East Bay Regional Park District

Wildfire Hazard Reduction and Resource Management Plan (WHRRMP) Fuels Management Program

Annual Summary of Work

Project Year 2021

March 7, 2022

EBRPD STEWARDSHIP DEPARTMENT
2950 PERALTA OAKS COURT
OAKLAND, CA 94605

East Bay Regional Park District

Healthy Parks Healthy People

Contents

1 INTRODUCTION

This report details the fuel management activities and status of mitigation measures and impacts permitted under the EBRPD Wildfire Hazard Reduction and Resource Management Plan (WHRRMP), pursuant to project permits issued by the United States Fish and Wildlife Service and the California Department of Fish and Wildlife. This Annual Status Report is submitted in accordance with the conditions of the WHRRMP Biological Opinion and Incidental Take Permit as well as the approved Mitigation and Monitoring Plan (MMP) (2017). This document includes a summary of work and monitoring activities, status of habitat, summary of Project Daily Monitoring Reports, observations of wildlife, and assessment of project performance standards.

EBRPD implemented thirteen fuels reduction projects in 2021, excluding grazing, pile burning, and . The primary activities in these projects were tree removal, ladder fuel removal, and brush thinning, either with hand tools or by a masticator. Several projects were a combination of both. All relevant conditions were adhered to during project work and biological monitors were present for all work. Designated Biologists completed 225 Daily Monitoring Reports (DMRs) to document project activities and biological observations, and ensure compliance.

2 STATUS OF PROJECT AREA AND COVERED ACTIVITIES

Thirteen (13) projects were conducted in 2021. This section contains updates for all projects conducted under FEMA funded fuels management up to year 2022. In project descriptions below, the title of the project is listed followed by the year of Initial Treatment and year(s) of maintenance or reentry.

ALAMEDA WHIPSNAKE STUDY (2020)

Fourteen (14) RTAs are included in the Alameda whipsnake study. Traplines in brush were activated and sampled in 2016, treated in 2018-2019, activated in 2019, treated in 2020, and were activated for a final time in 2021 to determine if fuels reduction projects in core scrub were associated with any detectable effects on Alameda whipsnake. The study was conducted in the following RTAs: CC001, CC003, CC007, CC012, SR001, SR003, SR004, SR005, TI006, TI012, TI015, TI022, and WC011. The bulk of this work was conducted using hand tools. The treatment involved clearing 0.25 acre plots around traplines, which mimics EBRPD's mosaic-style "brush island" treatment. All work was monitored by Designated Biologists, who vouchered three total sightings of AWS during work. Total AWS detected in the project area: Project year 2016: 22, Project year 2019: 28, Project year 2021: 26.

AC002 (2020)

In Anthony Chabot Regional Park, this project consisted of removal of small trees and clearing of ladder fuels in approximately 0.8 acre. The project was conducted over 8 days.

General Habitat Quality. Overall, core scrub habitat was of low habitat quality for AWS and a majority of removed brush was classified as coastal scrub (xeric) but consisted mostly of French broom and poison oak. The area is used heavily by people, dogs, and horses at the nearby stables, and disturbance is generally high.
2021: Marginal scrub quality, PCE2 low quality and isolated from contiguous habitat; poor PCE3.

AC006 (2019)

In Anthony Chabot Regional Park, this project consisted of tree limbing and clearing of ladder fuels in approximately 1 acre. The project was conducted over 6 days.

General Habitat Quality. The majority of this RTA is oak/bay woodland, at 44%, and coastal scrub/coyote brush scrub, adding up to 42%. Core scrub is described as 15% cover in this RTA with foraging/dispersal at 20% cover. PCE 1, 2 and 3 are all present. No AWS habitat types were impacted during work.

AC007 (2019, 2021)

In Anthony Chabot Regional Park, this project consisted of brush reduction and clearing of ladder fuels in approximately 8 acres. The project was conducted over 30 days. No work occurred in AC007 in 2020. In 2021, the EBRPD Diablos Fuels Crew worked 1.1 acres clearing ladder fuels and creating burn piles.

General Habitat Quality. The majority of this RTA is eucalyptus plantation and annual grassland. Scrub is described as sparse. No vegetation type conversion occurred.

AC012 (2018)

In Anthony Chabot Regional Park, this project consisted of brush reduction and clearing of ladder fuels in approximately 8 acres. No work occurred in AC012 in 2020 or 2021.

General Habitat Quality. The majority of this RTA is eucalyptus plantation and annual grassland. Scrub is described as sparse. No vegetation type conversion occurred.
2021: Described as high quality coyote brush scrub with low quality PCE2 and no PCE3 observed.

AC013 (2018)

In Anthony Chabot Regional Park, this project consisted of brush reduction and clearing of ladder fuels in approximately 8 acres. This project is in Monitoring Year 2. No work occurred in AC013 in 2020 or 2021.

General Habitat Quality. The majority of this RTA is eucalyptus plantation and annual grassland. Scrub is described as sparse. No vegetation type conversion occurred.

AC014 (2018)

In Anthony Chabot Regional Park, this project consisted of brush reduction and clearing of ladder fuels in approximately 8 acres. No work occurred in AC014 in 2020 or 2021.

General Habitat Quality. Scrub habitats (PCE 1) in this RTA were very dense (>90% canopy coverage) prior to mastication. In most areas, the density of this scrub habitat has now been reduced to approximately 48% canopy cover. Mastication has created a contiguous mosaic of open and closed canopy scrub patches with interspersed de-vegetated areas. The scrub patches are approximately 50'x60' polygons, with equally sized de-vegetated patches separating them. This constitutes an improvement of PCE 1 habitat, as whipsnakes are more likely to use scrub with an open and closed mosaic with light penetration (Swaim and McGinnis, 1992).
2021: Noted as high quality coyote brush scrub mosaic. Successional grassland and oak woodland provide high quality foraging and dispersal (PCE2). PCE 3 described as minimal.

CC003 (2019, 2020)

In Claremont Canyon Regional Preserve, this project consisted of brush reduction and clearing of ladder fuels in approximately 3 acres. In 2020, the project continued with 13 days of work consisting of brush reduction and clearing of ladder fuels. The project was conducted over 36 days. No work occurred in CC003 in 2021.

General Habitat Quality. Core scrub is a mix of coyote brush and coastal xeric scrub. Grassland and oak woodland borders the PCE 1. PCE 3 is mixed quality. Rock outcrops lack large crevices and no large burrow complexes are present.

HP001 (2021)

HP001 is an RTA located at the Skyline Boulevard trailhead to Huckleberry Regional Botanic Preserve. The primary habitat within this RTA is mixed oak-bay woodland encroached upon by eucalyptus. The project area was 1.7 acres, consisting of tree removal, ladder fuel and brush reduction. No pallid manzanitas are in the project area. The project was conducted over 11 days.

General Habitat Quality. AWS: Poor quality, low to no potential for presence due to limited and fragmented scrub habitat. Grassland and oak woodland communities have no connectivity to PCE1.
CRLF: Low potential due to lack of hydrologic features and xeric upland habitat. No pallid manzanita in this RTA.

HP002 (2021)

HP002 is the RTA containing the majority of the pallid manzanitas and maritime chaparral in Huckleberry Regional Botanic Preserve. The project area totaled 13.6 acres; 0.9 acres of eucalyptus removal by crane on the trailhead side of the preserve and 11.1 acres conducted by hand work only in coastal scrub/oak-bay woodland. The work was conducted over eight days. In addition to fuels management goals, this work was performed to improve habitat quality for pallid manzanita, open overshading canopy, remove *Phytophthora* carriers, and provide ground disturbance for potential seedling recruitment. Piles will be burned in 2022 to improve the seedbed and increase potential for recruitment.

General Habitat Quality. AWS: All PCEs are found within the RTA. PCE 1 is marginal; dense oak-bay woodland is found surrounding PCE1. Overall low potential for AWS.
CRLF: Low potential due to lack of hydrologic features and xeric upland habitat.
Pallid manzanita: Present within maritime chaparral with encroaching overarching trees. Habitat quality is expected to improve as a result of management activities.

HP003 (2021)

Located downslope from a large swim club with many pallid manzanitas within its property lines, HP003 is a small (1.1 acre) RTA with a small population of pallid manzanita. Work was conducted by hand and took one day.

General Habitat Quality. AWS: Scrub habitat is present in the maritime chaparral, but vegetation cover is high limiting light penetration and basking habitat. PCE2 is adjacent to poor quality PCE1.
CRLF: Low potential due to lack of hydrologic features and xeric upland habitat.
Pallid manzanita: *P. cinnamomi* is present in this RTA and all but one (9) pallids show signs of *P. cinnamomi* infection. Coast live oak, chinquapin, and huckleberry also show signs of *P. cinnamomi*.

HP004 (2021)

HP004 is a small (1.3 acre) RTA on the south side of the preserve. Hand work occurred in 0.2 acres to reduce ladder fuels. The project took one day.

General Habitat Quality. AWS: No core scrub present. Chaparral patches are small and fragmented. No connectivity with PCE2.
CRLF: Low potential due to lack of hydrologic features and xeric upland habitat.
Pallid manzanita: Approximately 10 pallids were observed in the RTA, showing symptoms of *P. cinnamomi.* Invasive brush is common. The majority of the RTA is mature oak-bay woodland rather than chaparral.

LC010 (2019)

In Lake Chabot Regional Park, this project consisted of brush reduction and clearing of ladder fuels in approximately 4.8 acres. The project was conducted over 10 days. No work was conducted in 2020 or 2021.

General Habitat Quality. Core scrub is of poor quality with very dense stands of coyote brush scrub. Foraging and dispersal habitat is medium to poor quality. PCE 3 is absent.
2021: RTA contains a portion of a larger patch of core scrub, moderate to low quality but still suitable. PCE2 moderate to low quality and frequently disturbed, PCE3 low quality. AWS is unlikely to occur.

LE005 (2019)

In Leona Canyon Regional Preserve, this project consisted of brush reduction and clearing of ladder fuels in approximately 4.3 acres. The project was conducted over 13 days. No work was conducted in 2020 or 2021.

General Habitat Quality. Patches of core scrub habitat interspersed with successional grassland were observed during the 2020 Year 2 post-treatment assessment survey. These areas were previously mapped as coyote brush scrub but are better described as coastal scrub with patches of successional grassland interspersed. Oak-bay woodland and grassland are present; burrows and rock outcrops are absent.
2021: AWS: scrub habitat is dense and poor to marginal quality. PCE2 and PCE3 are low to moderate quality.

MK001 (2021)

This RTA in Miller-Knox Regional Shoreline contains 5.9 acres of mainly disturbed and non-native planted stands of eucalyptus and Monterey pine. Trees were thinned and ladder fuels were cleared. Along with MK002, this project took 30 days.

General Habitat Quality. AWS: Miller-Knox is outside the range of Alameda whipsnake. CRLF is highly unlikely to occur. The park is outside the range of pallid manzanita.

MK002 (2021)

0.5 acres was worked in this RTA in Miller-Knox Regional Shoreline. Vegetation cover consists of xeric coastal scrub, non-native coniferous stands, and annual grassland. Along with MK001, this project took 30 days.

General Habitat Quality. AWS: Miller-Knox is outside the range of Alameda whipsnake. CRLF is highly unlikely to occur. The park is outside the range of pallid manzanita.

MK005 (2020)

Miller-Knox Regional Shoreline, MK005, ladder fuel reduction, tree removal and brushing of French broom was conducted over 10 acres and took 14 days. This RTA is outside of the range of Alameda whipsnake. No work occurred in 2021.

RD001 (2020)

Over two days, in Redwood Regional Park the EBRPD Fuels Crew conducted ladder fuel and debris removal near the trail. Two pallid manzanitas are present, but within the work area, and have been caged for protection for several years. Habitat quality is poor with Monterey pine cover at 40%. Pallid manzanitas are present with lack of constituent species constituting maritime chaparral. In 2021, pine removal was conducted outside the FEMA delineated polygon. This work was monitored by Designated Biologists who flagged sensitive plant communities and performed compliance checks daily.

RD004 (2020)

In Redwood Regional Park crews removed trees and chipped debris over three work days. No work was conducted in 2021.

General Habitat Quality. Little core scrub present with some connectivity to core scrub outside the RTA. Low quality foraging habitat due to dense vegetation with little light penetration and disturbed areas. No PCE 3 present.

SR003 (2020)

EBRPD conducted brushing and ladder fuel removal in 3.9 acres of this ridgeline RTA. The project was conducted over 12 days. No work was conducted in 2021.

General Habitat Quality. Habitat quality is described as "scrub habitat present but lacks cover density and connectivity; oak/bay woodland and grassland both present but no connectivity to PCE 1". Small outcrops and burrows present.

SR004 (2019)

In Sibley Regional Preserve, this project consisted of brush reduction, tree removal, and clearing of ladder fuels in approximately 9 acres. The project was conducted over 23 days. No work was conducted in 2021.

General Habitat Quality. In the northern portion of the work area, coyote brush scrub was converted to oak-bay woodland, which serves as dispersal habitat adjacent to core scrub. A significant portion of the RTA's understory was cleared where adjacent to residences. These areas are lower quality dispersal habitats due to the absence of cover.

SR005 (2021)

SR005 is a large, 37.5 acre RTA adjacent to northern Huckleberry Preserve and the Skyline Boulevard trailhead to Sibley Volcanic Preserve. Brush reduction occurred in 1.52 acres and Monterey pine removal and limbing up was conducted on 6.5 acres. The work occurred over 19 days.

General Habitat Quality. AWS: RTA lacks the mosaic of scrub habitat and other PCEs, low potential to occur.
CRLF: No suitable breeding habitat. Unlikely to occur.
Pallid manzanita: Not found in this RTA.

TI006

Located in Tilden Regional Park, this 4-acre RTA consists of oak-bay woodland with eucalyptus plantation encroaching. It is directly below homes in the WUI in Kensington. Eucalyptus was thinned out and ladder fuels cleared with chips broadcast throughout the floor of the oak woodland. There is evidence of *P. ramorum* in mature oaks in this RTA. 48 days of work occurred in 2021.

General Habitat Quality. AWS: Minimal AWS habitat; no core scrub present and no PCE2/PCE3.
CRLF: No ponds or streams present, however, could serve as upland dispersal corridor if populations occur within 1-2 miles. A 2020 USFWS protocol level survey found no sign of CRLF in nearby Jewel Lake.
Pallid manzanita: no pallids located in this RTA.

TI012 (2018, 2019, 2020, 2021)

Work continues in this RTA that is the northern piece of the Grizzly Peak Ridgeline Fuel Break being established by EBRPD. Work occurred in the north in 2018 and 2019 and moved south in 2020; trees were removed and coyote brush was masticated in 12.9 acres northeast of Grizzly Peak Boulevard. The project was conducted over 20 days in 2020. In 2021, the project continued with 63 days of work in the same area, thinning eucalyptus stands and clearing ladder fuels. Chips were broadcast throughout the work area.

General Habitat Quality. TI012 is a very large RTA spanning 91 acres in the wildland-urban interface in Berkeley, CA. Habitat quality is described as "dense, near-monoculture of *Baccharis* with French broom and poison oak." PCE 2 and 3 are present. The site is very mesic with northeast facing slopes and not ideal habitat for AWS.
Areas previously identified as successional grassland have naturally been colonized by coyote brush scrub and now meet the criteria for core scrub for Alameda whipsnake. Patches of scrub remain where woodrat nests were left in place. Areas converted from scrub to successional grassland still qualify as foraging and dispersal habitat for AWS.
Year 3 post-assessment noted that quantitative change in core scrub acreage from Y2 to Y3 is due to increased accuracy in ground-truthing of vegetation cover types. These changes resulted in a more diverse collection of vegetation cover types than was captured in earlier assessments and this refinement indicates that the total core scrub acreage was previously overestimated. Qualitatively, there not appear to be a change in the available habitat for AWS from Y2 to Y3.

TI013 (2021)

This RTA in the Grizzly Peak Ridgeline Fuelbreak is 15.7 acres. Work was conducted to treat 3 acres of scrub and perform ladder fuel reduction, tree removals and brush reduction in 12.5 acres. This portion of the project took 6 days. No Post-Assessment has yet been completed for this RTA.

General Habitat Quality. AWS; Noted as high quality scrub with few invasives; PCE2 primarily oak-bay woodland. PCE3: Several exposed rocks in RTA, extensive rocky outcrop just southeast of the RTA. No burrow complexes observed.

TI014 (2021)

This project in the Grizzly Peak Ridgeline Strategic Fuelbreak is 2.8 acres. Brush and ladder fuel reduction and tree removals were conducted. This portion of the project took 29 days. No Post-Assessment has yet been completed for this RTA.

General Habitat Quality. AWS: Small patch of coyote brush scrub connected to adjacent core scrub outside the project area. Good quality PCE2. Little to no PCE3 in RTA.

TI015 (2021)

This RTA in the Grizzly Peak Ridgeline Strategic Fuelbreak is 1.5 acres. Brush and ladder fuel reduction occurred in mapped core scrub (.03 acres) and non PCE (1.2 acres). This portion of the project took 10 days.

General Habitat Quality. AWS: Diverse mix of coastal scrub on eastern edge of RTA. Annual grassland and oak-bay woodland adjacent to PCE1. Rocky outcrops and burrows present.

TI016 (2020, 2021)

This RTA is a small 1.4 acre knob of eucalyptus plantation off Grizzly Peak Blvd. In 2021, a contractor thinned the stand in coordination with the TI014 and TI015 projects.

General Habitat Quality. No suitable Alameda whipsnake habitat was observed in the RTA; the entire area is characterized by eucalyptus forest. No burrows or rocky outcrops were observed.

WC003 (2018)

EBRPD removed surface and ladder fuels and thinned brush on 1 acre of this 1.7 acre RTA. No work occurred in 2020 or 2021.

*General Habitat Quality***.** Alameda whipsnake habitat is medium to lower quality throughout the RTA. The scrub habitat within the RTA qualifies as core scrub, contains diverse vegetation, and is adjacent to high-quality core scrub/PCE1 habitat outside of the RTA. The oak-bay woodland habitat is good quality for Alameda whipsnake dispersal and foraging and if maintained will be a good fuel break and continue to provide good dispersal habitat. Recruitment and dispersal may be limited in the area because the RTA is bordered by neighborhoods and development on 2 sides.

WC009 (2019, 2020)

Along the western edge of Wildcat Canyon Regional Park close to homes, EBRPD removed surface and ladder fuels and thinned brush on about 4 acres. The work was conducted using hand tools and took 10 workdays.

2020: EBRPD expanded the project area performing brush mastication and ladder fuels reduction. This project took ten days. No work occurred in 2021.

General Habitat Quality. All work that occurred in the RTA was outside of core scrub habitat. No change to core scrub habitat occurred as a result of work activities. Daily monitoring occurred during work

activities, and scrub removal was never observed at this site. The increase in core scrub between the pre and post assessments is not due to any vegetation management activities or actual change in habitat type. This increase occurred because in January 2020, a more precise improved mapping process was implemented utilizing ArcGIS which provides more accurate acreage. The difference in core scrub is a result of the difference on error between the old measurement techniques, and the improved techniques. Treatment did not result in any changes to core scrub acreage.

WC010 (2019, 2020)

2019: Along the western edge of Wildcat Canyon Regional Park close to homes, EBRPD worked to conduct initial treatment to create a fuel break, removing surface and ladder fuels and thinning brush on about 10.8 acres. The work was conducted using hand tools and took 26 workdays.

2020: EBRPD performed ladder fuel removal and brush mastication in this RTA. The work was conducted over 14 days. No work was conducted in 2021.

General Habitat Quality. Habitat quality is very similar to WC009. Poor quality AWS habitat is present onsite. Dense patches of coyote brush, hemlock, French broom, and poison oak make up the existing PCE 1 (core scrub) habitats. Areas adjacent to core scrub consist of dense oak-bay woodland and riparian woodland. These areas meet definitions for PCE 1 and PCE 2, but due to the dense canopy cover with little light penetration and the lack of native plants, habitat quality is low. No rocky outcrops were observed on site.

WC011 (2019, 2020)

2019: Along the western edge of Wildcat Canyon Regional Park close to homes, EBRPD worked to conduct initial treatment to create a fuel break, removing surface and ladder fuels and thinning brush on about 33 acres. The work was conducted using hand tools and took 65 workdays.

2020: EBRPD Fuels Crew worked one day reducing noxious weeds in the RTA. No work was conducted in 2021.

General Habitat Quality. This area is a northeast facing slope dominated by oak woodland and riparian. Although scrub was removed in the RTA this habitat type will grow back quickly and regrowth was observed onsite. Density of the scrub was reduced also but will be beneficial in the short-term as the sunlight penetration into scrub has increased.

3 STATUS OF MITIGATION MEASURES

The following details the status of ITP mitigation measures employed during work.

7.4. Work Period. EBRPD adhered to the work period conditions for AWS.
7.5. Daily Surveys. Each day of work was supervised by Designated Biologists and surveys were completed daily. No Covered Species were observed.
7.6. Exclusionary Barrier. EBRPD adhered to Directional Workplans in lieu of exclusionary barriers during work.
7.7. Coverboards. Coverboards were maintained and checked daily in all instances where heavy equipment was used to treat brush. No Covered Species were observed using coverboards.
7.8. Cease Operations Policy. N/A for the year 2021.

7.9. Vegetation Marked for Protection. Protected vegetation, including native shrubs and riparian vegetation, was marked and avoided during work.
7.10. Rock Outcroppings. Some tree removal occurred in eucalyptus plantations (unsuitable AWS habitat) with outcroppings. Rock outcroppings were avoided during work.
7.11. Ground Burrows. Ground burrows were avoided where possible. No Covered Species were observed using ground burrows.
7.12. Vegetation Removal Methods. Where possible, hand tools were used in work.
7.13. Spoils piles. Burn piles were sited away from concentrated burrow areas under the supervision of the Designated Biologists.
7.14. Burn Piles. Burn piles were sited and burned outside of suitable habitat. All burn pile conditions were adhered to during burning.
7.15. Skid Trails. No skid trails were sited near scrub habitat or rock outcrops.
7.16. Wood Chips and Landings. Designated Biologists oversaw the siting and depth of chip piles. No piles were placed near rock outcrops.

Pallid Manzanita

7.18. Work Period. Work was conducted near pallids only when the ground was dry.
7.19. Plant Surveys. No pallids are located near herbicide application areas.
7.20. No *Arctostaphylos* species were removed.
7.21. No Cutting or Removal. No *Arctostaphylos* species were pruned.
7.22. Shading and Competition. In maritime chaparral and areas occupied by pallid manzanita, overshading trees and shrubs were removed to open canopy and exposure for pallids. All work was performed in the work window and by hand.
7.23. Herbicide Use. No herbicide was applied within 300 feet of pallid manzanitas.
7.24. Goat grazing. No goat grazing was conducted in pallid RTAs.
7.26. P. cinnamomi. Testing was conducted in pallid RTAs in 2021. Only Huckleberry tested positive for *P. cinnamomi.* Known infections are mapped. All buffer conditions relevant to *P. cinnamomi* and pallid manzanita were adhered to.

4 TAKE OF COVERED SPECIES

No take of Covered Species occurred during Project Year 2021.

5 COVERED SPECIES HABITAT IMPACTS

Fuels work is typically performed in grassland, brush/scrub, oak woodland, and pine and eucalyptus plantations. Only brushland qualifies as AWS habitat and is subject to impact reporting requirements, although all changes in vegetation cover are reportable. Within that habitat type, brush scrub within Critical Habitat is referred to as PCE 1. Within suitable AWS habitat, brush scrub is referred to as Core Scrub. When describing general habitat characteristics, all native scrub is referred to as core scrub.

The Biological Opinion allows 96 acres of “Degraded” (30-70% scrub) sore scrub and 226.6 acres of “Loss (amount of treated core scrub converted to grassland habitat, generally assumed to be 70% of the amount treated)” (Biological Opinion, Table 15). In other words, the BO defines Degraded as remaining shrub islands and Loss as interstitial spaces between those islands, when the treatment is the 30-70 shrub island approach. The ITP states that “the Project is expected to cause the permanent loss, by conversion

to dispersal/foraging habitat, of approximately 226.6 acres of sore scrub habitat, and the Project will degrade, by fragmentation, approximately 96 acres of core scrub habitat" (ITP, p. 14).

No core scrub impacts occurred in Project Year 2021. Table 1 reports the cumulative acreage of core scrub removed in and outside of critical habitat by low-impact (hand tools) and high-impact (heavy equipment).

Scrub removed from core scrub complexes totals 14.29 acres in Critical Habitat using low impact methods, and 6.49 acres using heavy equipment. Scrub removed in Suitable Habitat totaled 3.71 acres using low impact methods, and 10.9 acres in Suitable Habitat using high impact methods.

Fuels reduction work conducted in areas occupied by pallid manzanita are expected to improve habitat quality for this species by removing vegetation that is not a component of maritime chaparral, removing shading overstory vegetation that could suppress pallids, and creating ground disturbance that could serve to release the seed bank and induce regeneration.

Table 1. Cumulative Project core scrub impacts by Project Year.

EBRPD Core Scrub Impacts and Impact Types, Total Project Wide						
	Critical Habitat			Suitable Habitat		
Project Year		Acreage Scrub Cleared			Acreage Scrub Cleared	
		Low Impact	High Impact		Low Impact	High Impact
2018	CC003*	2.75		TI012	0.27	0.87
	CC007*	0.75		AC012		0.31
	CC008*	1.50		AC013		0.80
	CC012*	1.00		AC014		8.50
	SR003*	0.75				
	SR004*	1.00				
	SR005*	2.00				
	TI006*	0.75				
	TI015*	1.25				
	TI022*	1.00				
	WC011*	0.75				
	WC003	0.27				
2019						
	CC003	0.50	0.58	AC007	0.00	0.08
	WC010	0.01	0.31	TI012	0.00	0.34
	WC011	0.01	0.74	LE005	3.24	
2020						
	CC003		1.9	AC002	0.2	
	TI012		2.96			
2021	-	-	-	-	-	-
	Total Impacts	14.29	6.49		3.71	10.9

** Alameda whipsnake study*

6 SUMMARY OF MONITORING REPORTS AND OBSERVATIONS OF WILDLIFE

Two hundred and twenty-five (225) Daily Monitoring Reports were compiled in 2021. These reports detail the work location, crew and foreman, status of tailboard training, work highlights and times they occurred, wildlife observations, and contain representative photos of work.

In addition to compiling Daily Monitoring Reports, Designated Biologists entered all avian observations into eBird for each day of work.

One CNDDB observation of Alameda whipsnake was made during work in 2021. The AWS was observed in poison oak scrub, outside a non FEMA work area during defensible space work. A biological monitor vouchered the observation.

Many observations of San Francisco Dusky-footed Woodrat middens (*Neotoma fuscipes* ssp*. annectens*) were made during work. No Dusky-footed woodrats were harmed during work. In cases where nest removal was critical to fuel treatment success, nests were dismantled and moved in accordance with the approved San Francisco Dusky-footed Woodrat Protocol (EBRPD 2019). Use of this protocol allowed nests to be relocated without harming woodrats.

Dirca occidentalis was vouchered in several new areas including in Tilden and Sibley. This 1B.2 shrub is the target of focused documentation along the Berkeley Hills ridgeline and appears to be increasing in numbers. It is possible that removal of overgrown and invasive vegetation is encouraging *Dirca* to regenerate in this area.

Figure 1. AWS vouchered in Tilden Park.

ALAMEDA WHIPSNAKE STUDY

The Fuels Management Alameda whipsnake study, conducted pursuant to the FEMA Biological Opinion, was completed in 2021. Project Year 2017 was Trapping Year 1; Project Year 2018 was Treatment Year 1; Project Year 2019 was Trapping Year 2; Project Year 2020 was treatment Year 2, and the final trapping season occurred in Project Year 2021.

6 SOILS AND HYDROLOGY

This section discusses the detection of previously undocumented hydrologic features as well as any areas of Project-related surface erosion and recommended remedial measures. Three drainage features were observed during work, though no water was detected in them at any time during work. These were buffered from project work and no disturbance or impacts occurred to these features during project implementation. These areas will be observed during post-assessments to ensure that no project-related changes or impacts occur to these hydrologic features.

- SR005
  - Several ephemeral drainages, all dry at time of survey, stable.
- MK005
  - Several ephemeral drainages, all dry at time of survey, stable.

REMEDIAL MEASURES

- TI006: Soil was destabilized on a steep slope along the Memory Trail through this RTA. Erosion control, wattling and potentially hydroseeding may be needed to maintain the integrity of the trail.
- SR005: 37.850728.-122.202056 Along roadside, slope should be stabilized.

7 PERFORMANCE CRITERIA

Because initial treatments within each RTA will occur over multiple years and the frequency of initial treatments within each RTA are not anticipated to occur at regular intervals, annual acreage standards cannot be established. Rather, these performance standards are based on Year 10 (post-implementation) final acreages. Therefore, the annual reports will benchmark against Year 10 standards and determine if adaptive management will be required to meet performance criteria by Year 10.

Performance standards relating to AWS habitat are based on the habitat definitions from the BO and the MMP in Section 2.2 and are described below.

4.1.1 Non-AWS Habitat Conversion Acreages

By Year 10, the acreage of each vegetation community type that does not support AWS habitat (e.g., Eucalyptus Forest/Plantation) within each RTA will not exceed the post-implementation acreages defined in the BO (Tables 2 and 3). This will ensure that non-AWS vegetation community types do not increase in acreage during Project implementation.

4.1.2 AWS Habitat Conversion Acreages

By Year 10, following conversion of AWS core scrub/PCE 1 habitat to foraging/dispersal/PCE 2 habitat, the reductions of AWS core scrub/PCE 1 habitat acreages within each RTA will not exceed the reduction in acres defined in the BO (Tables 2 and 3). In this way, habitat impacts will not exceed the maximum thresholds of take for AWS defined in the BO (Tables 2 and 3).

4.1.3 Primary Constituent Element 1 and Core Scrub Thinning

As described in the BO, thinning treatments will consist of the removal of contiguous areas of shrubs (rather than even thinning treatments) totaling up to 70 percent of woody aerial cover, creating a patchwork of remaining closed-canopy "shrub islands" within treated areas (USFWS 2013). These patches must total to at least 30 percent overall woody plant aerial cover on an annual basis following initial treatments.

4.1.4 Woody Vegetation Composition

In each portion of the treatment area where there is woody vegetation removal (e.g., shrub "island" creation), using the methods described in the WHRRMP, no more than 10% of the canopy coverage removed may return due to re-sprouts or seedlings. For example, if woody species comprised 80 percent of aerial cover prior to treatment within a portion of a treatment area where all woody plants were removed, the resprouts/seedlings of those plants could not comprise more than 8 percent of the aerial cover of the total area where woody plant removal occurred. This applies to all woody species, both native and exotic.

4.2 Exotic Species Management

These performance standards focus on the removal and treatment of individual exotic plants and do not pertain to the conversion of exotic dominated vegetation communities. Because significant levels of exotic woody plant recruitment are anticipated following the initial treatments, performance standards relating to reductions in exotic species plant cover focus on gradual reductions in exotic plant cover. It is anticipated that as exotic plants are removed, they will be replaced with native species through natural recruitment (see Sections 4.2.1 and 4.2.2 below).

Appendix 5 contains an accounting of exotic vegetation cover for exotic species of concern as defined in the MMP and as measured in post-treatment assessments. Exotic vegetation cover is tracked year over year by RTA, and focuses on aggressive, invasive exotics likely to proliferate following treatment.

4.2.1 Tree Re-sprouting

To prevent the successful re-sprouting of treated exotic trees, all observed basal re-sprouts and seedlings must be removed/treated within one year of the initial treatment (generally the cut-stump method) of exotic trees.

4.3 Wood Chip Placement

These performance criteria are based on the Proposed Project description from the BO and focus on what proportion of a RTA can be covered with wood chips, the depth of the applied wood chips, and the location of the distributed wood chips in relation to sensitive resources.

4.3.1 Extent and Depth of Wood Chip Placement

Within a treatment area, the aerial cover of woodchips cannot exceed 20 percent of the treatment area if a tracked chipper is used, or 10 percent of the treatment area if chipping is confined to roadways and landings. Additionally, the depth of applied wood chips cannot exceed 6 inches (USFWS 2013).

4.3.2 Wood Chip Locations

Wood chips cannot be placed within 50 feet of rock outcrop/PCE 3 habitat (USFWS 2013) and AWS core scrub/PCE 1 habitat, within 100 feet of pallid manzanita shrubs, or in areas that drain directly into areas that contain pallid manzanita shrubs. By Year 10, wood chips placed within treated and/or disturbed AWS foraging/dispersal/PCE 2 habitat must be fully decomposed.

Table 2. Wood chips depths and coverage in work areas.

CHIP DEPTHS IN TREATMENT AREAS			
RTA	Pile #	Avg Depth (in)	Area (SQ FT)
AC002	1	3.75	100
AC006	1	2.76	625
	2	3.4	150
AC007	Absent		
AC012	1	3.7	10
	2	4	1500
	3	3.5	3000
	4	5.35	1500
AC013	1	7	150
	2	4.2	75
	3	22.7	100
AC014	1	4.15	400
	2	6.15	2600
CC003	1	2.41	400
LC010	1	2.55	300
	2	2.1	375
	3	2.8	108
LE005	Absent		
MK001	Absent		
MK005	1	4.6	2100
	2	4	2800
	3	4.1	15,000
	4	5.67	400
SR003	Absent		
SR004	1	3	1400
	2	1.7	1200
TI012	1	2.77	2000
	2	3.35	1500
	3	2.1	800
WC003	Absent		
WC009	1	4	200
	2	2.75	150
WC010	1	3.07	100
	2	2.25	200
WC011	1	4	1000

4.4 Soil Stability and Erosion

Performance standards that relate to soil stability and surface erosion are described below.

4.4.1 Surface Erosion

Unless noted during the initial site assessment, no accelerated surface erosion (i.e. rills) resulting from vegetation treatment activities (e.g., vehicle tracks, upturned roots, and heavy equipment) or other disturbances can be present within the treatment area.

See Table 5 for accounting of the status of these Performance Criteria.

Table 3. Performance Criteria Table for Fuel Management MMP

PERFORMANCE CRITERIA TABLE FOR EBRPD FUELS MANAGEMENT, MMP TABLE 7. PROJECT YEAR FOUR				
Title		Description	Status	Note
4.1.1	Non-AWS Habitat Conversion Acreages	Non-AWS habitats have not increased in size or extent.	Met	See Appendix 1
4.1.2	AWS Habitat Conversion Acreages	AWS habitat areas have not been reduced in size/extent more than what was quantified in the BO.	Met	See Appendix 1
4.1.3	PCE 1 and Core Scrub Thinning	Following treatment in core scrub/PCE 1 habitats, the remaining "shrub islands" constitute more than 30 percent of the treated core scrub/PCE 1 area where post-treatment habitat is classified as core scrub/PCE 1.	Met	See Appendix 3
4.1.4	Woody Vegetation Composition	By year 10, less than 10 percent of the treated woody vegetation returned as seedlings/resprouts on an aerial cover basis (e.g., if initial woody aerial cover of a treated area was 50 percent, and all woody plants were removed, no more than 5 percent of the woody aerial cover of the total area is comprised of woody seedlings or basal resprouts.)	N/A	
4.2.1	Tree Re-sprouting	No basal resprouts/seedlings of treated woody exotic plants are present in an area after 1 year following initial treatment.	Ongoing	
4.3.1	Extent and Depth of Wood Chip Placement	Wood chips do not comprise more than 20 percent (if a track chipper is used) or 10 percent (if chipping is confined to roadways and landings) of a treated area, and the depth of wood chips is 6 inches or less.	Not Met	See Table 4, two pile depths exceed 6 inches
4.3.2	Wood Chip Locations	No wood chips are present within 50 feet of rock outcrop/PCE 3 habitat, core scrub/PCE 1 habitat (after a BO amendment), or 100 feet of any pallid manzanita plants. By Year 10, all wood chips have decomposed.	Met	See Appendix 3
4.4.1	Surface Erosion	No areas of accelerated surface erosion resulted from vegetation treatment activities.	Not Met	See Section 6

For any questions regarding this Status Report or East Bay Regional Park District's fuels management program, please contact Kristen Van Dam, project Ecologist, at kvandam@ebparks.org.