

Table Bluff Ecological Reserve

Coastal Prairie Restoration Project

Biological Report

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1. Summary

Table Bluff Ecological Reserve (Reserve) is a highly biodiverse site that supports Federally and State Endangered western lily (*Lilium occidentale*), Sensitive Natural Communities (SNCs), and many Special-Status Species. The Table Bluff Ecological Reserve Coastal Prairie Restoration Project's (Project) purpose is to restore native coastal prairie to benefit western lily, which occurs onsite, and the overall ecological and cultural value of the Reserve. Western lily is associated with early successional coastal prairie and low scrub vegetation communities, which also support high native biodiversity with many species of cultural importance to the Wiyot Tribe. The Wiyot people have lived and managed natural resources in the vicinity of the Eel River estuary and Humboldt Bay for thousands of years, and the Reserve supports a high diversity of culturally significant plants to the Wiyot people. Woody vegetation encroachment from native Sitka spruce (*Picea sitchensis*) as well as other native and non-native trees and shrubs is a threat to the long-term viability of the western lily population and the biodiverse, sensitive native coastal prairie vegetation community. The Project includes low-disturbance methods to remove native Sitka spruce as well as non-native trees from the reserve. Prescribed fire, grazing, manual invasive plant removal, and restoration planting will also be used to improve habitat value for western lily and many ecologically and culturally important native coastal prairie species. Recent surveys conducted in the Project Area have included Special Status Native Plant Populations and SNC Surveys (CDFW 2018), biological reconnaissance, vegetation mapping, and a western lily population inventory. Potential effects on special status species and habitats that occur or have the potential to occur on the Reserve are evaluated in this report.

2. Introduction

2.1 Project Description

Goals of the Project are to enhance the reproductive population of western lily at the Reserve, restore native coastal prairie, enhance culturally significant plant populations, and implement long-term science-based management planning to restore and maintain the ecological and cultural value of the Reserve. Sitka spruce and other woody vegetation have encroached into coastal prairie and early successional scrub over the past century. Restoration to enhance the western lily population within a protective fenced enclosure around the main population and at an experimental propagation site will closely follow recommendations based on previous studies, including an analysis optimizing spruce removal for the benefit of western lily (Imper and Som 2012). However, many questions remain about how to best restore and maintain early successional habitats that support western lily, culturally significant plants, and the coastal prairie herbaceous vegetation type. An experimental coastal prairie restoration pilot project is proposed on the Reserve to determine the most effective methods of restoring habitat for western lily, native coastal prairie vegetation, and plants of cultural significance to the Wiyot Tribe. Restoration and maintenance actions to be tested in the pilot project will include prescribed burning, seasonal grazing, fence installation, manual invasive plant and woody vegetation control, seed collection, native plant propagation, and planting onsite. Results of the experimental pilot project will inform restoration and maintenance of the remaining approximately 100 acres of former pasture and an updated long term management plan. Project planning and restoration monitoring will be led by California Department of Fish and Wildlife (CDFW) staff. The Mattole Restoration Council, a local non-profit 501c(3) with over 15 years of experience in coastal prairie restoration, and 40 years of implementing watershed restoration projects, will be the administrative grantee and provide project management, and restoration planting services. The Wiyot Tribe will also be a key partner in providing native plant nursery services, interpretation, and ethnobotanical research to inform the project.

2.2 Location

As a prominent landform dividing the fertile Eel River Valley from Humboldt Bay, Table Bluff is a central location for the Wiyot, and the home of the Wiyot Tribe's Table Bluff Reservation (Rohde 2014) (Figure 1). Table Bluff was also among the earliest sites in Humboldt County to be developed by settlers for agriculture, as an early hub for travel, and later as the site of a large lighthouse and Coast Guard facility (Rohde 2014). Beginning with some of the first settlers in the 1800s, much of the Table Bluff coastal terrace was tilled and farmed for potatoes and other crops or grazed (Rohde 2014). The site was planted with non-native trees for windbreaks including blue gum (*Eucalyptus globulus*) and Monterey cypress (*Hesperocyparis macrocarpa*). Despite the long and persistent history of alteration, the Reserve supports one of the largest populations of western lily, high biodiversity, and a remarkable concentration of culturally significant plants for the Wiyot. The Reserve was purchased by CDFW as part of the Eel River Wildlife Area Ocean Ranch Coastal Wetlands for wetland maintenance and habitat protection in 1986. The approximately 160-acre Reserve currently includes an approximately 6-acre

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protective fenced enclosure around the western lily population, approximately 100 acres of formerly grazed pasture and scrub habitat, approximately 60 acres of native Sitka spruce forest, and smaller stands of non-native trees. Management and monitoring at the Reserve has primarily focused on enhancing habitat for the western lily population within the fenced enclosure and propagation at an expansion site in similar edge habitat on the northeast side of the Reserve. Surrounding lands include privately owned pastureland as well as natural areas with public access. The adjacent Ocean Ranch Unit of the Eel River Wildlife Area, the Waluph Lighthouse Ranch, and the South Spit of Humboldt Bay, which encompass an ecologically important, diverse mosaic of dunes, bluff scrub, salt marsh, freshwater marsh, riparian forest, North Coast coniferous forest, and grasslands primarily managed to benefit fish and wildlife resources and recreational use by the public with some seasonal grazing.

2.3 Regulatory Background

This Biological Report and associated surveys were completed in support of a Coastal Development Permit within the Appeal Zone jurisdiction of Humboldt County, as well as providing valuable pre-Project baseline data. The Project is consistent with restoration and maintenance activities as prescribed by the Table Bluff Management Plan (1989) and recommendations from U.S. Fish and Wildlife Service reports and Recovery Plan (USFWS 1998). The Project is Categorical Exempt from the California Environmental Quality Act (CEQA) under Class 4, 15304(d), "Minor alterations in land, water, and vegetation on existing officially designated wildlife management areas or fish production facilities which result in improvement of habitat for fish and wildlife resources or greater fish production." The Project is designed to have an overall positive effect on sensitive biological resources, particularly Endangered western lily.

3. Methods

3.1 Biological Scoping Methods

Biological Scoping evaluates the potential for special status species to occur within the area that may be affected by the Project. The Biological Scoping analysis informs what biological surveys may be necessary and informs the potential effect of the Project on biological resources. A list of potentially occurring special-status species was compiled by querying digital databases and previous records from the Table Bluff Ecological Reserve. The California Native Diversity DataBase (CNDDDB) and the California Native Plant Society (CNPS) Rare Plant Inventory were queried on March 27, 2023 using the nine-quad area centered on the Project within the Cannibal Island 24K Quad, which included data from the surrounding quads of Eureka, Fields Landing, Fortuna, and Ferndale. Local eBird observations (eBird 2023) were also consulted. The Table Bluff Ecological Reserve Management Plan (1989) species lists (Appendix A and B) provided records of previous species observations and potential habitat on the reserve. The compiled lists of potentially occurring special status fauna (Table 1) and flora (Table 2) have been evaluated to determine the potential for these species to occur. All potentially occurring species are further analyzed according to their habitat and life history requirements to

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determine the potential for these species to be affected by the Project (see Section 4.1 and Appendix A).

3.2 Biological Reconnaissance Methods

CDFW staff conducted reconnaissance-level site visits to evaluate potential wildlife habitat and compile a list of species observations in the vicinity of the western lily enclosure on August 10, 2022, and throughout the Reserve on May 3, 2023. An additional focused survey for bumble bees was conducted on July 29, 2022, using non-lethal capture and photography methods described in California Bumble Bee Atlas Point Surveys protocol. Surveyors on August 10, 2022, included CDFW Senior Environmental Scientist James Ray, Senior Environmental Scientist Michael van Hattem, and Environmental Scientist Kelsey McDonald, who also conducted the bumble bee survey earlier in July. CDFW Environmental Scientist Katie Rian led wildlife reconnaissance efforts and recorded an eBird checklist during the May 3, 2023, site visit.

3.3 Vegetation Mapping Methods

Vegetation was sampled, classified, and mapped in 2022-2023 to evaluate the current extent, characteristics, and habitat quality provided by vegetation communities on the Reserve. Sensitive Natural Communities (SNCs) are defined as Alliances and Associations with a State Rank of S1-S3 and may also include more broadly classified sensitive terrestrial natural communities as mapped in CNDDDB according to Holland (1986). Vegetation sampling and classification was informed by previous vegetation mapping by Dave Imper and John Sawyer in 1987 (Imper et al. 1989) and updated to reflect current CDFW and CNPS vegetation mapping methods. Vegetation was classified and mapped at the Alliance and Association levels according to *A Manual of California Vegetation Online* (CNPS 2023) and communications with CNPS and CDFW staff involved in data collection to inform the development of a key for the North Coast Ecoregion (CNPS personal communication, May 5, 2023). Vegetation sampling to inform classification followed *CDFW-CNPS Protocol for the Combined Vegetation Rapid Assessment and Relevé Field Form* (CDFW-CNPS 2023). Surveyors included CNPS Vegetation Team staff Claudia Voigt, Dominic DiPaolo, and Kelsey Guest; CNPS Contractors Annie Eicher and Kevin Landaw; CDFW staff Kelsey McDonald, Katie Rian, Erika Winner, and Nicholas Van Vleet; and Wiyot Tribe Natural Resources Director Adam Canter. For this project, the Minimum Mapping Unit was defined as ~0.1 acres, and a discontinuity of 15 meters or more in intermittent stand-defining vegetation was deemed sufficient to separate adjacent polygons. Although hydrophytic vegetation occurs onsite, a wetland delineation was not deemed necessary or appropriate for the Project, which will not negatively affect wetlands and aims to enhance the habitat quality of vegetation types that primarily occur on a mesic to seasonally wet gradient.

3.4 Botanical Survey Methods

Botanical surveys were conducted according to *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018) in summer 2022 through spring 2023. Botanical surveys were conducted by CDFW Environmental Scientist Kelsey McDonald at seasonally appropriate times throughout the blooming periods for

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potentially occurring special status plants on 6/3/2022, 6/14/2022, 6/29/2022, 7/10/2022, 3/1/2023, 4/20/2023, 4/26/2023, and 5/3/2023. Kelsey McDonald is a CNPS Certified Consulting Botanist and Certified Ecological Restoration Practitioner with approximately eight years of experience conducting floristic special status plant surveys. Kelsey McDonald has an M.S. in Environmental Science from CalPoly Humboldt, where she conducted her thesis research and other studies on invasive plant ecology. Botanical surveys consisted of walking all potentially affected habitats on the Reserve and compiling a floristic inventory of all species observed using updated Jepson nomenclature (The Jepson Flora Project, 2023) (See Appendix B). Special status plants includes plants listed or Candidates for listing under State or Federal Endangered Species Acts, listed as Rare under the Native Plant Protection Act, rare plants tracked by CNDDDB with a California Rare Plant Rank (CRPR) of 1 or 2, plants that warrant consideration such as those with CRPR of 3 or 4, and locally significant plants (CDFW 2018).

3.2 Western Lily Inventory and Mapping Methods

A complete western lily inventory on the Reserve was conducted in 2022. Retired USFWS Botanist Dave Imper, USFWS Botanist Laurel Goldsmith, and CDFW Environmental Scientist Kelsey McDonald inventoried the propagation sites on the eastern side of the Reserve on June 16. Laurel Goldsmith and Kelsey McDonald inventoried the main western lily population in the enclosure on June 23-24. Kelsey McDonald conducted an additional follow-up visit to the propagation sites on July 25 to document late-blooming plants. The inventory followed previously established USFWS methods, which entailed doing a systematic walking search of known population areas for all reproductive and vegetative plants. Once a reproductive plant was located, a one-meter radius surrounding the plant was thoroughly searched by peering under surrounding vegetation to count smaller vegetative and juvenile (one-leaf) plants that are often clustered around the reproductive parent plant. To ensure an accurate count within the main population, the enclosure area was divided into sections for individual surveyors to cover using string running approximately west to east. The number of plants was recorded within each life stage, and clusters of plants were marked by GPS to create a map showing the approximate locations, reproductive status, and varying densities of western lily.

4. Results

4.1 Biological Scoping

Consulting the CNDDDB and CNPS databases revealed 56 special status animals (Table 1) and 48 special status plants (Table 2) recorded in the nine-quad area. Out of these species, 26 special status animals have the potential to occur or are known to occur in habitat on the Reserve, with 20 of these species confirmed and documented onsite. Analysis of the life history and habitat needs of potentially occurring special status animals and their potential to be affected by the project can be found in Section 4.1.1. Out of the special status plant species that have been documented in the nine-quad area, 30 plants have potential habitat represented on the Reserve, but were not detected during seasonally appropriate botanical surveys following CDFW protocol (2018). Two special status plant species are confirmed to occur on the Reserve, including western lily. Analysis of the life history and habitat needs of potentially occurring

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special status plants and their potential to be affected by the project can be found in Attachment A. Three sensitive vegetation communities were recorded in the vicinity in CNDDDB, and two of these occur onsite—Coastal Terrace Prairie and Sitka Spruce Forest (Table 3). Further information on vegetation communities and potential impacts to SNCs can be found in Section 4.3 Vegetation Mapping.

Table 1. Potentially Occurring Special Status Animals Scoping Table

	Scientific Name	Common Name	FESA	CESA	CDFW	Habitat/Life history	Potential to Occur	Potential Impact
Amphibians & Reptiles	<i>Ascaphus truei</i>	Pacific tailed frog	None	None	SSC	Shaded, cool perennial streams	No Potential Habitat	No impact
	<i>Rana aurora</i>	northern red-legged frog	None	None	SSC	Perennial or seasonal wetlands, ponds, and streams	Yes/Present	Temporary disturbance
	<i>Rana boylei pop. 1</i>	foothill yellow-legged frog - north coast DPS	None	None	SSC	Perennial streams and rivers	No Potential Habitat	No impact
	<i>Emys marmorata</i>	western pond turtle	None	None	SSC	Associated with permanent or nearly permanent water	Unlikely	No impact
Mammals	<i>Antrozous pallidus</i>	pallid bat	None	None	SSC	Occurs in a wide variety of lowland habitats	Potential Habitat	Temporary disturbance
	<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	None	SSC	Requires large caves or structures for roosting	No Potential Habitat	No impact
	<i>Lasiurus cinereus</i>	hoary bat	None	None	-	Roosts in trees in a wide variety of forest and woodland habitats	Yes/Present	Temporary disturbance
	<i>Arborimus pomo</i>	Sonoma tree vole	None	None	SSC	Specialist on needles of Douglas fir and grand fir, found in coniferous forests with these species within the coastal fog belt	Unlikely	No impact

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	Scientific Name	Common Name	FESA	CESA	CDFW	Habitat/Life history	Potential to Occur	Potential Impact
	<i>Enhydra lutris nereis</i>	southern sea otter	Threatened	None	FP	Outside typical range, found in nearshore marine environments from Ano Nuevo south in CA	No Potential Habitat	No impact
	<i>Taxidea taxus</i>	American badger	None	None	SSC	Creates burrows in open habitats with friable soil	Potential Habitat	No impact
Birds	<i>Accipiter cooperii</i>	Coopers hawk	None	None	WL	Dense forest stands	Yes/Present	Temporary disturbance
	<i>Accipiter striatus</i>	sharp-shinned hawk	None	None	WL	Dense forest stands	Yes/Present	Temporary disturbance
	<i>Agelaius tricolor</i>	tricolored blackbird	None	Threatened	SSC	Dense emergent vegetation or scrub in perennial freshwater wetlands	Unlikely	No impact
	<i>Ammodramus savannarum</i>	grasshopper sparrow	None	None	SSC	Tall grasslands	Yes/Present	Temporary disturbance
	<i>Ardea alba</i>	great egret	None	None	-	Rookeries often in forest stands or dense scrub adjacent to water	Yes/Present	Temporary disturbance
	<i>Ardea herodias</i>	great blue heron	None	None	-	Rookeries or nest sites typically in trees adjacent to water	Yes/Present	Temporary disturbance
	<i>Asio flammeus</i>	short-eared owl	None	None	SSC	Outside of breeding range, seasonally present in wetland and grassland habitats	Potential Habitat	Temporary disturbance

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	Scientific Name	Common Name	FESA	CESA	CDFW	Habitat/Life history	Potential to Occur	Potential Impact
	<i>Brachyramphus marmoratus</i>	marbled murrelet	Threatened	Endangered	-	Old growth or large trees with large horizontal branches within mature coniferous forest	No Potential Habitat	No impact
	<i>Chaetura vauxi</i>	Vauxs swift	None	None	SSC	Nests in hollow trees, snags or other structures, often associated with coniferous forest	Yes/Present	Temporary disturbance
	<i>Charadrius montanus</i>	mountain plover	None	None	SSC	Outside typical range, associated with dry grasslands and deserts, breeds in Great Plains	No Potential Habitat	No impact
	<i>Charadrius nivosus nivosus</i>	western snowy plover	Threatened	None	SSC	Coastal dunes or river bars	No Potential Habitat	No impact
	<i>Circus hudsonius</i>	northern harrier	None	None	SSC	Grassland, wetland, and agricultural land	Yes/Present	Temporary disturbance
	<i>Coccyzus americanus occidentalis</i>	western yellow-billed cuckoo	Threatened	Endangered	-	Extensive riparian forests and scrub with dense cover	No Potential Habitat	No impact
	<i>Coturnicops noveboracensis</i>	yellow rail	None	None	SSC	Marsh with dense cover	No Potential Habitat	No impact
	<i>Elanus leucurus</i>	white-tailed kite	None	None	FP	Nest in individual trees or forest stands adjacent to open grasslands, wetlands, or agricultural land	Yes/Present	Temporary disturbance

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	Scientific Name	Common Name	FESA	CESA	CDFW	Habitat/Life history	Potential to Occur	Potential Impact
	<i>Empidonax traillii</i>	willow flycatcher	None	Endangered	-	Associated with dense willow thickets near water and riparian habitat	Potential Habitat	No impact
	<i>Falco columbarius</i>	merlin	None	None	WL	Associated with forest and prairie habitat	Yes/Present	Temporary disturbance
	<i>Falco peregrinus anatum</i>	American peregrine falcon	Delisted	Delisted	FP	Nests in cliffs in a broad array of habitats	Yes/Present	Temporary disturbance
	<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	Endangered	FP	Nests in forested areas adjacent to fish-bearing waters	Yes/Present	Temporary disturbance
	<i>Icteria virens</i>	yellow-breasted chat	None	None	SSC	Nests in dense shrubby riparian habitats, locally typically found in riparian areas surrounding large rivers and creeks	Unlikely	No impact
	<i>Nannopterum auritum</i>	double-crested cormorant	None	None	WL	Nests and roosts in exposed areas adjacent to the coastline and large bodies of water, typically in large colonies	Yes/Present	No impact
	<i>Pandion haliaetus</i>	osprey	None	None	WL	Builds large stick nests in habitat adjacent to fish bearing waters	Yes/Present	Temporary disturbance
	<i>Passerculus sandwichensis alaudinus</i>	Bryants savannah sparrow	None	None	SSC	Nests in open habitats including pastures and meadows, typically with dense ground vegetation	Yes/Present	Temporary disturbance

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	Scientific Name	Common Name	FESA	CESA	CDFW	Habitat/Life history	Potential to Occur	Potential Impact
	<i>Pelecanus occidentalis californicus</i>	California brown pelican	Delisted	Delisted	FP	Outside of breeding range, roosts and loafs on immediate coast and islands	No Potential Habitat	No impact
	<i>Poecile atricapillus</i>	black-capped chickadee	None	None	WL	Outside of typical breeding range, occasional visitor to southern Humboldt County	Potential Habitat	No impact
	<i>Progne subis</i>	purple martin	None	None	SSC	Nests in cavities such as abandoned woodpecker holes, typically in forested or woodland habitat along the coast	Yes/Present	Temporary disturbance
	<i>Rallus obsoletus obsoletus</i>	California Ridgways rail	Endangered	Endangered	FP	Marsh with dense cover	No Potential Habitat	No impact
	<i>Riparia riparia</i>	bank swallow	None	Threatened	-	Sandy banks or exposed bluffs above rivers or large streams	No Potential Habitat	No impact
	<i>Setophaga petechia</i>	yellow warbler	None	None	SSC	Nests in wet, deciduous thickets, especially willow patches near water	Yes/Present	Temporary disturbance
	<i>Sphyrapicus ruber</i>	red-breasted sapsucker	None	None	-	Nests in coniferous and riparian forests	Yes/Present	Temporary disturbance
	<i>Strix occidentalis caurina</i>	Northern Spotted Owl	Threatened	Threatened	-	Contiguous coniferous forest	No Potential Habitat	No impact

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	Scientific Name	Common Name	FESA	CESA	CDFW	Habitat/Life history	Potential to Occur	Potential Impact
Insects	<i>Bombus caliginosus</i>	obscure bumble bee	None	None	-	May nest above or below ground in coastal prairies, meadows, and shrublands along the coast	Yes/Present	Temporary disturbance
	<i>Bombus occidentalis</i>	western bumble bee	None	Candidate Endangered	-	Typically nest underground in open habitats, including coastal prairie and shrublands	Potential Habitat	Temporary disturbance
Fish	<i>Acipenser medirostris pop. 1</i>	green sturgeon - southern DPS	Threatened	None	-	Marine and estuarine waters	No Potential Habitat	No impact
	<i>Acipenser medirostris pop. 2</i>	green sturgeon - northern DPS	None	None	SSC	Marine and estuarine waters	No Potential Habitat	No impact
	<i>Acipenser transmontanus</i>	white sturgeon	None	None	SSC	Marine and estuarine waters	No Potential Habitat	No impact
	<i>Entosphenus tridentatus</i>	Pacific lamprey	None	None	SSC	Marine, estuarine, and freshwater habitats	No Potential Habitat	No impact
	<i>Eucyclogobius newberryi</i>	tidewater goby	Endangered	None	-	Tidal, saline, or brackish waters	No Potential Habitat	No impact
	<i>Lampetra richardsoni</i>	western brook lamprey	None	None	SSC	Freshwater streams	No Potential Habitat	No impact
	<i>Oncorhynchus clarkii clarkii</i>	coast cutthroat trout	None	None	SSC	Marine, estuarine, and freshwater habitats	No Potential Habitat	No impact

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	Scientific Name	Common Name	FESA	CESA	CDFW	Habitat/Life history	Potential to Occur	Potential Impact
	<i>Oncorhynchus kisutch</i> <i>pop. 2</i>	coho salmon - southern Oregon / northern California ESU	Threatened	Threatened	-	Marine, estuarine, and freshwater habitats	No Potential Habitat	No impact
	<i>Oncorhynchus mykiss irideus</i> <i>pop. 48</i>	steelhead - northern California DPS summer-run	Threatened	Endangered	-	Marine, estuarine, and freshwater habitats	No Potential Habitat	No impact
	<i>Oncorhynchus mykiss irideus</i> <i>pop. 49</i>	steelhead - northern California DPS winter-run	Threatened	None	-	Marine, estuarine, and freshwater habitats	No Potential Habitat	No impact
	<i>Oncorhynchus tshawytscha</i> <i>pop. 17</i>	chinook salmon - California coastal ESU	Threatened	None	-	Marine, estuarine, and freshwater habitats	No Potential Habitat	No impact
	<i>Spirinchus thaleichthys</i>	longfin smelt	Candidate	Threatened	-	Marine and estuarine waters	No Potential Habitat	No impact
	<i>Thaleichthys pacificus</i>	eulachon	Threatened	None	-	Marine, estuarine, and freshwater habitats	No Potential Habitat	No impact

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Table 2. Potentially Occurring Special-Status Plants Scoping Table

Type	Scientific Name	Common Name	FESA	CESA	Blooming Period	CRPR	Habitat/ Life history	Potential to Occur	Potential Impact
Vascular Plants	<i>Abronia umbellata</i> var. <i>breviflora</i>	pink sand-verbena	None	None	-	1B.1	Coastal dunes	No Potential Habitat	No Impact
	<i>Angelica lucida</i>	sea-watch	None	None	Apr-Sep	4.2	Coastal scrub, dunes, and marshes	Present in Coastal Prairie and Scrub Habitat	Habitat improvement and expansion, temporary disturbance
	<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	coastal marsh milk-vetch	None	None	-	1B.2	Coastal saltmarsh, mesic dunes, and coastal scrub	No Potential Habitat	No Impact
	<i>Carex arcta</i>	northern clustered sedge	None	None	Jun-Sep	2B.2	Bogs or fens within coniferous forest	Potential Habitat	No Impact
	<i>Carex leptalea</i>	bristle-stalked sedge	None	None	Mar-Jul	2B.2	Bogs and fens, marshes and swamps, meadows and seeps	Potential Habitat	No Impact
	<i>Carex lyngbyei</i>	Lyngbyes sedge	None	None	-	2B.2	Saltmarsh and brackish marsh	No Potential Habitat	No Impact
	<i>Carex praticola</i>	northern meadow sedge	None	None	May-Jul	2B.2	Meadows and seeps	Potential Habitat	No Impact

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<i>Castilleja ambigua</i> var. <i>humboldtiensis</i>	Humboldt Bay owls-clover	None	None	-	1B.2	Coastal saltmarsh	No Potential Habitat	No Impact
<i>Castilleja litoralis</i>	Oregon coast paintbrush	None	None	Jun	2B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub	Potential Habitat	No Impact
<i>Chloropyron</i> <i>maritimum</i> ssp. <i>palustre</i>	Point Reyes salty birds-beak	None	None	-	1B.2	Coastal saltmarsh	No Potential Habitat	No Impact
<i>Chrysosplenium</i> <i>glechomifolium</i>	Pacific golden saxifrage	None	None	Feb-Jun	4.3	North Coast coniferous or riparian forest	Potential Habitat	No Impact
<i>Clarkia amoena</i> ssp. <i>whitneyi</i>	Whitneys farewell-to- spring	None	None	Jun-Aug	1B.1	Coastal bluff scrub	Potential Habitat	No Impact
<i>Collinsia</i> <i>corymbosa</i>	round-headed collinsia	None	None	-	1B.2	Coastal dunes	No Potential Habitat	No Impact
<i>Downingia</i> <i>willamettensis</i>	Cascade downingia	None	None	-	2B.2	Lake margins in woodlands or grasslands, vernal pools	No Potential Habitat	No Impact
<i>Erysimum</i> <i>menziesii</i>	Menzies wallflower	Endangered	Endangered	-	1B.1	Coastal dunes	No Potential Habitat	No Impact
<i>Erythronium</i> <i>revolutum</i>	coast fawn lily	None	None	Mar- Jul(Aug)	2B.2	Streambanks and mesic areas within broadleafed or coniferous forest	Potential Habitat	No Impact

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<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	None	None	Apr-Aug	1B.2	Grassland, scrub or coastal prairie	Potential Habitat	No Impact
<i>Gilia millefoliata</i>	dark-eyed gilia	None	None	-	1B.2	Coastal dunes	No Potential Habitat	No Impact
<i>Glehnia littoralis</i> ssp. <i>leiocarpa</i>	American glehnia	None	None	-	4.2	Coastal dunes	No Potential Habitat	No Impact
<i>Hemizonia congesta</i> ssp. <i>tracyi</i>	Tracys tarplant	None	None	-	4.3	Usually serpentine soil in coastal prairie or coniferous forest	No Potential Habitat	No Impact
<i>Hesperevax sparsiflora</i> var. <i>brevifolia</i>	short-leaved evax	None	None	Mar-Jun	1B.2	Coastal bluff scrub, coastal dunes, or coastal prairie	Potential Habitat	No Impact
<i>Hosackia gracilis</i>	harlequin lotus	None	None	Mar-Jul	4.2	Wetlands or wet roadsides in forested, grassland, scrub, or woodland habitats	Potential Habitat	No Impact
<i>Lasthenia californica</i> ssp. <i>macrantha</i>	perennial goldfields	None	None	Jan-Nov	1B.2	Coastal bluff scrub, coastal dunes, or coastal prairie	Potential Habitat	No Impact
<i>Lathyrus japonicus</i>	seaside pea	None	None	-	2B.1	Coastal dunes	No Potential Habitat	No Impact

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<i>Lathyrus palustris</i>	marsh pea	None	None	Mar-Aug	2B.2	Wetland or mesic habitat within coastal prairie, scrub, or forested habitat	Potential Habitat	No Impact
<i>Layia carnosa</i>	beach layia	Threatened	Endangered	-	1B.1	Coastal dunes	No Potential Habitat	No Impact
<i>Lilium occidentale</i>	western lily	Endangered	Endangered	Jun-Jul	1B.1	Wetland to mesic areas of coastal scrub, coastal prairie, and North Coast coniferous forest	Yes/Present	Habitat improvement, habitat expansion, temporary disturbance
<i>Listera cordata</i>	heart-leaved twayblade	None	None	Feb-Jul	4.2	Coniferous forest	Potential Habitat	No Impact
<i>Lycopodium clavatum</i>	running-pine	None	None	Jun-Aug(Sep)	4.1	Coniferous forest, typically on edges and roadsides	Potential Habitat	No Impact
<i>Mitellastrucaulescens</i>	leafy-stemmed mitrewort	None	None	(Mar)Apr-Oct	4.2	Mesic/wetland areas of coniferous or broad-leaved forest	Potential Habitat	No Impact
<i>Monotropa uniflora</i>	ghost-pipe	None	None	Jun-Aug(Sep)	2B.2	Nort Coast coniferous or	Potential Habitat	No Impact

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							broadleafed forest		
	<i>Montia howellii</i>	Howells montia	None	None	(Feb)Mar -May	2B.2	Compacted vernal wet areas and roadsides within forested or grassland habitat	Potential Habitat	No Impact
	<i>Oenothera wolfii</i>	Wolfs evening-primrose	None	None	May-Oct	1B.1	Sandy bluffs, dunes, and roadsides	Potential Habitat	No Impact
	<i>Pityopus californicus</i>	California pinefoot	None	None	(Mar-Apr)May-Aug	4.2	Coniferous or broadleafed forest	Potential Habitat	No Impact
	<i>Pleuropogon refractus</i>	nodding semaphore grass	None	None	(Feb-Mar)Apr-Aug	4.2	Mesic areas of coniferous forest, meadows and seeps, or riparian forest	Potential Habitat	No Impact
	<i>Polemonium carneum</i>	Oregon polemonium	None	None	Apr-Sep	2B.2	Coastal prairie, coastal scrub, or coniferous forest	Potential Habitat	No Impact
	<i>Puccinellia pumila</i>	dwarf alkali grass	None	None	-	2B.2	Coastal saltmarsh	No Potential Habitat	No Impact

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<i>Ribes laxiflorum</i>	trailing black currant	None	None	Mar-Jul(Aug)	4.3	North Coast coniferous forest	Potential Habitat	No Impact
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	None	None	(Mar)Apr-Aug	4.2	Often in disturbed areas within coniferous forest, coastal prairie, scrub, broadleaved, or riparian forest	Potential Habitat	No Impact
<i>Sidalcea malviflora ssp. patula</i>	Siskiyou checkerbloom	None	None	(Mar)May-Aug	1B.2	Coastal bluff scrub, coastal prairie, or North Coast coniferous forest	Potential Habitat	No Impact
<i>Sidalcea oregana ssp. eximia</i>	coast checkerbloom	None	None	Jun-Aug	1B.2	Coniferous forest, meadows and seeps	Potential Habitat	No potentially significant negative direct or indirect impact, may be positively affected by propagation onsite.
<i>Silene scouleri ssp. scouleri</i>	Scoulers catchfly	None	None	(Mar-May)Jun-Aug(Sep)	2B.2	Coastal bluff scrub, coastal prairie, or grassland habitat	Potential Habitat	No Impact

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	<i>Spergularia canadensis</i> var. <i>occidentalis</i>	western sand-spurrey	None	None	-	2B.1	Coastal saltmarsh	No Potential Habitat	No Impact
	<i>Viola palustris</i>	alpine marsh violet	None	None	Mar-Aug	2B.2	Coastal fens or mesic scrub habitat	Potential Habitat	No Impact
Lichens	<i>Sulcaria spiralifera</i>	twisted horsehair lichen	None	None	N/A	1B.2	Coastal dune forests and North Coast coniferous forest on the immediate coast	Potential Habitat	No Impact
	<i>Usnea longissima</i>	Methuselahs beard lichen	None	None	N/A	4.2	Coniferous or broadleafed upland forests, often associated with old growth trees	Potential Habitat	No Impact
Bryophytes	<i>Anomobryum julaceum</i>	slender silver moss	None	None	N/A	4.2	Damp rocks or outcrops in coniferous or broadleafed forest, often on roadcuts	No Potential Habitat	No Impact
	<i>Fissidens pauperculus</i>	minute pocket moss	None	None	N/A	1B.2	Damp coastal soils in North Coast coniferous forest	Potential Habitat	No Impact

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Table 3. Special Status Vegetation Communities Scoping Table

Vegetation Community	State Status	Potential to Occur	Potential Impact
Northern Coastal Salt Marsh	SNC (Holland Type)	Not Present within Project Area, Present 70m to North in Humboldt Bay and 325m South in the Eel River Wildlife Area.	Salt marsh vegetation communities in the surrounding area are not likely to be affected by the Project.
Coastal Terrace Prairie	SNC (Holland Type)	Yes/Present	Habitat improvement, habitat expansion, temporary disturbance
Sitka Spruce Forest	SNC (Holland Type and S2 Vegetation Alliance)	Yes/Present	Habitat disturbance and thinning with no potentially significant loss of Sitka spruce forest.

4.2 Biological Reconnaissance

California Department of Fish and Wildlife Environmental Scientists detected a total of 55 species during biological reconnaissance conducted on August 10, 2022, and May 3, 2023 (Appendix B). Assessments of habitat availability and suitability for potential special status species are presented in Appendix A.1. Four Special Status Species were observed at the Reserve: bald eagle (*Haliaeetus leucocephalus*; CESA Endangered), northern harrier (*Circus hudsonius*; CDFW Species of Special Concern), double-crested cormorant (*Nannopterum auritum*; CDFW Watch List), and obscure bumble bee (*Bombus caliginosus*; State Rank S1S2 and IUCN Vulnerable). Bald eagles and a double-crested cormorant were observed flying over the Project Area or adjacent coastal bluffs, while the northern harrier was observed foraging over open grassland within the Reserve. During focused bumble bee surveys, an obscure bumble bee was captured and later verified by taxonomist L. Richardson as part of the California Bumble Bee Atlas (The Xerces Society, 2022). Special Status wildlife identified in the 1987 species inventory for the Table Bluff Management Plan are still considered likely to occur given the presence of suitable habitat and recent nearby observations. There is also suitable habitat for six additional Special Status Species not included in the original inventory, including western bumble bee (*Bombus occidentalis*; CESA Candidate Endangered) and short-eared owl (*Asio flammeus*; CDFW Species of Special Concern).

Sitka spruce forest and woodland, coastal willow thickets, and scrub communities represent the most valuable wildlife habitat on the Reserve. Sitka spruce forests and woodlands are structurally diverse and include mature stands with open-grown trees, patches of dense young growth, and semi-riparian drainages with thick understory vegetation. Heterogeneity is further enhanced by several large canopy openings with snags in various states of decay, large downed wood, and a dense understory of shrubs. Forest edges provide high quality habitat to multiple species, transitioning from coastal willow thickets to more open scrub and grassland habitat. Bird diversity is especially high in willow thickets and adjacent forest edges, which offer nesting habitat, foraging opportunities, and refugia for a variety of species. The Reserve has a seasonally high water table that supports mesic vegetation with seasonally inundated swales and drainages. Willow thickets also contain seasonal wetlands and seeps, which may provide seasonal water sources and cover for many species. Although most nesting birds are associated with forested areas, cascara sagrada scrub and berry brambles provide suitable nesting and foraging habitat for several species. Berry brambles and other flowering shrubs also provide important foraging, nesting, and overwintering habitat for native pollinators, including special status bumble bees. Game trails, scat, and bedding sites suggest black-tailed deer (*Odocoileus hemonius*) also use these patchy shrub habitats. Although limited in extent, native coastal prairie represents high quality nesting and foraging habitat for special status bumble bees, with a diverse array of floral resources and potential nesting sites. Grazed pasturelands dominated by non-native species are fairly homogenous and provide the least value to wildlife, though they may serve as foraging habitat for raptors, other birds, and native pollinators.

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4.3 Vegetation Mapping

Vegetation sampling and mapping in 2022-2023 according to CNPS-CDFW Rapid Assessment/Releve methods resulted in 10 vegetation Alliances defined according to the *Manual of California Vegetation*, associated regional sampling reports, and communications with the California Native Plant Society. The approximately 160-acre Reserve includes approximately 69 acres of forest and woodlands, 42 acres of scrub vegetation, and 49 acres of herbaceous vegetation. Seasonally inundated wetland swales, drainages, and small depressions occur throughout the Reserve, but have not been mapped or delineated. The Reserve's seasonally high water table results in a complex mosaic of upland and mesic habitats, with upland vegetation primarily found near well-drained steep slopes and hydrophytic vegetation found in swales and small depressions throughout the Reserve. The locations and extents of vegetation types and Alliances on the Reserve can be found in Appendix D Map Figures.

Sitka Spruce Forest and Woodland (*Picea sitchensis* Alliance—S2 G5)

Sitka spruce forest and woodland is a SNC Alliance that is imperiled (S2) in the state of California, but globally secure (G5). Three Sitka spruce forest and woodland associations can be found on the Reserve. The Sitka spruce alliance spans across approximately 60 acres of the Reserve.

Sitka Spruce (Picea sitchensis)/Swordfern (Polystichum munitum) Forest Association

The Sitka Spruce/Swordfern Association was characterized according to data collected in Rapid Assessment Sample Points NCC1708 on April 26, 2023 and NCC1711 on June 9, 2023. Sitka spruce forest with a swordfern understory is characterized by moderate tree canopy cover (55 percent) that allows enough sunlight for a substantial herbaceous understory but may inhibit the dense growth of large shrubs.

Sitka Spruce (Picea sitchensis)/False Lily of the Valley (Maianthemum dilatatum) Association

The Sitka Spruce/False Lily of the Valley Association was best represented by Rapid Assessment Sample Point NCC0121 on June 30, 2022. The dominance of the low-growing, shade-loving herbaceous perennial plant in the understory primarily occurs in areas of closed canopy. At the Reserve, the densest closed canopy with false lily of the valley in the understory often occurs in younger stands and expanding forest edges where young spruce are more closely spaced. This association intergrades with the Sitka Spruce/Swordfern Association at the Reserve within the western lily population areas and the forested central ravine, and the mosaic of varying herbaceous understory within stands of Sitka spruce forest on the Reserve was not mapped. In total, Sitka spruce forest with swordfern and false lily of the valley in the understory covers approximately 19 acres.

Sitka spruce (Picea sitchensis)/Salmonberry (Rubus spectabilis) Association

The Sitka Spruce/Salmonberry Woodland Association was characterized according to data collected in Rapid Assessment Sample Point NCC1707 on April 26, 2023. This woodland stand is primarily characterized by low tree canopy cover (24 percent) and a dense overhead shrub layer (65 percent shrub cover). Sitka spruce in this stand appear to be older, with diameters at breast height (dbh) primarily in larger size classes (>36" dbh) and exhibit the complex branching

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“wooly” canopy structure typical of open-grown conifers. Large, impenetrable thickets of salmonberry, wax myrtle (*Morella californica*), and red elderberry (*Sambucus racemosa*) can be found in canopy openings. Historic and recent windfall was evident throughout the stand, with many broken snags and large downed trees creating openings in the canopy. Sitka spruce woodland covers approximately 41 acres of the Reserve.

Monterey Cypress/Monterey Pine (*Hesperocyparis macrocarpa*-*Pinus radiata* Alliance, SNA)

Monterey cypress and Monterey pine are two species of trees that are not native to the North Coast. Monterey pine and Monterey cypress were planted in the vicinity of previous homesteads on the property. Monterey cypress and Monterey pine dominate approximately seven acres of the Reserve, and these non-native trees are planned to be removed to improve native habitat value and the natural aesthetic of the Reserve.

*Monterey Cypress (*Hesperocyparis macrocarpa*) Association (SNR)*

The Monterey Cypress Association was characterized according to data collected in Rapid Assessment Sample Point NCC1706 on April 20, 2023. The Monterey Cypress Association occurs in a stand in the vicinity of the central wooded swale on the Reserve, where Monterey cypress were planted in a row and likely served as a windbreak. Monterey cypress showed some naturally regenerating saplings and seedlings, and it co-occurred with native Sitka spruce, which was also naturally regenerating in the area. A few Monterey cypress also appear to have been planted along the fence line on the west side of the Reserve. Monterey cypress dominates approximately two acres of the Reserve.

*Monterey Pine (*Pinus radiata*) Association (SNR)*

The Monterey Pine Association was characterized according to data collected in Rapid Assessment Sample Point NCC4711 on May 22, 2023. The Monterey pine stands on the Reserve show rapid regeneration and encroachment of this fast-growing non-native tree into scrub and grassland habitats. Many Monterey pine saplings and seedlings are scattered on the southeast side of the Reserve surrounding relatively few older Monterey Pine trees that appear to have been planted near Table Bluff Road. Monterey pine has dispersed across approximately five acres of former pasture and scrub.

Eucalyptus Groves (*Eucalyptus* spp.—*Ailanthus altissima*—*Robinia pseudoacacia* Alliance, SNA)

The Eucalyptus Alliance was characterized according to data collected in Rapid Assessment Sample Point NCC1715 on June 28, 2023. The Eucalyptus Groves semi-natural vegetation community consists of several large, decadent blue gum Eucalyptus (*Eucalyptus globulus*) trees that were planted around a former homestead site and densely regenerating Eucalyptus saplings at the perimeter of the mature trees’ canopy. The stand of non-native invasive trees shows a high rate of natural regeneration and expansion into surrounding vegetation communities. Invasive English ivy (*Hedera helix*) is widespread in the canopy of large trees and in the understory. The understory has low diversity and is predominantly California blackberry (*Rubus ursinus*) and brackenfern (*Pteridium aquilinum*) growing in a thick layer of Eucalyptus litter. Eucalyptus has spread across approximately two acres of the Reserve.

Coastal Willow Thickets (*Salix hookeriana*—*Salix sitchensis*—*Spiraea douglasii* Alliance, S3 G4)

Coastal Willow (*Salix hookeriana*)—Scouler's Willow (*Salix scouleriana*) Proposed Association
The Coastal Willow Alliance was characterized according to data collected in Rapid Assessment Sample Point NCC1709 on May 30, 2023. Coastal willow thickets are a SNC that is vulnerable in the state (S3) and uncommon throughout its range (G4). The proposed Coastal Willow—Scouler's Willow Association was characterized according to data collected in Rapid Assessment Sample Point NCC1709 on May 30, 2023. Scouler's willow is a large shrub to slender tree that may be found in a wide variety of low-elevation habitats, including dry forests, mesic areas, and wetlands. Coastal willow is typically a thicket-forming large shrub that is found in dunes and wetlands along the coast. Coastal willow may hybridize with both Scouler's willow and arroyo willow (*Salix lasiolepis*). At the Reserve, patches of taller tree-form Scouler's willow grade into coastal willow thickets, where the two appear to be hybridizing. The apparent hybrid willows were characterized by a distinct decumbent tree growth form, short female catkins that are typical of Scouler's willow, and intermediate mostly broadly obovate leaf shapes that are densely white velvety abaxially. Other associated shrubs included California blackberry, Douglas spiraea (*Spiraea douglasii*), and Oregon crabapple (*Malus fusca*). One-leaved onion (*Allium unifolium*), a culturally significant edible plant, occurred along cattle trails through the willow thicket. Willow scrub covers approximately three acres of the Reserve.

Berry Brambles Alliance (*Gaultheria shallon*—*Rubus ursinus* Alliance, S4 GNR)

California Blackberry (*Rubus ursinus*) Association

The California Blackberry Association was characterized according to data collected in Rapid Assessment Sample Points NCC1038 and NCC1710. California blackberry thickets primarily occur in mesic areas with moderate grazing disturbance on the Reserve, where this fast-spreading, cattle-resistant trailing shrub may establish dominance and create dense knee-to-head-high thickets. Presumably due to lower grazing pressure or other pasture management, California blackberry thickets currently dominate 23 acres of the Reserve, and they have expanded substantially into former herbaceous grasslands since vegetation was mapped on the Reserve in 1987. In 1987, California blackberry was considered a minor component of Sweet Vernal Grasslands and California blackberry was not mapped as a dominant vegetation type. In 2023, much of the former Sweet Vernal Grasslands within and near the enclosure is dominated by California blackberry and other woody vegetation with patches of highly diverse herbaceous vegetation and culturally significant plants in openings and cattle trails. Mesic swales, forest edges, and fence lines within areas previously mapped as Tall Fescue Grassland have converted to California blackberry dominance with some small herbaceous openings since the 1987 vegetation mapping. Relatively low cover of emergent Sitka spruce and other native woody vegetation such as coyotebrush (*Baccharis pilularis*) and coast twinberry (*Lonicera involucrata*) as well as invasive Himalayan blackberry (*Rubus armeniacus*) are often present. Slough sedge (*Carex obnupta*) and non-native pasture grasses are typically dominant in openings in the brambles.

Hazelnut Scrub (*Corylus cornuta* var. *californica* Alliance/Association, S2? G3)

The Hazelnut Scrub Alliance was characterized according to data collected in Rapid Assessment Sample Point NCC1050. Although Hazelnut dominates a relatively small area (0.4 acres), this SNC is likely imperiled in the state (S2?), globally vulnerable (G3), locally very rare along the North Coast, and it is a culturally significant vegetation community. Hazelnut Scrub can be found along the edge of the younger stand of Sitka spruce forest within the western lily enclosure. Hazelnut Scrub is co-dominated by twinberry (*Rubus parviflorus*) and California blackberry with Pacific reedgrass (*Calamagrostis nutkaensis*) and brackenfern (*Pteridium aquilinum*), and intergrades into the California Blackberry Association and Pacific reedgrass-dominant Coastal Prairie.

Cascara Sagrada Scrub (*Frangula purshiana* Provisional Alliance/Association, Not Yet Rated)

Cascara Sagrada Scrub was characterized according to data collected in Rapid Assessment Sample Point NCC1039. Cascara sagrada scrub will likely be proposed as a new Alliance based on ongoing vegetation sampling efforts along the North Coast (CNPS Claudia Voigt, personal communication, May 5, 2023), and it is likely to be rated as a SNC. Cascara sagrada is a large shrub to small tree that now dominates 16 acres of mesic grasslands formerly mapped as Tall Fescue Grassland pasture on the Reserve that has been subject to low disturbance over the past three decades. Cascara sagrada scrub may be co-dominated by California blackberry, coyotebrush, twinberry, and Oregon crabapple with low cover of emergent Sitka spruce saplings and seedlings. Cascara sagrada scrub likely represents an intermediate successional stage between California blackberry thickets encroaching into grasslands and Sitka spruce forest, where cascara sagrada may also occur in the understory.

Sweet Vernal Grasslands (*Anthoxanthum odoratum*—*Holcus lanatus* Alliance, SNA)

Sweet Vernal Grass (*Anthoxanthum odoratum*) Association

The Sweet Vernal Grass Association was characterized according to data collected in Relevé Sample Point NCC4712 on May 22, 2023. Sweet vernal grasslands are widespread on the Reserve, covering 36 acres of former pasture, including recently grazed areas on the west side of the Reserve. Sweet vernal grass strongly dominates dry ridges and well-drained slopes on the Reserve with other upland disturbance-adapted herbaceous species such as English plantain (*Plantago lanceolata*) and hairy cat's ear (*Hypochaeris radicata*). Sweet vernal grass may also be associated with non-native hairy oat grass (*Rytidosperma penicillatum*). Native species that occur in this non-native grassland community include Douglas iris (*Iris douglasiana*), red fescue (*Festuca rubra*), California oatgrass (*Danthonia californica*), blue eyed grass (*Sysirinchium bellum*), and yarrow (*Achillea millefolium*). Purple velvetgrass (*Holcus lanatus*), Kentucky bluegrass (*Poa pratensis*), orchard grass (*Dactylis glomerata*), bentgrass (*Agrostis* sp.) and tall fescue (*Festuca arundinacea*) are typically minor components of the sweet vernal grasslands in dry areas, and they are widespread and common where this grassland type intergrades with the more mesic tall fescue grassland type.

Tall Fescue Grasslands (*Poa pratensis* - *Agrostis gigantea* - *Agrostis stolonifera* Herbaceous Semi-Natural Alliance, SNA)

Tall Fescue (*Festuca arundinacea*) Association

The Tall Fescue Association was characterized according to data collected in Relevé Sample Point NCC4710 on May 22, 2023. Tall fescue dominates mesic areas with a seasonally high water table in swales and low gradient slopes in previously grazed pastures on the Reserve. This large growing invasive pasture grass creates a dense thatch layer that appears to suppress native diversity. Non-native tall fescue was likely brought in as pasture grass and appears to have replaced native perennial bunchgrasses that occur in mesic to wet habitats on the Reserve, such as Pacific reedgrass and tufted hairgrass (*Deschampsia cespitosa*).

Pacific Reedgrass Coastal Prairie (*Calamagrostis nutkaensis* Alliance, S2 G4)

Pacific Reedgrass (*Calamagrostis nutkaensis*) Association

The Pacific Reedgrass Association was characterized according to data collected in Relevé Sample Point NCC0421 on June 29, 2022. This Alliance is considered imperiled in the state of California (S2) and uncommon but apparently secure throughout its range (G4). Although it covers only 0.1 acres of the Reserve, the Pacific reedgrass-dominated coastal prairie is ecologically and culturally important. The Pacific Reedgrass Association is the last remaining native-dominated coastal prairie on the Reserve, and it supports the highest concentration of reproductive western lilies and high diversity of culturally significant plants. Pacific reedgrass is a large native bunchgrass that may be a meter or more in height that thrives in moist coastal habitats, and it is often considered an associate of western lily. This vegetation community is predominantly characterized by low cover of woody vegetation, the co-dominance of Pacific reedgrass and brackenfern, and the high diversity of uncommon native coastal prairie species. The 2022 Relevé data documented approximately 52% total relative native cover (including woody vegetation), and 45% relative native cover in the herbaceous layer. The Pacific Reedgrass Coastal Prairie is considered the primary reference site for native coastal prairie restoration at the Reserve. Expanding and enhancing this sensitive vegetation community is one of the primary objectives of the Project.

4.4 Botanical Surveys

Botanical surveys conducted in 2022-2023 confirmed the presence of western lily at the original population location within the protective enclosure as well as previous propagation sites east of the ravine (Sites 1-4, See Attachment C Map Figure 3). A total of 134 species were identified during floristic surveys. Sea watch (*Angelica lucida*) a limited distribution plant that is moderately imperiled in California (CRPR 4.2), was present in coastal prairie and scrub habitat west of the enclosure, where it primarily occurred in openings and edges of the wetland scrub habitat. A total of 45 vegetative sea watch plants were counted in a single population area of approximately 0.18 acres. Additionally, many species observed onsite are considered culturally significant. Many species associated with the native pacific reedgrass-dominated coastal prairie and surrounding scrub edge habitat are seldom found locally on the coast, such as small camas (*Camassia quamash* ssp. *breviflora*) and one-leaved onion (*Allium unifolium*). These species may

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be considered *locally significant* and therefore worthy of consideration in project planning and evaluating potential effects on biological resources.

4.5 Western Lily Inventory and Mapping

Surveyors counted a total of 1493 western lilies on the Reserve in June-July of 2022, including 1464 in the main population enclosure and 29 in expansion sites to the east, where western lily was propagated between 1992-2001 (Appendix D, Map Figure 3). Only 6.6% of the population (98 lilies) were in reproductive flowering or fruiting stages. The majority of lilies observed were in the juvenile one-leaf stage of development (55%) and over a third (38%) were vegetative. Mapping clusters of western lily during the inventory showed successful habitat locations with high densities of western lily and areas to prioritize habitat management. Western lily occurs in Sitka spruce forest, scrub, and coastal prairie habitats on the Reserve. Most of the plants were in the original population location, protected within a fenced enclosure on the northwest side of the Reserve. In 2022, 29 plants were found in the locations of previous propagation and population expansion efforts on the eastern side of the Reserve. Although the majority of the western lilies occur within the relatively young Sitka spruce forest, only 4% of the plants within this vegetation community were reproductive. In contrast, 44% of western lilies in the native coastal prairie community were reproductive, and 24% of the lilies found in scrub or forest edge habitat were reproductive in 2022.

Although the Reserve still supports one of the largest populations of western lily, population numbers have declined substantially in the last decade. The reproductive count of 98 lilies in 2022 (including 91 in the main population enclosure and seven at the expansion sites) represents more than a 90% decline from the population peak in 2013, when 1139 flowering plants were counted in the main population and 17 were counted in the expansion sites (Imper 2012, updated 2023). The total population number also declined substantially since the last complete inventory in 2011, which recorded 4051 lilies in the main population (15% of which was reproductive) and 65 lilies in the expansion sites (38% reproductive).

5. Discussion and Effects Analysis

5.1 Potential Effects on Special Status Animals

Tree removal, prescribed burns, and fence construction will temporarily disturb Sitka spruce forest and other habitat for special status animals. These disturbances will occur during the fall and winter, outside of nesting season for birds protected under Fish and Game Code §3503, including special status birds that occur or have the potential to occur on the Reserve. Because the Project will adhere to seasonal avoidance, no take of nesting birds is anticipated. Thinning Sitka spruce forest while leaving larger trees and creating openings that provide more diverse habitat is not expected to negatively impact habitat for special status bird species. No fish-bearing streams occur on the Reserve, nor are project activities likely to result in water quality impacts to nearby freshwater and estuarine habitats; therefore, special status fish are unlikely to be affected by the project. Although the Reserve provides suitable dispersal and non-breeding habitat for northern red-legged frog, no breeding habitat occurs on the Reserve.

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Seasonally wet drainages, swales, and small depressions that occur on the Reserve typically have high vegetative cover and dry early in the spring, making these areas highly unlikely to provide potential breeding habitat. No heavy equipment will be operated in saturated soil conditions to avoid and minimize impacts to water quality and aquatic species. Special status mammals with the potential to occur on the property include American badger and tree-roosting bats. Impacts to American badger are unlikely, as potential habitat is limited to areas with friable soils along steep-sloped drainages through the pasture, which is not targeted as part of current restoration work. The Reserve does contain suitable habitat for two special status bat species: pallid bat (*Antrozus pallidus*; CDFW Species of Special Concern) and hoary bat (*Lasiurus cinereus*; State Rank S4). Tree cavities, snags, leaf litter, and exfoliating bark provide crevices and hollows for roosting, while adjacent scrub and pastureland offer suitable foraging habitat. However, mature native trees, snags, and other high quality habitat features will be retained. Furthermore, tree removal and other potentially disruptive vegetation management activities will be timed to avoid the bat maternity season, which coincides with nesting bird season. By phasing tree removal to begin in non-native stands, the Project will also conduct the most extensive tree felling and associated ground disturbance prior to hibernation.

The Reserve provides high quality habitat for bumble bees and other pollinators with a mosaic of native coastal prairie, pasture, scrub, and wooded habitats. Potential nesting structures that occur onsite include rodent burrows, large wood, and bare ground. Native coastal prairie provides the highest quality nesting and foraging habitat for special status bumble bees with high diversity of native wildflowers and large native bunchgrasses. While the pasture also contains many flowering species and grasses, the pasture is dominated by non-native species and is considered lower quality habitat that is likely to support a lower diversity of bumblebees and other native pollinators. Native California blackberry brambles and other flowering shrubs also provide high quality forage and potential nesting and overwintering habitat. While densely wooded areas do not provide high quality foraging or nesting habitat, these areas may be important for overwintering. The obscure bumble bee, a special status species, was observed in the vicinity of blackberry brambles in 2022. Although CESA Candidate western bumblebee (*Bombus occidentalis*) has declined precipitously in the coastal portion of its range and it is unknown if it could still occur along the immediate coast, the Reserve may be considered potential habitat. The Project is expected to result in an overall improvement in habitat for special status bumble bees and other pollinators. The potential effects of temporary disturbances will be limited by the seasonal restriction to the fall and winter seasons. The peak colony active periods and queen flight periods will be seasonally avoided. Disturbances may be phased in across the late colony active period, gyne (future queen) flight period, and overwintering period by starting with non-native tree removal in the lowest quality Eucalyptus, Monterey pine, and Monterey cypress habitats in the early fall as the colony active period is ending and gynes take flight in search of overwintering habitat. Tree removal and other potentially disruptive management will occur in higher quality native habitats in October-February. Little is known about the habitat use of gynes during the overwintering period, but it is expected that disturbing a small fraction of the potential overwintering habitat onsite is unlikely to impact special status bumble bees.

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In summary, the Project will avoid and minimize potential impacts to special status animals by adhering to the following Avoidance and Minimization Measures (AMMs):

- AMM1.** No heavy equipment will be operated in saturated soil conditions.
- AMM2.** Tree removal and other major disturbances will occur during the fall and winter months of September-February, which coincides with the non-breeding season for native birds and avoids bat maternity season.
- AMM3.** Ground disturbance associated with tree removal, trail construction, and other management will be minimal.
- AMM4.** Major disturbances such as native tree removal and prescribed burns of high-quality native habitats that have the potential to support native bumble bees will avoid the colony active period (April-September).

5.2 Potential Effects on Sensitive Vegetation Communities

Sensitive Natural Communities (SNCs) that occur on the Reserve include Sitka spruce forest and woodlands, hazelnut scrub, cascara scrub, California blackberry thickets, coastal willow thickets, and coastal terrace prairie dominated by Pacific reedgrass. Non-native vegetation communities include stands of Eucalyptus, Monterey pine and Monterey cypress, tall fescue grasslands, and sweet vernal grasslands. Coastal prairie restoration plans include the removal of non-native stands of Eucalyptus, Monterey pine, and Monterey cypress as well as thinning encroaching native Sitka spruce. Improving and expanding the native coastal prairie SNC is a major goal of tree removal, planting native coastal prairie species, and implementing disturbances such as grazing on the Reserve. The pilot project will test the effects of implementing disturbance regimes that are expected to maintain or improve early successional scrub and prairie vegetation to ensure that the most beneficial methods are used in management of the Reserve. Native scrub communities are also expected to benefit from removing encroaching conifers, non-native trees, and invasive species.

Sitka spruce forest is a SNC (rank S2), and therefore the effect of thinning this vegetation community is an important consideration. The Project proposes thinning the youngest portions of the stand where dense spruce cover has reduced reproductive success of western lily and encroached on the coastal prairie SNC (also rank S2). Sitka spruce removal will be based on a geospatial analysis of the optimal trees to remove to benefit western lily within the enclosure (Imper and Som 2012), with some modifications to preserve large spruce of at least 40 inches diameter at breast height (DBH) that provide high habitat value. A similar thinning prescription will be created for an area of Sitka spruce encroachment surrounding western lily propagation sites from 1992-2001. Tree removal within the enclosure and propagation sites will follow a strict protocol to minimize disturbance with no heavy equipment that may cause compaction, felling trees away from areas known to have high densities of lily bulbs, and slash removed from lily habitat. Removing invasive Himalayan blackberry, English ivy (*Hedera helix*), and English holly (*Ilex aquifolium*) from the Sitka spruce stand will have a positive effect for both western lily and Sitka spruce forest. Thinning is also expected to have the effect of “releasing” the remaining trees and increasing their rate of growth and maturation to large trees with complex canopy structure that may support nesting for raptors and other large birds.

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Preserving large Sitka spruce, removing invasive plants, and releasing growth by thinning is expected to maintain the overall ecological value of the Sitka spruce vegetation community. Although the primary purpose of the Project is to expand and enhance the coastal prairie community that supports western lily and other culturally and ecologically important species, maintaining the value of mature forested habitat and early successional habitat are dual objectives that will be balanced onsite with long-term adaptive management and monitoring. The thinning prescription is expected to result in an overall improvement in native biodiversity and habitat quality, and therefore will not have a substantial adverse effect on the SNC. Measures to protect SNCs are summarized below.

- AMM5.** Sitka spruce over 40 inches DBH will be preserved.
- AMM6.** Tree removal prescriptions will consist of low-disturbance thinning and creating small openings to enhance native habitat.
- AMM7.** Problematic invasive plants, including Himalayan blackberry, English ivy, and English holly, will be removed from disturbed SNCs and other areas of the Reserve.

5.3 Potential Effects on Special Status Plants

Plants with special status ranking that occur on the Reserve include western lily and limited distribution sea watch. Locally uncommon plants of cultural significance, such as small camas and one-leaved onion, may also be considered special status and worthy of consideration in evaluating Project effects. The Project is designed to improve and expand habitat for western lily as well as culturally significant herbaceous plants that thrive in coastal prairie and edge habitats, including small camas, one leaved onion, and sea watch. Removing encroaching conifers from these habitats and implementing disturbances such as grazing or prescribed burns are necessary to maintain early successional habitat that will benefit these plant populations. However, temporary disturbances associated with restoration and other management activities also have the potential to negatively effect native plant populations if not implemented with appropriate measures to avoidance and minimize impacts to special status plants. The following avoidance and minimization measures are designed to ensure that the Project will benefit western lily and other special status plants on the Reserve.

Western Lily Impact Avoidance and Minimization Measures

The project is designed to enhance western lily habitat by opening the canopy and implementing moderate disturbance to maintain early successional habitat required for western lily to thrive. Tree removal methods designed to be low-disturbance in the fall-winter of 2023 will represent a temporary disturbance to western lily habitat that is expected to improve and expand potential habitat for western lily and result in an increase in the reproductive population. Seasonal grazing and prescribed burns will occur during the dormancy period and are expected to enhance habitat value with minimal effects on underground bulbs. Restoration planting, placement of protective fencing, and associated ground-disturbing activities will avoid impacts to western lily by being located outside of the western lily population area with a minimum five-meter setback. Trail construction and public access infrastructure such as signage will be located in disturbed non-native pasture and will not be

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placed in the vicinity of the western lily population or potential western lily habitat, and therefore will not affect western lily. Measures implemented as part of the Project to avoid and minimize potential negative effects on the western lily population are as follows:

- AMM8.** All disturbance planned within the western lily population areas, including tree removal, brush or invasive plant management, grazing, and prescribed burns, shall occur during the western lily dormancy period (September-February).
- AMM9.** No vehicles or heavy equipment will be driven through the western lily population enclosure or propagation areas.
- AMM10.** Trees will be cable yarded or lifted by helicopter rather than dragged through western lily population areas to avoid disturbing or compacting the soil.
- AMM11.** No slash piles will be left in western lily population areas.
- AMM12.** Temporary slash piles outside of western lily population areas will be mulched, made into bio-char, or burned to avoid attracting rodents.
- AMM13.** Log piles will be temporarily staged in previously disturbed non-native pasture, then provided to tribal members as firewood or beneficial use in restoration that requires medium to large wood.
- AMM14.** Woody invasive plants that have the potential to benefit from disturbance and increased sun exposure will be manually removed during the dormancy period.
- AMM15.** The reproductive western lily population will be inventoried and mapped annually during the flowering period to monitor the response to management during the project.
- AMM16.** All soil disturbance for native restoration planting or fence posts will be setback at least five meters from the annually mapped and monitored western lily population to avoid disturbance of underground bulbs.

Other Special Status Plant Impact Avoidance and Minimization Measures

Sea watch is a limited distribution plant that is moderately threatened within the state of California, and it is found in scrub habitat west of the enclosure, where it is primarily associated with openings and edges of the wetland scrub habitat. The native perennial herb found in coastal scrub, dunes, and salt marshes along the North Coast of California and Pacific Coast to Alaska as well as coastal eastern North America and eastern Asia. Sea watch is a culturally significant plant to the Wiyot people that is locally relatively common in the limited habitat of upper coastal marsh edges in the Eel River estuary and Humboldt Bay area. The Project may temporarily disturb the population, and as a List 4 Limited Distribution plant, it may warrant consideration in project design and impact analysis. The population is outside of the tree removal, trail construction, and experimental propagation areas, and therefore outside of the ground disturbance area. Seasonal grazing that has been implemented in the area of the Reserve does not appear to negatively affect the sea watch population and periodic low-level disturbance may be needed to maintain suitable openings in the scrub and prairie edge habitat.

Locally uncommon culturally significant plants include small camas and one-leaved onion, two food sources to the Wiyot and other indigenous peoples. These culturally significant bulb plants now seldom occur on the Humboldt County coastline and have likely been eliminated from

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parts of their former ranges in the wake of colonization and widespread development of coastal grasslands and scrub for agriculture and other land uses. Small camas occurs within the western lily population area in coastal prairie and scrub habitats as well as blackberry bramble edge habitat west of the enclosure. One leaved onion occurs in coastal willow scrub and berry bramble edge habitat west of the Reserve. A major objective of the Project is to increase populations of culturally significant native plants associated with coastal prairie. Implementing low-level disturbance regimes such as seasonal grazing with goats or prescribed burning in this area is expected to result in habitat improvement and expansion. Additionally, seeds will be collected and propagated in other suitable habitats on the Reserve as part of the design to expand and enhance populations of culturally significant species on the Reserve. No potentially significant adverse impacts on special status plants are expected. In addition to improving habitat by implementing tested beneficial disturbances and propagating plants selected in consultation with the Wiyot Tribe, the following avoidance and minimization measures are designed to ensure that the project will have a positive effect on these plant populations:

- AMM17.** No more than 1/3 of available seed or bulblets will be collected from special status plants in a season.
- AMM18.** Collections of culturally significant special status plants will be led by Wiyot Native Plant Nursery.
- AMM19.** Effects of disturbances will be tested in a pilot project prior to being implemented in existing special status plant population areas.
- AMM20.** Nursery Best Management Practices (BMPs) will be followed to minimize the potential for the spread of diseases, pests, and invasive species.

6. Conclusion

The Project will restore native coastal prairie and early successional habitat to benefit Federally and State Endangered western lily, culturally significant plants, and the overall ecological value of the Reserve. The Reserve supports exceptional biodiversity, including many special status species. The temporary disturbances created by this restoration project will be timed during the fall to winter season to avoid critical reproductive seasons for western lily, protected birds, bumble bees, and other sensitive species. Please see a complete discussion of AMMs 1-20 in Sections 5.1-5.3. The Project is expected to have an overall positive effect on special status species, especially Endangered western lily, culturally significant plants, and the coastal prairie SNC. The project will improve habitat for species that thrive in coastal prairie, such as native bumble bees. The project may also improve habitat quality for animals that thrive in open native forest with large trees that have complex canopies, such as many raptors. A complete analysis of habitat requirements and potential impacts to individual species can be found in Appendix A. Botanical surveys have been completed according to CDFW protocol (2018), and a complete list of species observed onsite can be found in Appendix B. Habitat photos and map figures are provided in Appendix C and Appendix D, respectively.

References

- California Bumble Bee Atlas. Point Surveys. A collaborative community science effort funded by US Fish and Wildlife Service's Wildlife and Sport Fish Restoration, the Bureau of Land Management, and others. Accessed August 1, 2023. Available from. <https://www.cabumblebeeatlas.org/point-surveys.html>.
- California Department of Fish and Wildlife [CDFW]. 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. State of California Natural Resource Agency. Available from <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline>.
- California Department of Fish and Wildlife [CDFW]. 2023. Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species. June 6, 2023. Available from <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=213150&inline>.
- California Department of Fish and Wildlife [CDFW] and California Native Plant Society [CNPS]. 2023. *CDFW-CNPS Protocol for the Combined Vegetation Rapid Assessment and Relevé Field Form*. Updated March 7, 2023. Available from <https://www.nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18599&inline>.
- California Native Plant Society [CNPS]. 2023. A Manual of California Vegetation, Online Edition. <http://www.cnps.org/cnps/vegetation/>; searched on 5/16/2023. California Native Plant Society, Sacramento, CA.
- eBird, 2023. eBird: An Online Database of Bird Distribution and Abundance. eBird, Cornell Lab of Ornithology, Ithaca, NY. Available from <https://ebird.org/explore>.
- Hatfield, R., Jepsen, S., Thorp, R., Richardson, L. & Colla, S. 2014. *Bombus caliginosus*. The IUCN Red List of Threatened Species 2014: e.T44937726A69000748. <https://dx.doi.org/10.2305/IUCN.UK.2014-3.RLTS.T44937726A69000748.en>. Accessed on 25 July 2023.
- Hatfield, R., Jepsen, S., Thorp, R., Richardson, L., Colla, S. & Foltz Jordan, S. 2015. *Bombus occidentalis*. The IUCN Red List of Threatened Species 2015: e.T44937492A46440201. <https://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T44937492A46440201.en>. Accessed on 25 July 2023.
- Holland, R. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California.
- Imper, D., 2012, updated 2023. "Draft Western Lily Site History, Management and Monitoring Record Through 2013, Table Bluff Ecological Reserve, Humboldt County, California." Unpublished Report, U.S. Fish and Wildlife Service, Arcata, California
- Imper, D.K., GE. Hovey, J.O. Sawyer, and S.A. Carlson, 1989. Table Bluff Ecological Reserve Management Plan, Prepared under Interagency Agreement C-1582.2, California State University and California Department of Fish and Game.

Table Bluff ER Coastal Prairie Restoration Project

Imper, D. and N. Som, 2012. "Spruce Tree Removal Analysis Table Bluff Ecological Reserve, Humboldt County, California. Unpublished Report, Prepared for the California Department of Fish and Game. U.S. Fish and Wildlife Service, Arcata, California

Jepson Flora Project (eds.) 2023. Jepson eFlora. Accessed August 1, 2023. Available from <https://ucjeps.berkeley.edu/eflora/>.

Koch, J., J. Strange, and P. Williams. 2012. Bumble Bees of the Western United States. U.S. Forest Service and the Pollinator Partnership with funding from the National Fish and Wildlife Foundation.

Rohde, J., 2014. Both Sides of the Bluff, History of Humboldt County Places: 1. MountainHome Books. Eureka, California.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens, 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento, CA. 1300 pp.

U.S. Fish and Wildlife Service [USFWS], 1998. Recovery Plan for the Endangered Western lily (*Lilium occidentale*). Portland, Oregon.

The Xerces Society, Wildlife Preservation Canada, York University, University of Ottawa, The Montreal Insectarium, The London Natural History Museum, BeeSpotter. 2022. Data accessed from Bumble Bee Watch, a collaborative website to track and conserve North America's bumble bees. Available from <http://www.bumblebeewatch.org/>. Accessed: 7/21/2023.

Appendices

Appendix A—Species Accounts

Appendix B—Species Observations

Appendix C—Habitat Photos

Appendix D—Map Figures

Appendix A. Potentially Occurring Species Accounts

A.1 Potentially Occurring Animal Species Accounts

The following special status animals have been identified as having the potential to occur or are known to occur in the Project Area. The species' habitat and life history have been evaluated in the context of the proposed Project to determine if they may be substantially affected by the Project.

Amphibians

Northern Red-legged Frog (*Rana aurora*)

Conservation Status: CDFW Species of Special Concern

Habitat and Life History Requirements: Northern red-legged frog is found in humid forests, woodlands, and grasslands in coastal northern California, usually in association with dense riparian cover. Although breeding is generally limited to slow-moving streams, ponds, and other features that retain surface water long enough for larvae to metamorphose, adults frequently disperse into damp upland forest during the non-breeding season.

Potential to Occur: Northern red-legged frog was documented in the Project area in 1987. The Reserve provides suitable dispersal and non-breeding habitat along seasonal drainages. However, there are no perennial or intermittent stagnant or ponding water sources that could serve as suitable breeding habitat.

Potential Impact: Tree removal will occur in areas that are unlikely habitat for northern red-legged frogs. No direct impacts to northern red-legged frogs or impacts to their habitat are anticipated.

Mammals

Pallid bat (*Antrozous pallidus*)

Conservation Status: CDFW Species of Special Concern

Habitat and Life History Requirements: The pallid bat is found in arid and semi-arid regions across western North America, generally occupying lower elevation grasslands, shrublands, and forests with rocky outcrops and access to water and open areas for foraging. Day roosts include rock crevices, caves, mine shafts, hollow trees, and narrow openings in buildings or other artificial structures, whereas night roosts are more open. Maternity colonies and hibernation sites provide protection from temperature extremes and include rock crevices, caves, buildings, and hollow trees or exfoliating bark. Pallid bat are very sensitive to disturbance at roost sites.

Potential to Occur: The Project area contains suitable foraging and roosting habitat for pallid bats, with some snags, tree hollows, and other features that could serve as maternity colony or hibernation sites. Preferred rocky outcrops, caves, and other optimal sites are largely absent.

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Potential Impact: Tree removal, prescribed fire, and other vegetation-clearing activities may result in temporary disturbance and minor alterations to roosting habitat, but seasonal avoidance of the maternity season will minimize direct impacts to pallid bat. The most extensive tree felling will occur in non-native stands prior to hibernation, and mature native trees and snags will be retained. Impacts to potential grassland foraging habitat will be negligible and short-term, primarily associated with site access and staging. The project is unlikely to adversely affect pallid bat.

Hoary bat (*Lasiurus cinereus*)

Conservation Status: IUCN Least Concern

Habitat and Life History Requirements: The hoary bat is closely associated with coniferous and deciduous forest, preferring forest edges or mosaic habitat with access to open areas for foraging. Hoary bats are solitary and roost in dense foliage near the end of tree branches, though they occasionally roost in rock crevices, tree cavities, or other sites. Females bear young at roost sites. The sexes separate during the warm season, with males more prevalent in the west. Both sexes occur during the winter range, which includes coastal and southern California.

Potential to Occur: Forested stands throughout the Project area provide suitable hibernation and roosting habitat for hoary bat, with adjacent clearings and open grassland for foraging. Coastal northern California likely serves as a wintering area.

Potential Impact: Tree removal, prescribed fire, and other vegetation-clearing activities may result in temporary disturbance and minor alterations to roosting habitat along forest edges, but seasonal avoidance of the maternity season will minimize direct impacts to hoary bat. The most extensive tree felling will occur in non-native stands prior to hibernation, and mature native trees and snags will be retained. Impacts to potential grassland foraging habitat will be negligible and short-term, primarily associated with site access and staging. The project is unlikely to adversely affect hoary bat.

American badger (*Taxidea taxus*)

Conservation Status: CDFW Species of Special Concern

Habitat and Life History Requirements: Badgers prefer arid, open habitats with friable soils, ranging from grassland and pasture to sparse shrublands and forest edges. They excavate soil in pursuit of prey but also construct extensive burrows and dens for sleeping and birthing young. Badgers mate in summer and early fall, giving birth in April and March. They are primarily nocturnal and tend to be less active during the winter months.

Potential to Occur: Grazed pasture and sparse scrub provide suitable habitat for American badger, primarily along steep drainages with exposed soils.

Potential Impact: Prescribed fire and other vegetation-clearing activities may result in minor alterations to scrub habitat, but project timing will minimize direct impacts to American badger by avoiding sensitive periods in the spring and summer months. Impacts to

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pasture habitat will be negligible and short-term, primarily associated with site access and staging. The project is unlikely to adversely impact American badger.

Migratory Birds

Cooper's Hawk (*Accipiter cooperii*)

Conservation Status: CDFW Watch List

Habitat and Life History Requirements: Cooper's hawks are adapted to hunt in structurally complex habitats and are usually associated with dense deciduous, riparian, and coniferous forests. They nest in dense forest, woodlots, and occasionally in isolated trees in more open areas. Tolerant of human disturbance, they are increasingly common in urban and suburban areas.

Potential to Occur: Cooper's hawks have been observed in the Project Area and adjacent habitats, primarily during the fall and winter months. The Project Area contains suitable overwintering and breeding habitat.

Potential Impact: Tree removal, prescribed fire, and other vegetation-clearing activities may result in temporary disturbance and minor alterations to habitat, but seasonal avoidance of the migratory bird nesting season will minimize direct impacts to Cooper's hawk. The project will largely retain preferred forested habitats, instead targeting encroaching saplings and stands of non-native trees. The project is unlikely to adversely impact Cooper's hawk.

Sharp-shinned Hawk (*Accipiter striatus*)

Conservation Status: CDFW Watch List

Habitat and Life History Requirements: Sharp-shinned hawks occur in a variety of forested habitats ranging from deciduous and mixed-coniferous forest to pine plantations. Although they forage in areas with a more open understory or along forest edges, nest sites are generally situated in dense stands with a continuous or well-developed canopy.

Potential to Occur: Sharp-shinned Hawks have been observed in the Project Area and adjacent habitats, primarily during the fall and winter months. The Project Area contains suitable overwintering and breeding habitat.

Potential Impact: Tree removal, prescribed fire, and other vegetation-clearing activities may result in temporary disturbance and minor alterations to habitat, but seasonal avoidance of the migratory bird nesting season will minimize direct impacts to Sharp-shinned Hawk. The project will largely retain preferred forested habitats, instead targeting encroaching saplings and stands of non-native trees. The project is unlikely to adversely impact sharp-shinned hawk.

Grasshopper Sparrow (*Ammodramus savannarum*)

Conservation Status: CDFW Species of Special Concern

Habitat and Life History Requirements: Grasshopper sparrows generally occupy large tracts of open grassland and prairie, preferring areas with scattered shrub cover in more arid

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grasslands. This ground-nesting species constructs cup nests with a dome of overhanging grasses. Migratory and overwintering habitat is similar to breeding but can also include pastureland and other marginal grassland.

Potential to Occur: Although rare, grasshopper sparrows have been observed in the Project Area and nearby agricultural fields. There are suitable patches of grassland interspersed with scattered shrub cover.

Potential Impact: Prescribed fire and other vegetation-clearing activities may result in temporary disturbance and minor alterations to scrub habitat, but seasonal avoidance of the migratory bird nesting season will minimize direct impacts to Grasshopper Sparrow. The Project will enhance remnant patches of native coastal prairie, improving habitat quality and availability. The project is unlikely to adversely impact Grasshopper Sparrow.

Great Egret (*Ardea alba*)

Conservation Status: Rookeries protected

Habitat and Life History Requirements: Great egrets are found in all freshwater and estuarine wetlands along the coast, from floodplains and river margins to freshwater marshes and mud flats. They also frequent lowland agricultural fields, drainage ditches, and other managed wetlands and surface water. Great egrets nest in colonies, primarily in trees and other woody vegetation.

Potential to Occur: Great egrets are common at Table Bluff Ecological Reserve and in surrounding estuaries, wetlands and agricultural fields. They are present year-round and have been known to nest with great blue heron in a previous rookery within the Project Area.

Potential Impact: Tree removal, prescribed fire, and other vegetation-clearing activities may result in temporary disturbance and minor alterations to habitat, but seasonal avoidance of the migratory bird nesting season will minimize direct impacts to Great Egret. The project will retain mature Sitka spruce forest preferred for nesting, instead targeting encroaching saplings and stands of non-native trees. Impacts to open foraging areas will be negligible and short-term, primarily associated with site access and staging. The project is unlikely to adversely impact great egret.

Great Blue Heron (*Ardea herodias*)

Conservation Status: Rookeries protected

Habitat and Life History Requirements: Great blue heron generally forage in freshwater and estuarine wetlands, rivers, streams, agricultural fields, pastures, and other managed lands or water bodies. However, they also frequent upland areas and nest in trees, bushes, or on the ground, usually near water. Like great egret, they usually nest in colonies.

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Potential to Occur: Great blue heron are common at Table Bluff Ecological Reserve and in surrounding estuaries, wetlands and agricultural fields. They are present year-round and have been known to nest with Great Egret in a rookery within the Project Area.

Potential Impact: Tree removal, prescribed fire, and other vegetation-clearing activities may result in temporary disturbance and minor alterations to habitat, but seasonal avoidance of the migratory bird nesting season will minimize direct impacts to great blue heron. The project will retain mature Sitka spruce forest preferred for nesting, instead targeting encroaching saplings and stands of non-native trees. Impacts to open foraging areas will be negligible and short-term, primarily associated with site access and staging. The project is unlikely to adversely impact great blue heron.

Short-eared Owl (Asio flammeus)

Conservation Status: CDFW Species of Special Concern

Habitat and Life History Requirements: Short-eared owl is a ground-nesting species that inhabits large tracts of open prairie, coastal grasslands, marshes, and occasionally agricultural fields or pastureland. Habitat during the non-breeding season is similar but may include smaller grassland areas and wooded sites. Short-eared owl occasionally roost in trees during the winter.

Potential to Occur: Short-eared owl are frequently observed in adjacent coastal grassland and dune vegetation, where they are most common during the winter. The Project Area includes marginal foraging and nesting habitat, but forested areas could serve as winter roosts.

Potential Impact: Prescribed fire and other vegetation-clearing activities may result in temporary disturbance and minor alterations to scrub habitat, but seasonal avoidance of the migratory bird nesting season will minimize direct impacts to short-eared owl. The Project will enhance remnant patches of native coastal prairie, improving habitat quality and availability. Impacts to potential pasture foraging habitat will be negligible and short-term, primarily associated with site access and staging. The project is unlikely to adversely impact short-eared owl.

Vaux's Swift (Chaetura vauxi)

Conservation Status: CDFW Species of Special Concern

Habitat and Life History Requirements: During the breeding season in coastal northern California, Vaux's swift generally occupies mature redwood and Douglas-fir forests, occasionally nesting in chimneys or similar artificial structures. Large conifers, snags, and chimneys also serve as roost sites and provide shelter during migration.

Potential to Occur: Vaux's swift has been observed year-round in the Project Area and its immediate surroundings. Mature stands provide suitable breeding- and non-breeding habitat, and forest openings and edges may serve as foraging and travel corridors.

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Potential Impact: Tree removal, prescribed fire, and other vegetation-clearing activities may result in temporary disturbance and minor alterations to habitat, but seasonal avoidance of the migratory bird nesting season will minimize direct impacts to Vaux's swift. Mature native trees and snags that could serve as roosting and nesting habitat will be largely retained. The project is unlikely to adversely impact Vaux's swift.

Northern Harrier (*Circus hudsonius*)

Conservation Status: CDFW Species of Special Concern

Habitat and Life History Requirements: Northern harrier inhabits open freshwater and estuarine wetlands, grasslands, pastureland, and agricultural fields. Nests are constructed on the ground, often in dense patches of taller vegetation. Overwintering habitat is similarly open and dominated by herbaceous cover.

Potential to Occur: Northern harrier have been observed in the Project Area and are common in adjacent wetlands, coastal prairie, and dunes. Grazed pastureland in the Project Area offers marginal nesting habitat but likely serves as year-round foraging habitat.

Potential Impact: Prescribed fire and other vegetation-clearing activities may result in temporary disturbance and minor alterations to scrub habitat, but seasonal avoidance of the migratory bird nesting season will minimize direct impacts to Northern harrier. The Project will enhance remnant patches of native coastal prairie, improving the quality and availability of nesting habitat. Impacts to pasture foraging habitat will be negligible and short-term, primarily associated with site access and staging. The Project is unlikely to adversely impact northern harrier.

White-tailed Kite (*Elanus leucurus*)

Conservation Status: CDFW Fully Protected

Habitat and Life History Requirements: White-tailed kite generally occurs in grasslands, agricultural fields, and open woodlands, with prey density as the primary factor determining habitat use and nest site selection. Nest trees may be isolated or part of larger forest stands, usually along habitat edges.

Potential to Occur: White-tailed kite are common in the Project Area and adjacent wetlands, coastal prairie, and pastureland. The Project Area includes open foraging habitat and adjacent stands of Monterey cypress and Monterey pine, which are often selected as nest trees.

Potential Impact: Tree removal, prescribed fire, and other vegetation-clearing activities may result in temporary disturbance and minor alterations to habitat, but seasonal avoidance of the migratory bird nesting season will minimize direct impacts to White-tailed Kite. Although the Project would remove non-native trees, the extent of disturbance is minimal relative to available habitat, which includes mature native conifers and adjacent stands of Monterey cypress and Monterey pine. The project is unlikely to adversely impact white-tailed kite.

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Willow Flycatcher (*Empidonax traillii*)

Conservation Status: CESA - Endangered

Habitat and Life History Requirements: Willow flycatcher prefers moist riparian areas, primarily willow thickets along streams, seeps, wetlands, and the margins of ponds and lakes. Willows are the most selected species of nest tree, but other riparian shrubs and trees are also used. Overwintering habitat is similar but may include more open areas, such as shrubby clearings, pastures, and woodland edges.

Potential to Occur: Willow flycatcher have been observed in adjacent areas, including Humboldt Bay National Wildlife Refuge and the Eel River Wildlife Area. The Project Area contains limited but suitable willow habitat, primarily along drainages and forest edges.

Potential Impact: The Project primarily targets non-native and encroaching woody species while retaining preferred willow thickets and other shrub habitat. Seasonal avoidance of the migratory bird nesting season will further minimize direct impacts to Willow Flycatcher. The project is unlikely to adversely impact willow flycatcher.

Merlin (*Falco columbarius*)

Conservation Status: CDFW Watch List

Habitat and Life History Requirements: Merlin are found in a wide range of habitats, though they generally prefer semi-open woodlands, forest edges, and grassland. Migration and wintering areas in coastal northern California include more open areas, such as dunes, marshes, mud flats, and other open areas.

Potential to Occur: Merlin overwinter in the area and have been observed in adjacent coastal grassland, wetlands, and agricultural fields. Breeding generally occurs farther north in boreal and mixed coniferous forests of Canada and Alaska, but the Project Area contains suitable foraging habitat during migration and overwintering.

Potential Impact: Prescribed fire and other vegetation-clearing activities may result in temporary disturbance and minor alterations to overwintering habitat. The Project will enhance remnant patches of native coastal prairie, improving habitat quality and availability. Impacts to pasture foraging habitat will be negligible and short-term, primarily associated with site access and staging. The project is unlikely to adversely impact merlin.

American Peregrine Falcon (*Falco peregrinus anatum*)

Conservation Status: CDFW Fully Protected

Habitat and Life History Requirements: Peregrine falcon are widely distributed across a variety of environments, though breeding habitat generally includes cliffs for nesting and adjacent open areas for foraging. Peregrine falcons increasingly occupy urban landscapes, where they nest on buildings, bridges, and other artificial structures.

Potential to Occur: Peregrine falcon is a resident species regularly observed around Humboldt Bay, including adjacent grassland, wetlands, and agricultural fields. The Project Area

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contains suitable foraging areas, but nesting habitat is limited to adjacent coastal bluffs outside the Project footprint.

Potential Impact: Prescribed fire and other vegetation-clearing activities may result in temporary disturbance and minor alterations to foraging habitat. Impacts to open foraging areas will be negligible and short-term, primarily associated with site access and staging. The Project will enhance remnant patches of native coastal prairie, improving habitat quality and availability. The project is unlikely to adversely impact peregrine falcon.

Bald Eagle (*Haliaeetus leucocephalus*)

Conservation Status: CESA – Endangered; CDFW Fully Protected

Habitat and Life History Requirements: Bald eagle typically breed in stands of mature forest relatively close to large bodies of water, such as lakes and rivers. Nest trees are often along forest edges and have open, accessible canopies. The abundance of food generally determines migration stopovers, whereas the presence of large roost trees (usually conifers in the western United States) plays a greater role in the selection of overwintering sites.

Potential to Occur: Bald eagle is a year-round resident regularly documented around Humboldt Bay and the Eel River estuary, which provide extensive foraging opportunities and suitable breeding habitat. The Project Area is adjacent to foraging habitat and contains several mature conifers that could be attractive for nesting.

Potential Impact: Tree removal, prescribed fire, and other vegetation-clearing activities may result in temporary disturbance, but seasonal avoidance of the migratory bird nesting season will minimize direct impacts to bald eagle. Although the Project will remove large non-native trees, the extent of disturbance is minimal relative to available habitat, which includes mature native conifers. The project is unlikely to adversely impact bald eagle.

Double-crested Cormorant (*Nannopterum auritum*)

Conservation Status: Rookeries protected

Habitat and Life History Requirements: Double-crested cormorant are closely associated with a diverse array of aquatic habitats, from estuaries and open coastlines to ponds, lakes, and slow-moving rivers. Ground-nesting may occur in areas without terrestrial predators, such as islands or abandoned artificial structures (e.g., docks, pilings), but may also occur on cliffs and in trees or shrubs. Arboreal roosts or colonies can occur in a variety of trees; breeding pairs may occasionally usurp nests of great blue herons or great egrets.

Potential to Occur: Double-crested cormorant are present year-round in adjacent coastal waters, estuaries, and rivers. There are no known roost or colony sites, but the Project area does contain marginally suitable forested habitat, and there are historical records of an egret and heron rookery.

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Potential Impact: Tree removal, prescribed fire, and other vegetation-clearing activities may result in temporary disturbance and minor alterations to potential habitat, but seasonal avoidance of the migratory bird nesting season will minimize direct impacts to double-crested cormorant. The project will retain areas historically used by egrets and herons, instead targeting encroaching saplings and stands of non-native trees. The project is unlikely to adversely impact Double-crested Cormorant.

Osprey (Pandion haliaetus)

Conservation Status: CDFW Watch List

Habitat and Life History Requirements: Osprey occupy a wide range of habitat types, from coastal and freshwater lakes and rivers in subtropical overwintering locations to boreal forests and temperate coasts. Breeding habitat in coastal Northern California is generally characterized by proximity to shallow water and abundant fish, as well as safety from terrestrial predators. Osprey are flexible in nest site selection, constructing large stick nests at the top of trees, on cliffs, and on artificial structures such as nest platforms, utility poles, and cell phone towers. Birds habituate quickly and are tolerant of human activity.

Potential to Occur: Osprey are a summer resident regularly documented around Humboldt Bay and the Eel River estuary, which provide extensive foraging opportunities and suitable breeding habitat. The Project Area is adjacent to foraging habitat and contains several mature conifers that could be attractive for nesting.

Potential Impact: Tree removal, prescribed fire, and other vegetation-clearing activities may result in temporary disturbance, but seasonal avoidance of the migratory bird nesting season will minimize direct impacts to osprey. Although the Project will remove large non-native trees, the extent of disturbance is minimal relative to available habitat, which includes mature native conifers. The project is unlikely to adversely impact osprey.

Bryants Savannah Sparrow (Passerculus sandwichensis alaudinus)

Conservation Status: CDFW Species of Special Concern

Habitat and Life History Requirements: Bryants savannah sparrow generally inhabit open grasslands, such as coastal prairie, cultivated fields and pastureland, roadsides, and the edges of marshes. This ground-nesting species prefers breeding habitat with dense herbaceous cover, constructing cup nests with a dome of overhanging grasses.

Potential to Occur: Bryants savannah sparrow are a coastal resident of Humboldt Bay and have been observed the Project Area and nearby agricultural fields, marshes, and dune grassland. Remnant patches of coastal prairie provide the highest quality habitat on the Reserve, but ruderal grasslands and scattered shrubs could also serve as potential nesting habitat.

Potential Impact: Prescribed fire and other vegetation-clearing activities may result in temporary disturbance and minor alterations to grassland and scrub habitat, but

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seasonal avoidance of the migratory bird nesting season will minimize direct impacts to Bryants savannah sparrow. The Project will enhance remnant patches of native coastal prairie, improving habitat quality and availability. The project is unlikely to adversely impact Bryants savannah sparrow.

Black-capped Chickadee (*Poecile atricapillus*)

Conservation Status: CDFW Watch List

Habitat and Life History Requirements: Black-capped chickadee inhabit mixed forest, open woodland, willow thickets, and cottonwood groves, as well as suburban areas and old agricultural fields. They are generally more common near forest edges. During the breeding season, they tend to occupy areas with softwood trees, such as alder, which provide suitable nest cavities and foraging habitat. Overwintering habitat is similar but may extend to cities and coastal areas lacking nest or roost cavities.

Potential to Occur: Although most evident during the fall and winter months, black-capped chickadee is a year-round resident and has been observed in adjacent agricultural fields, riparian corridors, and coastal scrub. The Project Area contains little to no suitable breeding habitat, but forest edges, willow thickets, and shrub scrub provide cover and foraging opportunities for overwintering birds.

Potential Impact: Tree removal, prescribed fire, and other vegetation-clearing activities along forest edges may result in temporary disturbance and minor alterations to habitat, but seasonal avoidance of the migratory bird nesting season will minimize direct impacts to Black-capped Chickadee. The Project primarily targets non-native and encroaching woody species while retaining willow thickets and other shrub habitat. The project is unlikely to adversely impact black-capped chickadee.

Purple Martin (*Progne subis*)

Conservation Status: CDFW Species of Special Concern

Habitat and Life History Requirements: Purple martin primarily occupy forest edges, riparian corridors, and semi-open woodlands with dead snags or tree cavities for nesting. However, their increasing use of artificial structures and nest boxes has allowed them to extend into cities, towns, and other urban or agricultural areas. The species overwinters in South America, where it occupies savannah and agricultural fields, cities, and towns.

Potential to Occur: Purple martin has been observed seasonally in the Project Area and its immediate surroundings, including in the Eel River Wildlife Area. The Reserve contains several clearings with large snags to provide nesting habitat, as well as foraging opportunities in adjacent pasture and ruderal grassland.

Potential Impact: Tree removal, prescribed fire, and other vegetation-clearing activities may result in minor alterations to habitat along forest edges, but seasonal avoidance of the migratory bird nesting season will minimize direct impacts to purple martin. Mature native trees and snags that could serve as nesting habitat will be largely retained. The project is unlikely to adversely impact purple martin.

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Yellow Warbler (*Setophaga petechia*)

Conservation Status: CDFW Species of Special Concern

Habitat and Life History Requirements: Yellow warbler generally breed in riparian thickets, particularly those dominated by willow, as well as in disturbed or early successional habitat with deciduous shrub cover. Overwintering habitat in Central and South America includes a variety of woody and shrubby habitats in natural and more urban or agricultural settings.

Potential to Occur: Yellow warbler have primarily been observed in the Reserve during the fall and spring migration, though adjacent coastal scrub, forest edge, and riparian forest provide suitable breeding habitat. The Project Area contains limited willow habitat, primarily along drainages and forest edges.

Potential Impact: Tree removal, prescribed fire, and other vegetation-clearing activities may result in temporary disturbance and minor alterations to habitat along forest edges, but seasonal avoidance of the migratory bird nesting season will further minimize direct impacts to yellow warbler. The Project primarily targets non-native and encroaching woody species while retaining preferred willow thickets and other shrub habitat. The project is unlikely to adversely impact yellow warbler.

Red-breasted Sapsucker (*Sphyrapicus ruber*)

Conservation Status: CDFW Watch List

Habitat and Life History Requirements: During the breeding season in coastal northern California, red-breasted sapsucker primarily occupy spruce, hemlock, and Douglas-fir forests, preferring areas with snags. Nest cavities are excavated in dead snags or dead portions of living trees. Overwintering habitat is similar but may include deciduous and riparian woods as well as coniferous forest.

Potential to Occur: Red-breasted sapsucker have been observed in the Project Area and adjacent habitats, primarily during the fall and winter months. Although the species is most likely a winter migrant, the Project Area contains suitable nesting features in addition to overwintering habitat.

Potential Impact: Tree removal, prescribed fire, and other vegetation-clearing activities may result in temporary disturbance and minor alterations to habitat, but seasonal avoidance of the migratory bird nesting season will minimize direct impacts to Red-breasted Sapsucker. The project will largely retain mature Sitka spruce and snags, instead targeting encroaching saplings and stands of non-native trees. The project is unlikely to adversely impact red-breasted sapsucker.

Invertebrates

Obscure Bumble Bee (*Bombus caliginosus*)

Conservation Status: Terrestrial Invertebrate of Conservation Priority, State Rank S1S2

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Habitat and Life History Requirements: Obscure bumble bees occur in open coastal prairies and meadows in the Coast Range, where they may nest below or above ground during the summer (Hatfield et al. 2014). Obscure bumble bees are a generalist species that may forage for pollen and nectar from a wide variety of flowering plant species, including those in the pea family (Fabaceae), sunflower family (Asteraceae), and blueberry family (Ericaceae).

Potential to Occur: The obscure bumble bee has been observed in the Project Area along the pasture and blackberry bramble edge habitat. Obscure bumble bee may nest in the grassland and edge habitat in rodent holes and many potential nest structures between the months of April and August. Little is known about overwintering habitat, which may include adjacent forest stands.

Potential Impact: Although the project may temporarily disturb nesting habitat and potential overwintering habitat, the Project is expected to result in an overall improvement in habitat for special status bumble bees and other pollinators. The potential effects of temporary disturbances will be limited by the seasonal restriction to the fall and winter seasons. The peak colony active period and queen flight period, which spans April-August, will be seasonally avoided. Tree removal may begin in early fall as gynes take flight in search of overwintering habitat and will be completed before queens take flight in search of nesting habitat in the spring. Little is known about the habitat use of gynes during the overwintering period, but it is expected that disturbing a small fraction of the potential overwintering habitat onsite is unlikely to impact special status bumble bees.

Western Bumble Bee (*Bombus occidentalis*)

Habitat and Life History Requirements: Western bumble bee is a short-tongued generalist forager that was historically broadly distributed across western North America (Hatfield et al. 2015). Habitat for this species includes open grassy areas, parks and gardens, chaparral and shrub habitat (Hatfield et al. 2015). Although formerly common along the immediate coast of Northern California, recent patterns in observations suggest a major population decline and western bumble bee may now be restricted to higher elevations in the Coast Range and Sierra Nevada mountains (Hatfield et al. 2015). Western bumble bee typically nests in abandoned rodent burrows and other cavities. Queens take flight in search of nesting habitat each spring from February-March. The colony active period for western bumble bee spans April-September. Gynes may take flight in search of mates and overwintering habitat in October-November (CDFW 2023).

Potential to Occur: Although it has not been observed along the immediate coast in recent decades, western bumble bee has the potential to occur in the area based on historical observations in similar habitats along the North Coast. Western bumblebee may nest in the grassland and edge habitat in rodent holes and many potential nest structures. Little is known about potential overwintering habitat, which may include adjacent forest stands.

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Potential Impact: Although the project may temporarily disturb potential nesting habitat and potential overwintering habitat, the Project is expected to result in an overall improvement in habitat for special status bumble bees and other pollinators. The potential effects of temporary disturbances will be limited by the seasonal restriction to the fall and winter seasons. Ground disturbance of potential nesting habitat will seasonally avoid the peak colony active period, which spans April-September. Tree removal may begin in early fall as the end of the colony active period and as gynes take flight in search of overwintering habitat. Tree removal and other potentially disruptive activities such as prescribed burns will be completed before the nesting period in the spring. Little is known about the habitat use of gynes during the overwintering period, but it is expected that disturbing a small fraction of the potential overwintering habitat onsite is unlikely to impact special status bumble bees.

A. 2 Potentially Occurring Plant Species Accounts

The following plant species have been identified as having the potential to occur or are known to occur in the Project Area. The species' habitat and life history have been evaluated in the context of the proposed Project to determine if they may be substantially affected by the Project.

1. Sea-watch (*Angelica lucida*)

Conservation Status: CRPR 4.2—Limited distribution and moderately threatened.

Blooming Period: April-September

Habitat and Life History Requirements: Sea watch is a native perennial herb in the carrot family (Apiaceae) found in coastal scrub, dunes, and salt marshes along the North Coast of California and Pacific Coast to Alaska as well as coastal eastern North America and eastern Asia. Sea watch is a culturally significant plant to the Wiyot people. It is somewhat salt-tolerant and typically occurs along the immediate coast.

Potential to Occur: Sea watch is present in coastal prairie and scrub habitat west of the enclosure, where it is primarily associated with openings and edges of the wetland scrub habitat. A total of 45 vegetative plants were counted in a single population area of approximately 0.18 acres.

Potential Impact: The Project may temporarily disturb the population, and as a List 4 Limited Distribution plant, it may warrant consideration in project design and impact analysis. Seasonal grazing does not appear to negatively affect the sea watch population and periodic low-level disturbance may be needed to maintain suitable openings in the scrub and prairie edge habitat. Implementing low-level disturbance regimes such as seasonal grazing with goats or prescribed burning in this area is expected to result in habitat improvement and expansion. Additionally, seeds will be collected and propagated in other suitable habitats on the Reserve as part of the design to expand and enhance populations of culturally significant species on the Reserve. Potential

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negative effects of temporary disturbance on the sea watch population and its habitat are not potentially significant.

2. Northern clustered sedge (*Carex arcta*)

Conservation Status: CRPR 2B.2—Rare or endangered in California and moderately threatened.

Blooming Period: June-September

Habitat and Life History Requirements: Northern clustered sedge primarily occurs in bogs or fens within coniferous forest.

Potential to Occur: Potential habitat occurs on the Reserve within the Sitka spruce forest. Northern clustered sedge is not known to occur within 5 miles of the site. Potential habitat has been surveyed with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

3. Bristle-stalked sedge (*Carex leptalea*)

Conservation Status: CRPR 2B.2—Rare or endangered in California and moderately threatened.

Blooming Period: March-July

Habitat and Life History Requirements: Bristle-stalked sedge is a perennial rhizomatous sedge that primarily occurs in wetlands such as bogs and fens, marshes and swamps, meadows and seeps.

Potential to Occur: Potential habitat occurs onsite, primarily within wet meadows and seeps. The nearest known occurrence is approximately 3 miles away. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

4. Northern meadow sedge (*Carex praticola*)

Conservation Status: CRPR 2B.2—Rare or endangered in California and moderately threatened.

Blooming Period: May-July

Habitat and Life History Requirements: Northern meadow sedge is a perennial herb that primarily occurs in meadows, openings, and seeps.

Potential to Occur: Potential habitat occurs on the Reserve within meadows and openings. Northern clustered sedge is not known to occur within 5 miles of the site. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

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5. Oregon coast paintbrush (*Castilleja litoralis*)

Conservation Status: CRPR 2B.2—Rare or endangered in California and moderately threatened.

Blooming Period: June

Habitat and Life History Requirements: Oregon paintbrush primarily occurs in coastal bluff scrub, roadcuts in uplifted bluffs, or dry sandy bluff edges.

Potential to Occur: Oregon coast paintbrush is known to occur in the roadcut in the sandy coastal bluff immediately to the north of the Reserve. Likely potential habitat occurs along the steep bluff scrub to the north of the Reserve along Humboldt Bay. Oregon paintbrush is less likely to occur in the densely vegetated scrub and grassland habitats on the gentler slopes of the Project area. Potential habitat on the Reserve has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: None—although it is known to occur in the vicinity, no direct or indirect impacts are anticipated to Oregon coast paintbrush or its habitat.

6. Pacific golden saxifrage (*Chrysosplenium glechomifolium*)

Conservation Status: CRPR 4.3—Limited distribution, not very threatened in California.

Blooming Period: February-June

Habitat and Life History Requirements: Pacific golden saxifrage is primarily found in shaded, wet areas of North Coast coniferous or riparian forest.

Potential to Occur: Potential habitat occurs on the Reserve within the Sitka spruce forest. It is not known to occur nearby and potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

7. Whitney's farewell-to-spring (*Clarkia amoena* ssp. *whitneyi*)

Conservation Status: CRPR 1B.1—Rare or Endangered throughout range, and seriously threatened in California.

Blooming Period: June-August

Habitat and Life History Requirements: Whitney's farewell-to-spring is an annual wildflower that occurs in open coastal bluff scrub.

Potential to Occur: Unlikely potential habitat occurs on the Reserve, and more suitable potential habitat occurs in more open sandy soils in the surrounding area. However, this subspecies has a severely restricted distribution, and no extant populations are known to occur nearby. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

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8. Coast fawn lily (*Erythronium revolutum*)

Conservation Status: CRPR 2B.2—Rare or endangered in California and moderately threatened.

Blooming Period: March-July (August)

Habitat and Life History Requirements: Coast fawn lily is a perennial bulb that occurs along streambanks and mesic areas within broadleafed or coniferous forest.

Potential to Occur: Unlikely potential habitat occurs onsite within Sitka spruce forest, but this species is commonly associated with shaded streambanks and seeps. No populations are known to occur nearby. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

9. Pacific gilia (*Gilia capitata* ssp. *pacifica*)

Conservation Status: CRPR 1B.2—Rare or Endangered throughout range, and moderately threatened in California.

Blooming Period: April-August

Habitat and Life History Requirements: Grassland, scrub or coastal prairie

Potential to Occur: Potential habitat occurs in grassland habitat on the Reserve. No populations are known to occur within 5 miles. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

10. Short-leaved evax (*Hesperevax sparsiflora* var. *brevifolia*)

Conservation Status: CRPR 1B.2—Rare or Endangered throughout range, and moderately threatened in California.

Blooming Period: March-June

Habitat and Life History Requirements: Short-leaved evax may occur in sandy soils of coastal bluff scrub, coastal dunes, or coastal prairie.

Potential to Occur: Potential habitat occurs in semi-stabilized backdunes in the adjacent South Spit and Ocean Ranch dunes. The Reserve provides unlikely potential habitat based on soil. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

11. Harlequin lotus (*Hosackia gracilis*)

Conservation Status: CRPR 4.2—Limited distribution and moderately threatened.

Blooming Period: March-July

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Habitat and Life History Requirements: Harlequin lotus occurs in wetlands or wet roadsides in forested, grassland, scrub, or woodland habitats.

Potential to Occur: Potential habitat occurs on the Reserve. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

12. Perennial goldfields (*Lasthenia californica* ssp. *macrantha*)

Conservation Status: CRPR 1B.2—Rare or Endangered throughout range, and moderately threatened in California.

Blooming Period: January-November

Habitat and Life History Requirements: Perennial goldfields may occur in coastal bluff scrub, coastal dunes, or coastal prairie.

Potential to Occur: Potential habitat occurs in the Project area. No populations are known to occur nearby. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

13. Marsh pea (*Lathyrus palustris*)

Conservation Status: CRPR 2B.2—Rare or endangered in California and moderately threatened.

Blooming Period: March-August

Habitat and Life History Requirements: Marsh pea occurs in wetland or mesic habitat within coastal prairie, scrub, or forested habitat.

Potential to Occur: Potential habitat occurs in the Project area. No populations are known to occur within 5 miles. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

14. Western lily (*Lilium occidentale*)

Conservation Status: Federally and State Endangered, CRPR 1B.1—Rare or Endangered throughout range, and seriously threatened in California.

Blooming Period: June-July

Habitat and Life History Requirements: Western lily occurs in wetland to mesic areas of coastal scrub, coastal prairie, and North Coast coniferous forest. Western lily requires uncompacted soil with a high water table that may be perched above an impermeable mineral layer or seasonally fluctuating within organic marsh soil. Western lily is vulnerable to herbivory by deer and small rodents, which may limit reproductive success. The perennial bulb appears adapted to early successional habitat with

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moderate disturbance, such as fire and grazing. Although the plant may survive in a shaded understory for many years, open conditions facilitate higher rates of successful flowering and reproduction needed to maintain the population in the long term.

Potential to Occur: Western lily occurs in Sitka spruce forest, scrub, and coastal prairie habitats on the Reserve. The Reserve population is the second largest in California. In 2022 surveys, a total of 1493 western lily plants were inventoried on the Reserve, including 98 reproductive plants. Most of the plants were in the original population location, protected within a fenced enclosure on the northwest side of the Reserve. In 2022, 29 plants were found in the locations of previous propagation and population expansion efforts on the eastern side of the Reserve.

Potential Impact: The project is designed to enhance western lily habitat by opening the canopy and implementing moderate disturbance to maintain early successional habitat required for western lily to thrive. Tree removal methods designed to be low-disturbance in the fall-winter of 2023 will represent a temporary disturbance to western lily habitat that is expected to improve and expand potential habitat for western lily and result in an increase in the reproductive population. Seasonal grazing and prescribed burns will occur during the dormancy period and are expected to enhance habitat value with minimal effects on underground bulbs. Restoration planting, placement of protective fencing, and associated ground-disturbing activities will avoid impacts to western lily by being located outside of the western lily population area with a minimum five-meter setback. Trail construction and public access infrastructure such as signage will be located in disturbed non-native pasture and will not be placed in the vicinity of the western lily population or potential western lily habitat, and therefore will not affect western lily.

Western Lily Impact Avoidance and Minimization Measures:

- All disturbances planned within the western lily population areas, including tree removal, brush or invasive plant management, grazing, and prescribed burns, shall occur during the western lily dormancy period (September-February).
- No vehicles or heavy equipment will be driven through the western lily population enclosure or propagation areas.
- Trees will be cable yarded or lifted by helicopter rather than dragged through western lily population areas to avoid disturbing or compacting the soil.
- No slash piles will be left in western lily population areas.
- Temporary slash piles outside of western lily population areas will be mulched, made into bio-char, or burned to avoid attracting rodents.
- Log piles will be temporarily staged in previously disturbed non-native pasture, then provided to tribal members as firewood or beneficial use in restoration that requires medium to large wood.
- Woody invasive plants that have the potential to benefit from disturbance and increased sun exposure will be manually removed during the dormancy period.

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- The reproductive western lily population will be inventoried and mapped annually during the flowering period to monitor the response to management during the project.
- All soil disturbance for native restoration planting or fence posts will be setback at least five meters from the annually mapped and monitored western lily population to avoid disturbance of underground bulbs.

15. Heart-leaved twayblade (*Listera cordata*)

Conservation Status: CRPR 4.2—Limited distribution, and moderately threatened in California.

Blooming Period: February-July

Habitat and Life History Requirements: This small orchid can be found in moist, shaded coniferous forest.

Potential to Occur: Potential habitat can be found in shady areas of Sitka spruce forest. No occurrences are known in the vicinity. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

16. Running-pine (*Lycopodium clavatum*)

Conservation Status: CRPR 4.1—Limited distribution and seriously threatened in California.

Blooming Period: June-August (September)

Habitat and Life History Requirements: Running pine typically occurs on edges and roadsides of coniferous forest.

Potential to Occur: Potential habitat can be found in roadsides and openings along Sitka spruce forest. No occurrences are known in the vicinity. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

17. Leafy-stemmed miterwort (*Mitellastrum caulescens*)

Conservation Status: CRPR 4.2—Limited distribution, and moderately threatened in California.

Blooming Period: (March) April-October

Habitat and Life History Requirements: This saxifrage typically inhabits shady, mesic or wetland areas of coniferous or broadleafed forest.

Potential to Occur: Potential habitat can be found in shady, moist areas of Sitka spruce forest. No occurrences are known in the vicinity. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

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18. Ghost-pipe (*Monotropa uniflora*)

Conservation Status: CRPR 2B.2—Rare or endangered in California and moderately threatened.

Blooming Period: June-August (September)

Habitat and Life History Requirements: Ghost pipe is a mycoheterotroph that typically inhabits low-elevation North Coast coniferous or mixed coniferous and broadleafed forest.

Potential to Occur: Sitka spruce forest may be potential habitat. No occurrences are known within five miles. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

19. Howells montia (*Montia howellii*)

Conservation Status: CRPR 2B.2—Rare or endangered in California and moderately threatened.

Blooming Period: (February) March-May

Habitat and Life History Requirements: Howell's montia is a small annual plant that typically occurs in vernal wet areas and roadsides within forested or grassland habitat, and it is associated with compacted soil.

Potential to Occur: Seasonal access roads and cattle trails on the Reserve may be potential habitat. The nearest known occurrence is approximately five miles away. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

20. Wolfs evening-primrose (*Oenothera wolfii*)

Conservation Status: CRPR 1B.1—Rare or Endangered throughout range, and seriously threatened in California.

Blooming Period: May-October

Habitat and Life History Requirements: Wolf's evening primrose is restricted to moist, sandy coastal soils and may occur in dunes, bluffs, or roadsides.

Potential to Occur: The Reserve soils typically have high levels of organic matter, making it unlikely habitat. Erosional areas with exposed sandy mineral bluff soils offer some potential habitat in small areas of the Reserve and surrounding bluff scrub. There are no occurrences known in the vicinity. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

21. California pinefoot (*Pityopus californicus*)

Conservation Status: CRPR 4.2—Limited distribution, and moderately threatened in California.

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Blooming Period: (March-April) May-August

Habitat and Life History Requirements: This mycoheterotrophic plant typically occurs in coniferous or mixed coniferous and broadleafed forest.

Potential to Occur: Sitka spruce forest may be potential habitat. No occurrences are known in the vicinity. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

22. Nodding semaphore grass (*Pleuropogon refractus*)

Conservation Status: CRPR 4.2—Limited distribution, and moderately threatened in California.

Blooming Period: (February-March) April-August

Habitat and Life History Requirements: This perennial rhizomatous grass is typically found in mesic areas of coniferous forest, meadows and seeps, or riparian forest.

Potential to Occur: Potential habitat can be found in seeping meadows and shaded moist areas of the Sitka spruce forest. No occurrences are known in the vicinity. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

23. Oregon polemonium (*Polemonium carneum*)

Conservation Status: CRPR 2B.2—Rare or endangered in California and moderately threatened.

Blooming Period: April-September

Habitat and Life History Requirements: This perennial herb typically occurs in coastal prairie, coastal scrub, or coniferous forest edges and openings, and it may be associated with disturbances such as fire.

Potential to Occur: Potential habitat can be found in openings, forest edge, scrub, and prairie habitat on the Reserve. No occurrences are known within five miles. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

24. Trailing black currant (*Ribes laxiflorum*)

Conservation Status: CRPR 4.3—Limited distribution, not very threatened in California.

Blooming Period: March-July (August)

Habitat and Life History Requirements: This trailing shrub typically occurs in North Coast coniferous forest at low elevations, and it also occurs in the Pacific Northwest to Alaska as well as Idaho and Siberia.

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Potential to Occur: Sitka spruce forest on the Reserve is potential habitat. No occurrences are known in the vicinity. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

25. Maple-leaved checkerbloom (*Sidalcea malachroides*)

Conservation Status: CRPR 4.2—Limited distribution, and moderately threatened in California.

Blooming Period: (March)April-August

Habitat and Life History Requirements: This perennial herb is often in disturbed areas within coniferous forest, coastal prairie, scrub, broadleaved, or riparian forest.

Potential to Occur: Potential habitat can be found in disturbed forest, prairie, and scrub on the Reserve. No occurrences are known in the vicinity. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

26. Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*)

Conservation Status: CRPR 1B.2—Rare or endangered throughout range and moderately threatened.

Blooming Period: (March) May-August

Habitat and Life History Requirements: This perennial rhizomatous herb may occur in coastal bluff scrub, coastal prairie, or openings and edges of North Coast coniferous forest.

Potential to Occur: Potential habitat occurs in prairie, scrub, and forest openings and edges on the Reserve. The nearest mapped occurrence is approximately two miles away. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

27. Coast checkerbloom (*Sidalcea oregana* ssp. *eximia*)

Conservation Status: CRPR 1B.2—Rare or endangered throughout range and moderately threatened.

Blooming Period: June-August

Habitat and Life History Requirements: This perennial herb may occur in coniferous forest, meadows, and seeps. It is often associated with roadsides, openings, and edge habitat.

Potential to Occur: Potential habitat is widespread on the Reserve. It is known to presently occur less than 0.5 miles to the east of the Reserve in wet roadside scrub and grassland edge habitat. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be currently present on the Reserve.

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Potential Impact: No negative direct or indirect impact to coast checkerbloom is anticipated.

The Project is expected to enhance potential habitat value for coast checkerbloom, and this species may be included in the restoration planting species list to expand the population.

28. Scoulers catchfly (*Silene scouleri* ssp. *scouleri*)

Conservation Status: CRPR 2B.2—Rare or endangered in California and moderately threatened.

Blooming Period: (March-May) June-August (September)

Habitat and Life History Requirements: This perennial herb typically inhabits coastal bluff scrub, coastal prairie, or grassland habitat.

Potential to Occur: Grassland, coastal prairie, or scrub on the Reserve may be potential habitat.

No occurrences are known in the vicinity. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

29. Alpine marsh violet (*Viola palustris*)

Conservation Status: CRPR 2B.2—Rare or endangered in California and moderately threatened.

Blooming Period: March-August

Habitat and Life History Requirements: This white, perennial rhizomatous violet typically occurs in coastal fens or wetlands, where it is often shaded beneath scrub habitat.

Potential to Occur: Wetlands with scrub vegetation on the Reserve may be potential habitat for alpine marsh violet. No occurrences are documented within five miles. Potential habitat has been surveyed during the blooming period with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

30. Twisted horsehair lichen (*Sulcaria spiralifera*)

Conservation Status: CRPR 1B.2—Rare or endangered throughout range and moderately threatened.

Blooming Period: Not applicable.

Habitat and Life History Requirements: This fruticose lichen is endemic to coastal dune forests and North Coast coniferous forest on the immediate coast from California to Washington. It is epiphytic, hanging from tree branches, and it is distinguished by its spiraling habit.

Potential to Occur: The Sitka spruce forest may offer potential habitat. There are no known occurrences within five miles. Potential habitat has been surveyed with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct or indirect impacts are anticipated.

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31. Methuselahs beard lichen (*Usnea longissima*)

Conservation Status: CRPR 4.2—Limited distribution, and moderately threatened in California.

Blooming Period: Not applicable.

Habitat and Life History Requirements: This fruticose lichen is distinguished by the exceptional length of unbranched strands, which drape and hang from tree branches in coniferous or broadleafed upland forests. It is often associated with old growth trees.

Potential to Occur: The relatively young Sitka spruce forest is unlikely potential habitat. There are no occurrences mapped within five miles. Potential habitat has been surveyed with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct impacts or indirect impacts are anticipated.

32. Minute pocket moss (*Fissidens pauperculus*)

Conservation Status: CRPR 1B.2—Rare or endangered throughout range and moderately threatened.

Blooming Period: Not applicable.

Habitat and Life History Requirements: This moss typically occurs in damp coastal soils in North Coast coniferous forest.

Potential to Occur: Potential habitat may occur within wet areas of Sitka spruce forest. There are no known occurrences within five miles. Potential habitat has been surveyed with negative results, and therefore it is unlikely to be present.

Potential Impact: No direct impacts or indirect impacts are anticipated.

Appendix B. Species Observations

Table 1. Table Bluff Ecological Reserve Plant Observations

	<i>Scientific Name</i>	Common Name	Status	Family	Date
Trees	<i>Alnus rubra</i>	Red alder	native	Betulaceae	6/29/2022
	<i>Eucalyptus globulus</i>	Blue gum	invasive non-native	Myrtaceae	4/20/2023
	<i>Hesperocyparis macrocarpa</i>	Monterey cypress	non-native	Cupressaceae	4/20/2023
	<i>Picea sitchensis</i>	Sitka spruce	native	Pinaceae	6/29/2022
	<i>Pinus radiata</i>	Monterey pine	non-native	Pinaceae	3/1/2023
	<i>Pseudotsuga menziesii</i>	Douglas fir	native	Pinaceae	6/16/2022
Shrubs	<i>Malus fusca</i>	Oregon crab apple	native	Rosaceae	6/29/2022
	<i>Morella californica</i>	California wax myrtle	native	Myricaceae	6/29/2022
	<i>Baccharis pilularis</i>	Coyote brush	native	Asteraceae	6/29/2022
	<i>Corylus cornuta</i>	Beaked hazelnut	native	Betulaceae	6/14/2022
	<i>Cotoneaster franchetii</i>	Cotoneaster	invasive non-native	Rosaceae	5/3/2023
	<i>Erica lusitanica</i>	Spanish heather	invasive non-native	Ericaceae	5/3/2023
	<i>Frangula purshiana</i>	Cascara sagrada	native	Rhamnaceae	6/29/2022
	<i>Gaultheria shallon</i>	Salal	native	Ericaceae	5/22/2023
	<i>Hedera helix</i>	English ivy	invasive non-native	Araliaceae	3/1/2023
	<i>Ilex aquifolium</i>	Holly	invasive non-native	Aquifoliaceae	6/29/2022
	<i>Lonicera involucrata</i>	Coast twinberry	native	Caprifoliaceae	6/29/2022
	<i>Ribes sanguineum</i>	Flowering currant	native	Grossulariaceae	5/3/2023
	<i>Rosa nutkana</i>	Nootka rose	native	Rosaceae	6/29/2022
	<i>Rosa rubiginosa</i>	Sweet briar	non-native	Rosaceae	4/20/2023
	<i>Rubus armeniacus</i>	Himalayan blackberry	invasive non-native	Rosaceae	3/1/2023
	<i>Rubus parviflorus</i>	Thimbleberry	native	Rosaceae	6/29/2022
	<i>Rubus spectabilis</i>	Salmon berry	native	Rosaceae	6/29/2022
<i>Rubus ursinus</i>	California blackberry	native	Rosaceae	5/3/2023	

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	<i>Salix hookeriana</i>	Coastal willow	native	Salicaceae	4/20/2023
	<i>Salix scouleriana</i>	Scouler willow	native	Salicaceae	4/20/2023
	<i>Sambucus racemosa</i>	Red elderberry	native	Adoxaceae	6/29/2022
	<i>Spiraea douglasii</i>	Douglas spiraea	native	Rosaceae	5/3/2023
	<i>Toxicodendron diversilobum</i>	Poison oak	native	Anacardiaceae	5/3/2023
	<i>Vaccinium ovatum</i>	Evergreen huckleberry	native	Ericaceae	5/22/2023
Forbs	<i>Achillea millefolium</i>	Yarrow	native	Asteraceae	6/3/2022
	<i>Allium unifolium</i>	One leaf onion	native	Alliaceae	6/14/2022
	<i>Angelica lucida</i>	Sea watch	rare 4.2, native	Apiaceae	4/20/2023
	<i>Arctium sp.</i>	Burdock	non-native	Asteraceae	5/22/2023
	<i>Athyrium filix-femina</i>	Common ladyfern	native	Athyriaceae	6/29/2022
	<i>Bellis perennis</i>	English lawn daisy	non-native	Asteraceae	4/20/2023
	<i>Calandrinia menziesii</i>	Red maids	native	Montiaceae	5/3/2023
	<i>Camassia quamash ssp. breviflora</i>	Small camas	native	Agavaceae	6/14/2022
	<i>Cardamine breweri</i>	Brewer's bitter cress	native	Brassicaceae	4/26/2023
	<i>Cardamine californica</i>	Bitter cress	native	Brassicaceae	4/20/2023
	<i>Cardamine oligosperma</i>	Idaho bittercress	native	Brassicaceae	4/20/2023
	<i>Cerastium glomeratum</i>	Large mouse ears	non-native	Caryophyllaceae	4/20/2023
	<i>Cirsium vulgare</i>	Bullthistle	invasive non-native	Asteraceae	6/29/2022
	<i>Claytonia perfoliata</i>	Miner's lettuce	native	Montiaceae	4/20/2023
	<i>Claytonia sibirica</i>	Candy flower	native	Montiaceae	5/3/2023
	<i>Daucus carota</i>	Carrot	non-native	Apiaceae	3/1/2023
	<i>Dryopteris expansa</i>	Spreading wood fern	native	Dryopteridaceae	4/26/2023
	<i>Epilobium ciliatum ssp. watsonii</i>	Willow herb	native	Onagraceae	6/9/2023
	<i>Erodium cicutarium</i>	Coastal heron's bill	invasive non-native	Geraniaceae	5/3/2023
	<i>Fragaria chiloensis</i>	Beach strawberry	native	Rosaceae	6/29/2022
<i>Galium aparine</i>	Cleavers	native	Rubiaceae	4/20/2023	
<i>Galium triflorum</i>	Sweet bedstraw	native	Rubiaceae	6/29/2022	
<i>Geranium dissectum</i>	Wild geranium	invasive non-native	Geraniaceae	5/3/2023	

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<i>Gnaphalium palustre</i>	Lowland cudweed	native	Asteraceae	5/22/2023
<i>Helenium bolanderi</i>	Bolander's sneezeweed	native	Asteraceae	6/29/2022
<i>Heracleum maximum</i>	Common cowparsnip	native	Apiaceae	6/29/2022
<i>Hypochaeris radicata</i>	Hairy cats ear	invasive non-native	Asteraceae	5/3/2023
<i>Iris douglasiana</i>	Douglas iris	native	Iridaceae	6/14/2022
<i>Lathyrus vestitus</i>	Common pacific pea	native	Fabaceae	6/9/2023
<i>Lepidium campestre</i>	Field pepper grass	non-native	Brassicaceae	5/3/2023
<i>Leucanthemum vulgare</i>	Oxe eye daisy	invasive non-native	Asteraceae	6/29/2022
<i>Ligusticum apiifolium</i>	Celery leaved lovage	native	Apiaceae	6/29/2022
<i>Lilium occidentale</i>	Western lily	Endangered	Liliaceae	6/29/2022
<i>Linum bienne</i>	Flax	non-native	Linaceae	5/3/2023
<i>Lotus corniculatus</i>	Bird's foot trefoil	non-native	Fabaceae	6/29/2022
<i>Lythrum hyssopifolia</i>	Hyssop loosestrife	invasive non-native	Lythraceae	5/3/2023
<i>Maianthemum dilatatum</i>	Pacific may lily	native	Ruscaceae	6/29/2022
<i>Maianthemum stellatum</i>	Starry false lily of the valley	native	Ruscaceae	5/3/2023
<i>Marah oregana</i>	Coast man-root	native	Cucurbitaceae	6/29/2022
<i>Mentha pulegium</i>	Pennyroyal	invasive non-native	Lamiaceae	5/3/2023
<i>Narcissus pseudonarcissus</i>	Daffodil	non-native	Amaryllidaceae	5/22/2023
<i>Oenanthe sarmentosa</i>	Water parsley	native	Apiaceae	6/29/2022
<i>Parentucellia viscosa</i>	Yellow parentucellia	invasive non-native	Orobanchaceae	6/29/2022
<i>Plagiobothrys cf. reticulatus</i>	Reticulate popcorn flower	native	Boraginaceae	5/3/2023
<i>Plantago lanceolata</i>	Ribwort	invasive non-native	Plantaginaceae	6/29/2022
<i>Polypodium scoleri</i>	Leather fern	native	Polypodiaceae	6/29/2022
<i>Polystichum munitum</i>	Western sword fern	native	Dryopteridaceae	6/29/2022
<i>Potentilla anserina</i>	Silver weed cinquefoil	native	Rosaceae	3/1/2023
<i>Prosartes smithii</i>	Largeflower fairybells	native	Liliaceae	5/3/2023
<i>Prunella vulgaris</i>	Self heal	native	Lamiaceae	5/3/2023
<i>Pteridium aquilinum</i>	Western brackenfern	native	Dennstaedtiaceae	6/29/2022
<i>Ranunculus repens</i>	Creeping buttercup	invasive non-native	Ranunculaceae	6/29/2022
<i>Raphanus sp.</i>	Radish	non-native	Brassicaceae	4/20/2023

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	<i>Romulea rosea</i>	Rosy sand crocus	invasive non-native	Iridaceae	4/20/2023
	<i>Rumex acetosella</i>	Sheep sorrel	invasive non-native	Polygonaceae	6/29/2022
	<i>Rumex crispus</i>	Curly dock	invasive non-native	Polygonaceae	5/3/2023
	<i>Sanicula crassicaulis</i>	Pacific sanicle	native	Apiaceae	4/20/2023
	<i>Senecio minimus</i>	Coastal burnweed	non-native	Asteraceae	3/1/2023
	<i>Silene gallica</i>	Common catchfly	non-native	Caryophyllaceae	6/3/2022
	<i>Sisyrinchium bellum</i>	Blue eyed grass	native	Iridaceae	5/22/2023
	<i>Solidago elongata</i>	West Coast Canada goldenrod	native	Asteraceae	7/18/2023
	<i>Sonchus asper</i>	Spiny sowthistle	non-native	Asteraceae	5/3/2023
	<i>Stachys rigida</i>	Rough hedgenettle	native	Lamiaceae	6/29/2022
	<i>Stellaria media</i>	Chickweed	non-native	Caryophyllaceae	4/20/2023
	<i>Symphyotrichum chilense</i>	Pacific aster	native	Asteraceae	6/14/2022
	<i>Taraxacum officinale</i>	Red seeded dandelion	non-native	Asteraceae	3/1/2023
	<i>Tellima grandiflora</i>	Fringe cups	native	Saxifragaceae	5/22/2023
	<i>Trifolium campestre</i>	Hop clover	non-native	Fabaceae	5/3/2023
	<i>Trifolium pratense</i>	Red clover	non-native	Fabaceae	6/29/2022
	<i>Trifolium subterraneum</i>	Subterranean clover	non-native	Fabaceae	5/3/2023
	<i>Trifolium wormskioldii</i>	Cow clover	native	Fabaceae	6/14/2022
	<i>Triteleia laxa</i>	Ithuriel's spear	native	Themidaceae	6/14/2022
	<i>Vicia sativa</i>	Spring vetch	non-native	Fabaceae	6/29/2022
	<i>Vicia tetrasperma</i>	Four seeded vetch	non-native	Fabaceae	5/22/2023
	<i>Viola adunca</i>	Western dog violet	native	Violaceae	4/20/2023
Grasses/Grass-like Plants	<i>Agrostis stolonifera/gigantea</i>	Creeping bentgrass complex	invasive non-native	Poaceae	3/1/2023
	<i>Aira caryophyllea</i>	Silvery hairgrass	non-native	Poaceae	6/3/2022
	<i>Alopecurus geniculatus</i>	Marsh foxtail	native	Poaceae	5/22/2023
	<i>Anthoxanthum odoratum</i>	Sweet vernal grass	invasive non-native	Poaceae	6/29/2022
	<i>Avena barbata</i>	Slim oat	invasive non-native	Poaceae	6/3/2022
	<i>Briza maxima</i>	Rattlesnake grass	invasive non-native	Poaceae	6/14/2022
	<i>Bromus hordeaceus</i>	Soft chess	invasive non-native	Poaceae	5/3/2023

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	<i>Bromus sitchensis</i> var. <i>carinatus</i>	California brome	native	Poaceae	6/9/2023
	<i>Calamagrostis nutkaensis</i>	Pacific reedgrass	native	Poaceae	6/14/2022
	<i>Carex</i> cf. <i>harfordii</i>	Monterey sedge	native	Cyperaceae	5/3/2023
	<i>Carex gynodynamis</i>	Wonder-woman sedge	native	Cyperaceae	5/22/2023
	<i>Carex leptopoda</i>	Slender-footed sedge	native	Cyperaceae	4/20/2023
	<i>Carex obnupta</i>	Slough sedge	native	Cyperaceae	6/29/2022
	<i>Carex tumulicola</i>	Split awn sedge	native	Cyperaceae	5/22/2023
	<i>Cynosurus echinatus</i>	Dogtail grass	invasive non-native	Poaceae	6/3/2022
	<i>Cyperus squarrosus</i>	Awned cyperus	native	Cyperaceae	5/3/2023
	<i>Dactylis glomerata</i>	Orchardgrass	invasive non-native	Poaceae	6/29/2022
	<i>Danthonia californica</i>	California oatgrass	native	Poaceae	6/14/2022
	<i>Deschampsia cespitosa</i>	Tufted hair grass	native	Poaceae	5/22/2023
	<i>Eleocharis palustris</i>	Common spikerush	native	Cyperaceae	5/3/2023
	<i>Elymus glaucus</i> ssp. <i>glaucus</i>	Blue wild rye	native	Poaceae	6/14/2022
	<i>Festuca arundinacea</i>	Reed fescue	invasive non-native	Poaceae	6/29/2022
	<i>Festuca bromoides</i>	Brome fescue	non-native	Poaceae	5/3/2023
	<i>Festuca myuros</i>	Rattail sixweeks grass	invasive non-native	Poaceae	6/3/2022
	<i>Festuca rubra</i>	Red fescue	native	Poaceae	5/3/2023
	<i>Holcus lanatus</i>	Common velvetgrass	invasive non-native	Poaceae	6/29/2022
	<i>Juncus balticus</i>	Wire rush	native	Juncaceae	6/29/2022
	<i>Juncus bufonius</i>	Common toad rush	native	Juncaceae	4/20/2023
	<i>Juncus hesperius</i>	Coast or bog rush	native	Juncaceae	3/1/2023
	<i>Juncus occidentalis</i>	Slender juncus	native	Juncaceae	6/3/2022
	<i>Juncus patens</i>	Rush	native	Juncaceae	4/20/2023
	<i>Luzula comosa</i>	Hairy wood rush	native	Juncaceae	6/29/2022
	<i>Poa pratensis</i>	Kentucky blue grass	invasive non-native	Poaceae	5/3/2023
	<i>Rytidosperma penicillatum</i>	Purple awned wallaby grass	invasive non-native	Poaceae	6/14/2022
NV	<i>Ramalina menziesii</i>	Lace lichen	native	Ramalinaceae	3/1/2023
	<i>Usnea rubicunda</i>	Red beard lichen	native	Parmeliaceae	5/3/2023

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Table 2. Table Bluff Ecological Reserve Animal Species Observations

Group	Scientific Name	Common Name	Date
Amphibians	<i>Pseudacris regila</i>	Pacific chorus frog	3-May-23
Birds	<i>Anas platyrhynchos</i>	Mallard	3-May-23
	<i>Ardea alba</i>	Great Egret	3-May-23
	<i>Ardea herodias</i>	Great Blue Heron	10-Jul-22
	<i>Buteo jamaicensis</i>	Red-tailed Hawk	3-May-23
	<i>Calypte anna</i>	Anna's Hummingbird	3-May-23
	<i>Cardellina pusilla</i>	Wilson's Warbler	3-May-23
	<i>Cathartes aura</i>	Turkey Vulture	3-May-23
	<i>Catharus ustulatus</i>	Swainson's Thrush	3-May-23
	<i>Chamaea fasciata</i>	Wrentit	3-May-23
	<i>Circus hudsonius</i>	Northern Harrier	3-May-23
	<i>Colaptes auratus</i>	Northern Flicker	3-May-23
	<i>Contopus cooperi</i>	Olive-sided Flycatcher	3-May-23
	<i>Corvus corax</i>	Common Raven	3-May-23
	<i>Cyanocitta stelleri</i>	Steller's Jay	3-May-23
	<i>Dryobates pubescens</i>	Downy Woodpecker	3-May-23
	<i>Empidonax difficilis</i>	Pacific-slope Flycatcher	3-May-23
	<i>Haemorhous mexicanus</i>	House Finch	3-May-23
	<i>Haemorhous purpureus</i>	Purple Finch	3-May-23
	<i>Haliaeetus leucocephalus</i>	Bald Eagle	3-May-23
	<i>Hirundo rustica</i>	Barn Swallow	3-May-23
	<i>Icterus bullockii</i>	Bullock's Oriole	3-May-23
<i>Leiothlypis celata</i>	Orange-crowned Warbler	3-May-23	
<i>Melospiza melodia</i>	Song Sparrow	3-May-23	
<i>Molothrus ater</i>	Brown-headed Cowbird	3-May-23	
<i>Nannopterum auritum</i>	Double-crested Cormorant	3-May-23	

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	<i>Patagioenas fasciata</i>	Band-tailed Pigeon	3-May-23
	<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	3-May-23
	<i>Pheucticus melanocephalus</i>	Black-headed Grosbeak	3-May-23
	<i>Poecile rufescens</i>	Chestnut-backed Chickadee	3-May-23
	<i>Regulus satrapa</i>	Golden-crowned Kinglet	3-May-23
	<i>Selasphorus sasin</i>	Allen's Hummingbird	3-May-23
	<i>Setophaga coronata</i>	Yellow-rumped Warbler	3-May-23
	<i>Sitta canadensis</i>	Red-breasted Nuthatch	3-May-23
	<i>Spinus psaltria</i>	Lesser goldfinch	10-Jul-22
	<i>Spinus tristis</i>	American Goldfinch	3-May-23
	<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow	3-May-23
	<i>Streptopelia decaocto</i>	Eurasian Collared-Dove	3-May-23
	<i>Sturnus vulgaris</i>	European Starling	3-May-23
	<i>Tachycineta bicolor</i>	Tree Swallow	3-May-23
	<i>Tachycineta thalassina</i>	Violet green swallow	10-Jul-22
	<i>Troglodytes pacificus</i>	Pacific Wren	3-May-23
	<i>Turdus migratorius</i>	American Robin	3-May-23
	<i>Tyto alba</i>	Barn Owl	3-May-23
	<i>Zenaida macroura</i>	Mourning dove	10-Jul-22
	<i>Zonotrichia atricapilla</i>	Golden-crowned Sparrow	3-May-23
	<i>Zonotrichia leucophrys</i>	White-crowned Sparrow	3-May-23
Invertebrates	<i>Bombus caliginosus</i>	Obscure bumble bee	29-Jul-22
	<i>Bombus fervidus</i>	Yellow bumble bee	29-Jul-22
	<i>Bombus mixtus</i>	Fuzzy horned bumble bee	29-Jul-22
	<i>Bombus sitkensis</i>	Sitka bumble bee	29-Jul-22
	<i>Bombus vosnesenskii</i>	Yellow faced bumble bee	29-Jul-22
	<i>Papilo</i> sp.	Swallowtail butterfly	13-Apr-23

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Mammals	<i>Canis latrans</i>	Coyote	21-Jun-23
	<i>Lynx rufus</i>	Bobcat (scat)	13-Apr-23
	<i>Neurotrichus gibbsii</i>	American shrewmole	3-May-23
	<i>Odocoileus hemonius</i>	Black-tailed deer	3-May-23
	<i>Thomomys bottae</i>	Pocket gopher	13-Apr-23
	<i>Urocyon cinereoargenteus</i>	Grey fox	3-May-23
	<i>Ursus americanus</i>	Black bear (scat)	3-May-23
Reptiles	<i>Thamnophis</i> sp.	Garter snake	3-May-23

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Western lily (*Lilium occidentale*) in bloom at Table Bluff, June 24, 2022.



Western lily (*Lilium occidentale*) in coastal prairie edge habitat with Pacific reedgrass (*Calamagrostis nutkaensis*) within enclosure, June 2022.

Table Bluff ER Coastal Prairie Restoration Project-Photo Index



Western lily (*Lilium occidentale*) in Sitka spruce (*Picea sitchensis*) canopy opening with dense brush, June 2022.



Young Sitka spruce (*Picea sitchensis*) forest to be thinned within the enclosure.

Table Bluff ER Coastal Prairie Restoration Project-Photo Index



Western lily (*Lilium occidentale*) at Table Bluff 1992 experimental propagation site in grassland habitat (Site 1b), July 25, 2022, later observed browsed by deer (Kelsey McDonald for scale).

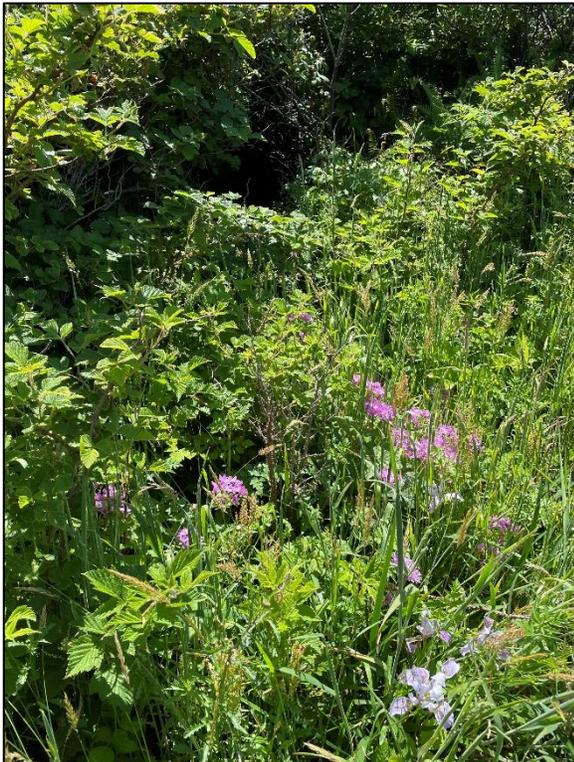


Planned coastal prairie experimental restoration pilot project location with non-native pasture, scrub, and forested habitat.

Table Bluff ER Coastal Prairie Restoration Project-Photo Index



Camas (*Camassia quamash* ssp. *breviflora*), a culturally significant edible geophyte, on coastal prairie edge within the enclosure, June 10, 2022.



One-leaved onion (*Allium unifolium*), a culturally significant edible geophyte, in grassland/shrub edge habitat June 10, 2022.

Table Bluff ER Coastal Prairie Restoration Project-Photo Index



Non-native pasture grass with invasive Himalayan blackberry (*Rubus armeniacus*), Blue gum (*Eucalyptus globulus*), and Monterey cypress (*Hesperocyparis macrocarpa*).



Non-native Monterey pines (*Pinus radiata*) encroaching in pasture on the reserve where grazing was discontinued.

Table Bluff ER Coastal Prairie Restoration Project-Map Figures



Figure 1. Location Map

Table Bluff ER Coastal Prairie Restoration Project-Map Figures

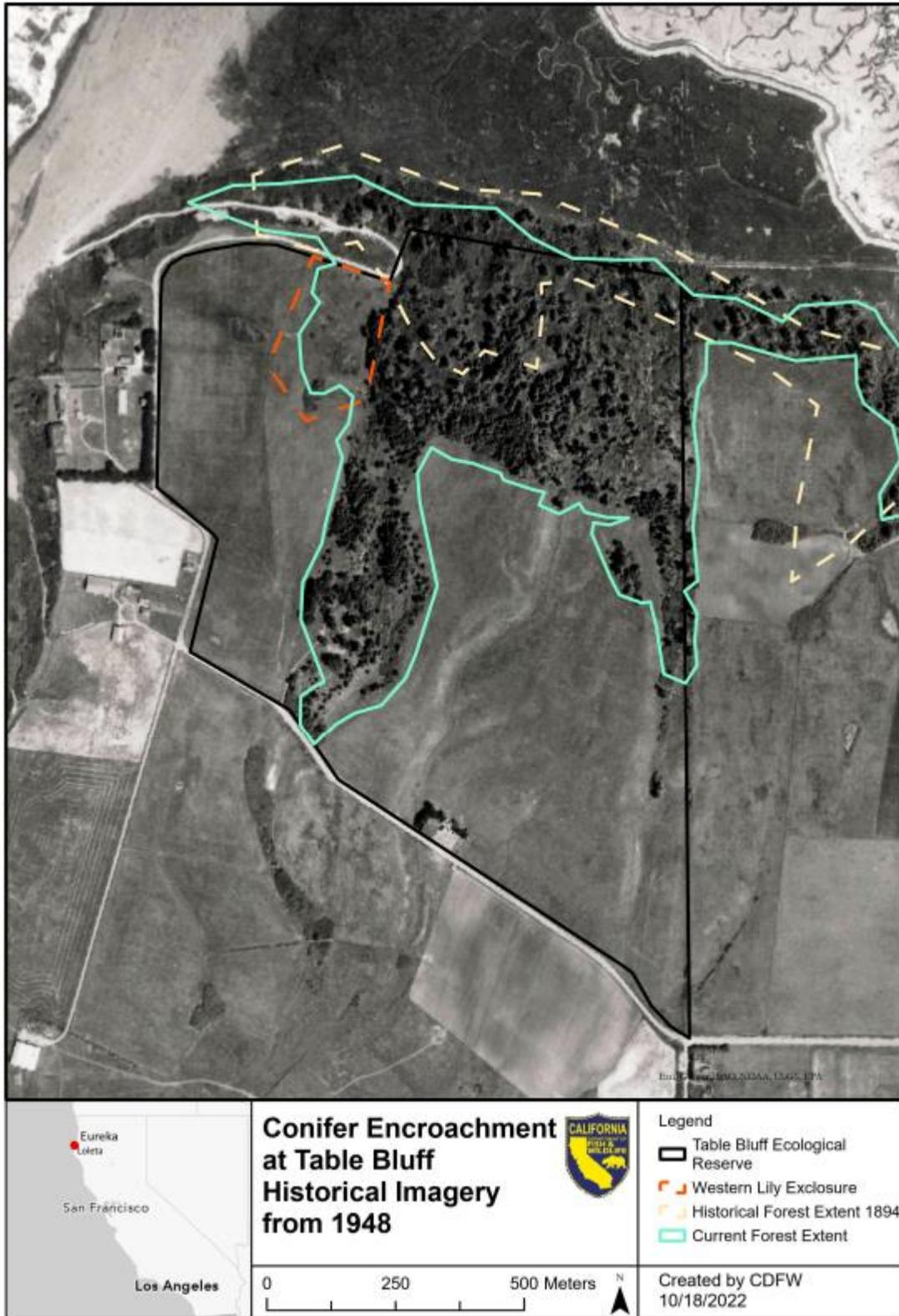


Figure 2. Historical imagery showing conifer encroachment into the western lily exclosure and elsewhere.

Table Bluff ER Coastal Prairie Restoration Project-Map Figures

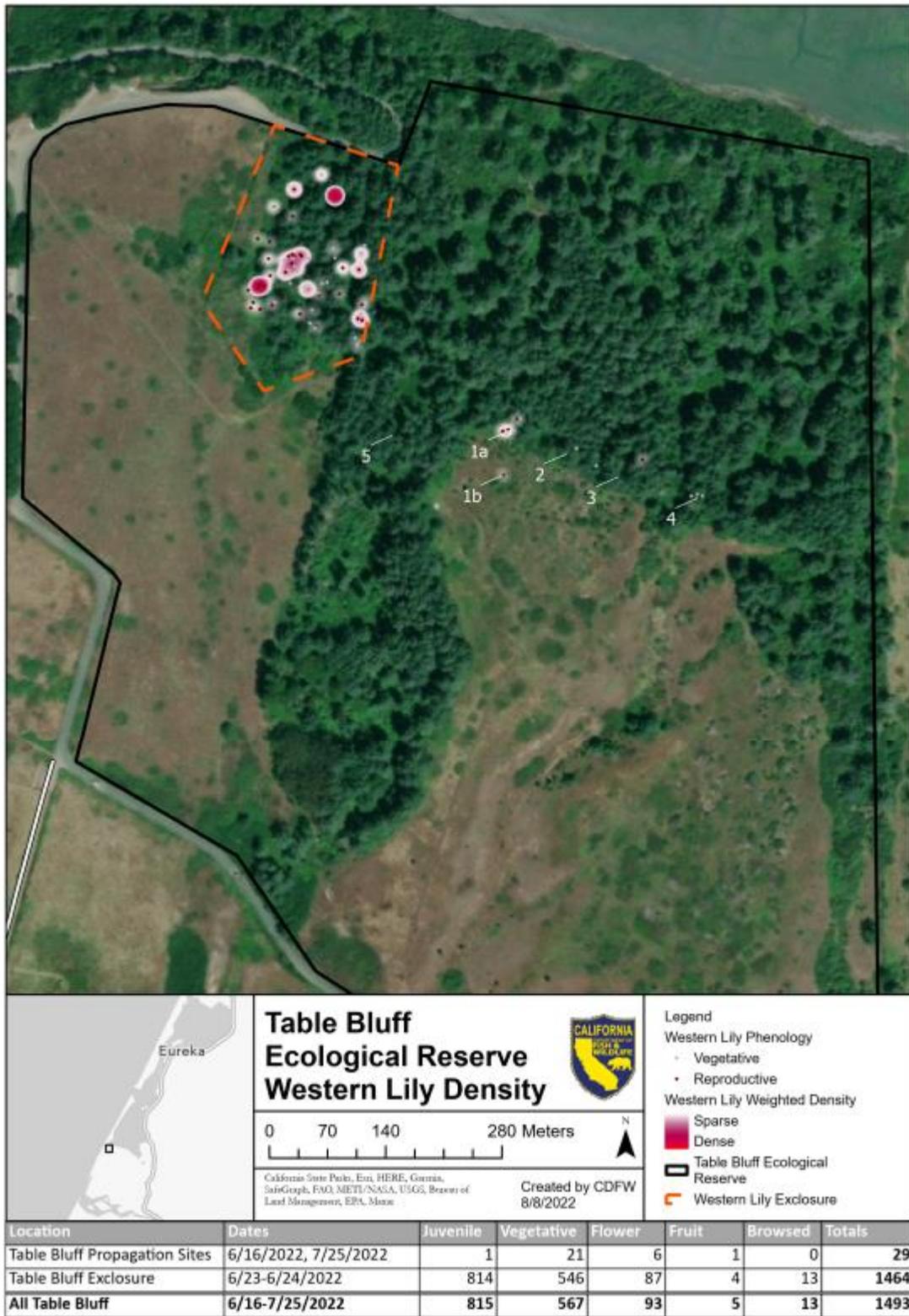


Figure 3. Western lily inventory at Table Bluff Ecological Reserve, 2022.

Table Bluff ER Coastal Prairie Restoration Project-Map Figures

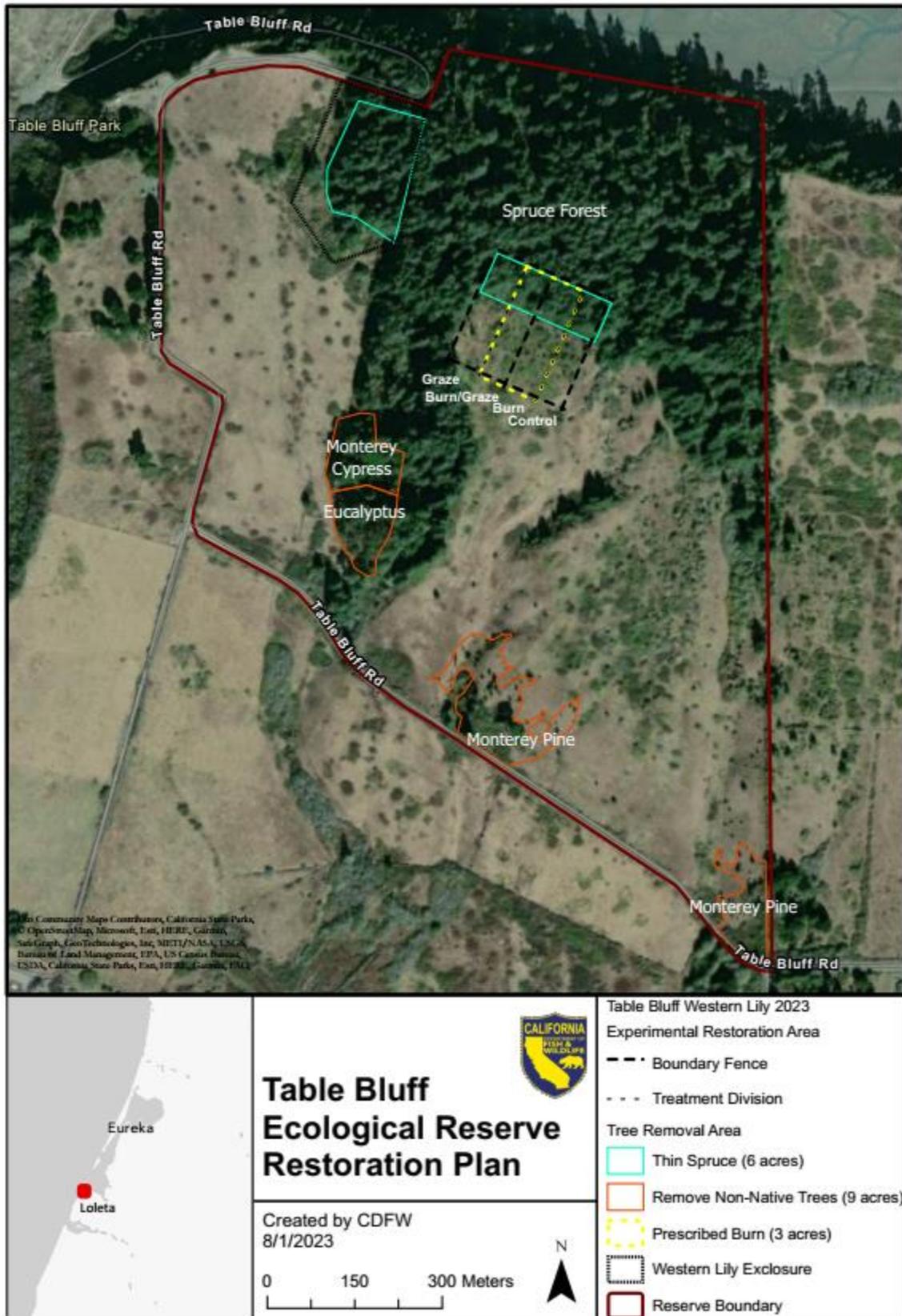


Figure 4. Restoration areas, including proposed tree removal and experimental pilot project.

Table Bluff ER Coastal Prairie Restoration Project-Map Figures

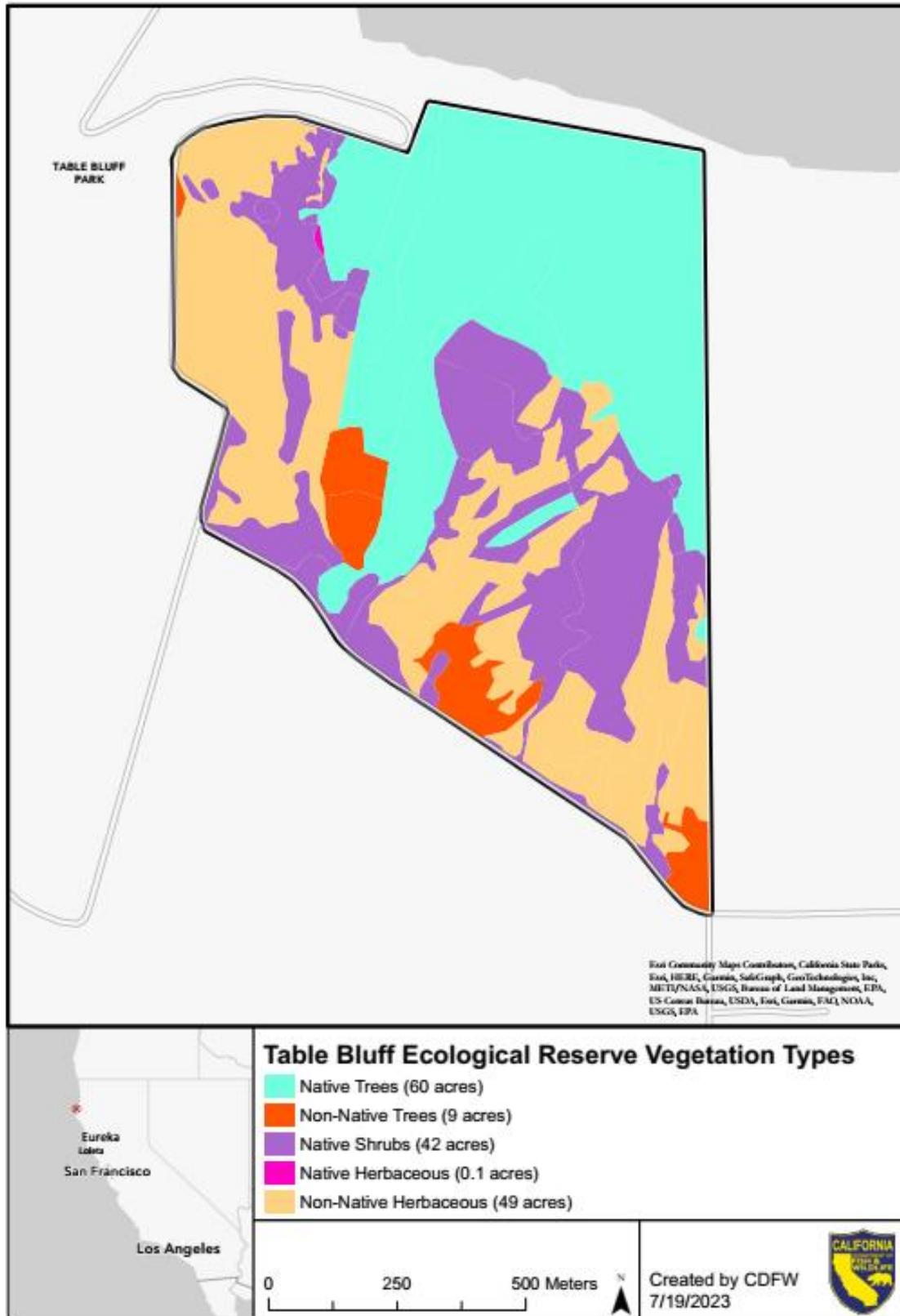


Figure 5. Table Bluff Ecological Reserve general vegetation types, by strata and native status.

Table Bluff ER Coastal Prairie Restoration Project-Map Figures

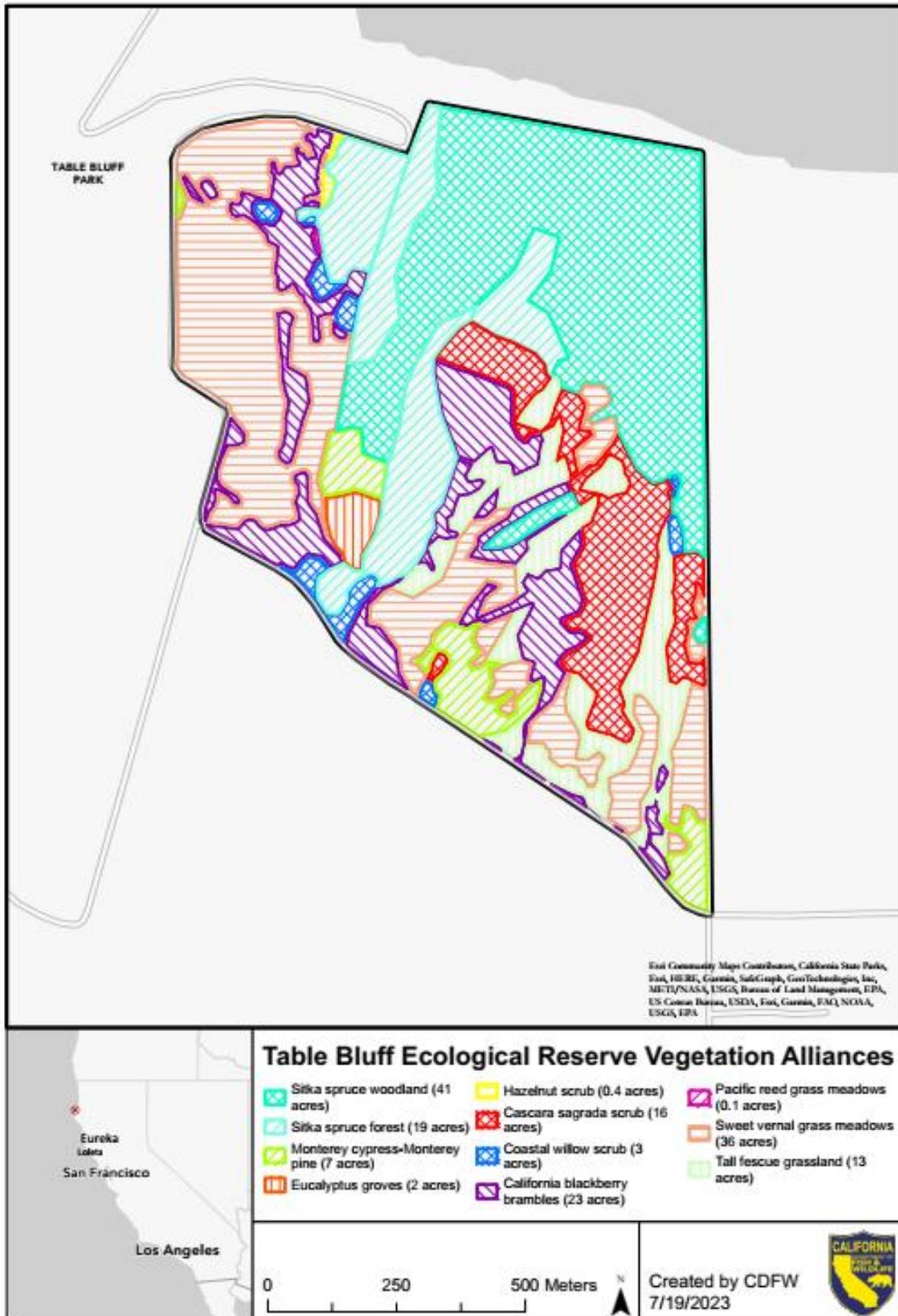


Figure 6. Table Bluff Ecological Reserve Vegetation Alliances and Associations.