman's bristly jewelflower (*Streptanthus glandulosus ssp. Hoffmanii)*
Status: None
Habitat requirements and description: Annual herb with lavender to purple flowers approximately 7mm, alternately arranged around the main stem. Grows in serpentine soils.
Potential for Occurrence: There is potential for occurrence in the serpentine area of the property. See map for location.
Potential Project Impact: There is no potential for the project activities to impact this species. The serpentine area is mapped, and no treatments will occur within that area.

Konocti manzanita (*Arctostaphylos manzanita ssp. Elegans)*
Status: None
Habitat requirements and description: Manzanita native to Central and Northern California. Usually grows between 2000 ft – 4600 ft elevation on rocky soils.
Potential for Occurrence: No potential for occurrence. The project area's elevation is below 2,000 ft.

Morrison's jewelflower (*Streptanthus morrisonii ssp. Morrisonii)*
Status: None
Habitat requirements and description: A biennial herb with a waxy stem up to 1.5 meters, usually branching at the top. The leaves are gray-green on the upper and purple underneath. Urn-shaped flowers whiteish to yellow, with petals sticking out of the top of the urn. It occurs in serpentine soils within foothill woodlands and chaparral habitats.

Potential for Occurrence: There is a moderate potential for this species to occur within the serpentine area. The closest known occurrence is over 9 miles south of the project area.
Potential Project Impact: There is no potential for this species to be impacted by operations. Operations will not occur within the serpentine area.

Oval-leaved viburnum (*Viburnum ellipticum)*
Status: None
Habitat requirements and description: A shrub occurring throughout California to Washington along the west coast in mountain chaparral habitat. Deciduous oval leaves 2-6 cm long, which is longitudinally veined along with a shallow tooth margin. Inflorescence is made up of many 6-8 mm wide white flowers grouped together.
Potential for Occurrence: There is a low potential for this species to occur, mainly within the chaparral ecosystems. The closest known occurrence is over 9 miles north of the project area.
Potential Project Impact: The potential for this species to be impacted by operations is very low, mainly within the mechanical treatment areas. Due to the habitat requirements of this species, it is anticipated that there will be a net benefit through increased sunlight reaching shaded out mixed conifer understory.

Raiche's manzanita (*Arctostaphylos stanfordiana ssp. Raichei)*
Status: None
Habitat requirements and description: Highly abundant Manzanita native to California. Prefers openings in yellow pine forest or chaparral.
Potential for Occurrence: There is a moderate potential for this species to occur within oak woodland and chaparral areas.
Potential Project Impact: Very low. Due to the abundance of this species throughout California and its affinity to prefer openings, it is unlikely that this species will be impacted negatively. Group openings which are already present will be treated very minimally, if at all. New openings will likely be created, which will expand this species' potential habitat and reduce competition from invasives.

Rincon Ridge ceanothus (*Ceanothus confuses)*
Status: None
Habitat requirements and description: Shrub in the buckhorn family, endemic to northern California. Its habitat is conifer forests and chaparral. Usually, a mat shrub about 1 meter wide. Leaves are oppositely arranged, oval, toothed, and approximately 2 cm long. Has blue to purple flowers. This species can be identified while not in bloom, due to it's unique growth pattern and leaves.
Potential for Occurrence: There is a moderate potential for this species to occur within oak woodland and chaparral areas.
Potential Project Impact: There is a potential for disturbance of this species, due to its tendency to grow along the surface of the ground. The long-term effect of the proposed treatments should see an increased abundance of habitat creation. This species readily colonizes openings in chaparral and will likely experience an opportunity to increase occupation. Impacts to this species can be avoided with the inclusion of SPR BIO-2 training for workers to identify it, since it can be accurately identified while not in bloom.

Santa Cruz clover (*Trifolium buckwestiorum)*
Status: None
Habitat requirements and description: An annual herb thriving in prairies and edge habitats. It occurs most often in coastal prairie habitats. Known from less than 10 occurrences in Santa Cruz, Sonoma, and Mendocino counties.
Potential for Occurrence: There is a moderate potential for this species to occur along the edges of grassy openings throughout the project area.
Potential Project Impact: There is potential for impact due to disturbance from mechanical treatments.

Serpentine cryptantha (*Cryptantha dissita)*
Status: None
Habitat requirements and description: Serpentine endemic. Annual flower with fiddleneck yellow flowers.
Potential for Occurrence: There is potential for occurrence in the serpentine area of the property. See map for location.
Potential Project Impact: No potential impact with the inclusion of avoidance mitigation. The serpentine area is mapped, and no treatments will occur within that area.

Small groundcone (*Kopsiopsis hookeri)*
Status: None
Habitat requirements and description: Occurs in the Redwood forest type. A perennial flower which appears like a large pinecone sitting upright on the forest floor.
Potential for Occurrence: There is potential for occurrence throughout the Redwood forest stands within the project area. The closest documented occurrence is 9 miles NE of the project area.
Potential Project Impact: There is potential for disturbance if these species are within a mechanical treatment areas. Overall, this species is relatively abundant and a significant impact to the species is unlikely.

Swamp harebell *(Campanula californica)*
Status: None
Habitat requirements and description: Endemic to California, growing along the coastline between Marin and Mendocino Counties. Found in wet areas.
Potential for Occurrence: There is a low potential for this species to occur within the wetlands, ponds, and class II/Class I watercourses throughout the project.
Potential Project Impact: There is no potential for this species to be impacted by treatment activities with the listed SPRs and mitigations. Watercourse and wetland protection measures will prevent damage to this species and its habitat.

Thin-lobed horkelia (*Horkelia tenuiloba)*
Status: None
Habitat requirements and description: Flowering plant in the rose family endemic to California, known to occur in the coastal hills north of San Francisco. Grows in chaparral habitat and prefers openings.
Potential for Occurrence: There is a moderate potential for this species to occur within grassy openings in chaparral areas. The closest known occurrence is 8 miles SW of the project boundary.

Potential Project Impact: The potential for this species to be impacted by operations is very low. Due to the habitat requirements of this species, it is anticipated that there will be a net benefit through grassland expansion. Burning oak woodlands will have the potential to create new grassy openings and meadows; this will create new opportunities for this species to establish, while removing competing invasives.

White-flowered rein orchid *(Piperia candida)*
Status: None
Habitat requirements and description: Orchid native to western North America form Alaska to San Francisco Bay Area. Found in coniferous forests, oak woodland forests, and serpentine soils. Grows erect to half a meter and produce a spikelike inflorescence of many honey scented flowers.
Potential for Occurrence: There is a moderate potential for this species to occur within mixed conifer forest and oak woodland forest types.
Potential Project Impact: The potential for this species to be impacted by operations is very low. Due to the habitat requirements of this species, it is anticipated that there will be a net benefit through increased sunlight reaching shaded out mixed conifer understory. This species will be included in SPR BIO-2 trainings, which will reduce the potential for accidental removal of individuals.

Survey Methods

Many of the above listed plant species require a serpentine soil type to occur. Some are only found in the serpentine canyon of the Cedars area in Sonoma County. The Cedar's manzanita (which is known to occur on serpentine soils) was the only CESA or ESA listed species known to occur within the 9-quads queried. Soils data from the USGS Web Soil Survey was analyzed, along with a reconnaissance survey, to narrow the list of target species. There is one area within the Cooley Ranch with serpentine soils, which will be excluded from treatment activities. See Attachment C maps for location. As a result, serpentine endemic species were not included on the target list for the botanical survey.

Species were ruled out for consideration if their required habitat was not present, or it was determined that impact could clearly be avoided during operations. See individual species impact determinations above. A majority of the project area will be treated under the ecological restoration treatment type. As stated in the PEIR, Biological Resources section 3.6 Pg 133,

> *"In the ecological restoration treatment type, the objective is to restore degraded, damaged, or destroyed ecosystems and habitats in fire-adapted vegetation types by returning them to their natural fire regime and returning vegetation in Condition Classes 2 and 3 to Condition Class 1[1]. This would benefit special-status plants associated with these habitats in the long-term by restoring the historic vegetation composition, structure, and habitat values and function under which these species evolved. Removal of overgrown shrubs and thinning tree canopies could benefit special-status plant populations in the short term by allowing more light to reach them*

and by removing competition for water, light, and nutrients; however, removal of overstory vegetation could alter microhabitat conditions in a way that is detrimental to special-status plant species in the short term if they are adapted to growing in shade or if the loss of overstory vegetation results in adverse changes in soil moisture, or destabilizes soil resulting in erosion that limits sensitive plant establishment and growth or washes away sensitive plants or their seeds and propagules with eroding soil."

Prescribed fire will be the treatment method utilized within these areas, which will improve habitat for all of the species on the list. Mechanical treatments will occur along existing roads, near structures, and within some proposed shaded fuel breaks. The mechanical treatment areas along with the shaded fuels breaks have a potential to negatively impact the target specie. As a result, the SPR BIO-7 botanical survey will only focus on surveying these areas.

Two seasonally specific surveys have been conducted within the shaded fuel breaks and mechanical treatment areas. An early season survey between February and March and a mid-season survey between April and June. These covered all blooming periods for the target species listed below. During surveys the RPF traversed all mechanical treatment and shaded fuel break areas and identified all species encountered. When an unknown species was confronted, the surveyor took pictures and/or illustrations to key the individual when in the office.

Botany Survey Target Species

Scientific Name	Common Name	Fed List	Cal List	G Rank	S Rank	Bloom Period
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	None	None	G3T2	S2	Feb-Apr
Streptanthus glandulosus ssp. hoffmanii	Hoffman's bristly jewelflower	None	None	G4T2	S2	Mar-Jul
Lupinus sericatus	Cobb Mountain lupine	None	None	G2?	S2?	Apr-May
Ceanothus confusus	Rincon Ridge ceanothus	None	None	G1	S1	Feb-July
Lupinus sericatus	Cobb Mountain lupine	None	None	G2?	S2?	Apr-May
Tracyina rostrata	beaked tracyina	None	None	G2	S2	May-Jun
Trifolium buckwestiorum	Santa Cruz clover	None	None	G2	S2	Apr-Oct
Kopsiopsis hookeri	Small groundcone	None	None	G4?	S1S2	Apr-Aug
Horkelia tenuiloba	Thin-lobed horkelia	None	None	G2	S2	May-Jul
Piperia candida	White-flowered rein orchid	None	None	G3	S3	May-Sep

Survey Results

No listed or non-listed species were located during the botany surveys. An early season survey was conducted between March 13th – 17th , 2023 and a mid-season survey was conducted between May 15th – 18th, 2023. During these surveys the mechanical treatment areas/ shaded fuel breaks were traversed, covering approximately 90% of the total area.

There was one recorded occurrence of beaked tracyina located at the confluence of Dry Creek and Galloway Creek. This area was surveyed extensively, but no individuals were relocated. Despite this, the area will be protected by the WLPZ protection measures outlined by the SPRs. These measures will prevent impact to this species if it does exist within the mapped location. See Attachment A. During the surveys, the following species were identified.

Identified Species

Pacific madrone *(Arbutus menziesii)*

California bay *(Umbellularia californica)*

Toyon *(Heteromeles arbutifolia)*

California coffeeberry *(Frangula californica)*

Large leather-root *(Hoita macrostachya)*

Leather oak *(Quercus durata)*

Pointleaf manzanita *(Arctostaphylos pungens)*

Yerba santa *(Eriodictyon californicaum)*

Sweetshrub *(Calycanthus occidentalis)*

Douglas-fir *(Pseudotsuga menziesii)*

Coast live oak *(Quercus angustifolia)*

Valley oak *(Quercus lobata)*

California black oak *(Quercus kelloggii)*

Oregon white oak *(Quercus garryana)*

Ranger buttons *(Sphenosciadium capitellatum)*

Northern maidenhair *(Adiantum pedatum)*

Timothy grass *(Phleum pratense)*

Pinemat manzanita *(Arctostaphylos nevadensis)*

Spanish broom *(Spartium junceum)*

Coastal wood fern *(Dryopteris arguta)*

Yarrow *(Achillea millefolium)*

Deer brush *(Ceanothus integerrimus)*

Serviceberry *(Amelanchier alnifolia)*

California buckeye *(Aesculus californica)*

Big berry manzanita *(Arctostaphylos glauca)*

Blackwood acacia *(Acacia melanoxylon)*

Eastwoods manzanita *(Arctostaphylos glandulosa)*

Yellow monkeyflower *(Mimulus guttatus)*

Coyote mint *(Monardella villosa)*

French broom *(Genista monspessulana)*

Beaked hazelnut *(Corylus cornuta)*

Coastal Woodfern *(Dryopteris arguta)*

Douglas iris *(Iris douglasiana)*

Bigleaf maple (*Acer macrophyllum)*

Drops of gold *(Prosartes hookeri)*

Dwarf rose *(Rosa gymnocarpa)*

Redwood insideout flower *(Vancouveria planipetala)*

Creambush *(Holodiscus discolor)*

St john's wort *(Hypericum perforatum)*

Stinkwort *(Dittrichia graveolens)*

Mugwort *(Artemisia Douglasii)*

White sweetclover *(Melilotus albus)*

Narrowleaf willow *(Salix exigua)*

Twiggy mullein *(Verbascum virgatum)*

Mule fat *(Baccharis salicifolia)*

White alder *(Alnus rhombifolia)*

Large-flower primrose-willow *(Ludwigia grandiflora)*

River bulrush *(Bolboschoenus fluviatilis)*

Water speedwell *(Veronica anagallis-aquatica)*

Blazing star *(Mentzelia laevicaulis)*

Common chicory *(Cichorium intybus)*

Southern catalpa *(Catalpa bignonioides)*

Pennyroyal *(Mentha pulegium)*

Wild carrot *(Daucus carota)*

Hayfield tarweed *(Hemizonia congesta)*

Crested wheatgrass *(Agropyron cristatum)*

Blue oak *(Quercus douglasii)*

Poison hemlock *(Conium maculatum)*

California buckwheat *(Eriogonum fasciculatum)*

Black cottonwood *(Populus balsamifera ssp. Trichocarpa)*

Miner's lettuce (*Claytonia perfoliate)*

Bur Chervil (*Anthriscus caucalis)*

Western buttercup (*Ranunculus occidentalis)*

Chickweed (*Stellaria media)*

Chilean tarweed (*Madia sativa)*

Tolmie star-tulip (*Calchortus tolmiei)*

California poppy *(Eschscholzia californica)*