



M2 Natural Community Conservation Plan/Habitat Conservation Plan– 2020 Annual Report

June 2021

Prepared by
Orange County Transportation Authority
550 S. Main Street
Orange, CA 92863



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M2 NATURAL COMMUNITY CONSERVATION PLAN/HABITAT CONSERVATION PLAN – 2020 ANNUAL REPORT



Prepared by:

Orange County Transportation Authority

550 South Main Street, PO Box 14184

Orange, CA 92863

Contact: Lesley Hill

714-560-5759



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Acronyms and Definitions

ACOE – Army Corps of Engineers

CAC – Citizen Advisory Committee

Caltrans – California Department of Transportation

CCC – California Coastal Commission

CCF – California Community Foundation

CDFW – California Department of Fish and Wildlife

CEs – Conservation Easements

CHSP – Chino Hills State Park

CNDDDB – California Natural Diversity Database

COI – Certificate of Inclusion

CSS – Coastal Sage Scrub

ECR – Environmental Commitment Report

EFM – Endowment Fund Manager

EMP – Environmental Mitigation Program

EOC – Environmental Oversight Committee. The EOC is made up of two OCTA Board members and representatives from Caltrans, the Wildlife Agencies, ACOE, environmental groups, and the public. The EOC makes recommendations on the allocation of environmental freeway mitigation funds and monitors the execution of a master agreements between OCTA and state and federal resource agencies.

ESA – Endangered Species Act

FMP – Fire Management Plan

GIS – geographic information system

GLA – Glen Lukos Associates

GSOB – Gold Spotted Oak Borer (beetle)

HCP – Habitat Conservation Plan

HMMP – Habitat Mitigation Monitoring Plan

I – Interstate

IA – Implementing Agreement

IRC – Irvine Ranch Conservancy

ISHB – Invasive shot hole borer

ISMP – Invasive Species Management Plan

M2 – The renewed Measure M (or Measure M2)

M2 NCCP/HCP – OCTA M2 Natural Communities Conservation Plan / Habitat Conservation Plan adopted on November 2017. Also referred as Plan.

NCC – Natural Communities Coalition

NCCP – Natural Community Conservation Plan

NCCPA – Natural Community Conservation Plan Act

OC – Orange County

OC Parks – Orange County Parks

OCTA – Orange County Transportation Authority

RMP – Resource Management Plan

SARP – Santa Ana River Mainstem Project

SCAG – Southern California Association of Governments

SR – State Route

TCA – Transportation Corridor Agencies

TOC – Taxpayer Oversight Committee

UCI – University of California Irvine

USFS – United States Forest Service

USFWS – U.S. Fish and Wildlife Service

Wildlife Agencies – the California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS), collectively referred to as the Wildlife Agencies

Executive Summary

This is the third Annual Report for the Orange County Transportation Authority (OCTA) M2 Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP or Plan), covering all activities between January 1, 2020 and December 31, 2020. This report summarizes the tracking of impacts associated with covered freeway improvement projects and other management and monitoring activities on Preserves (Covered Activities), status and activities on the OCTA Preserves, progress on the implementation of OCTA-funded restoration projects, and additional Plan administration and public outreach activities. This Annual Report has been reviewed and approved by the California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS), collectively referred to as the Wildlife Agencies. In addition, this Annual Report is presented to the OCTA Environmental Oversight Committee (EOC) and is available for a public review.

Tracking Impacts from Covered Activities

OCTA keeps an accounting of the Plan-to-date impacts on habitat types from all covered freeway improvement projects to ensure impacts stay within the caps established within the Plan. To date, a total of **9.2 acres of habitat impacts have been authorized relative to a cap of 141.0 acres**. In addition, OCTA uses a consistency determination checklist to evaluate how and when avoidance and minimization measures are implemented on covered freeway improvement projects. No projects had consistency determinations drafted, modified, or completed within the timeframe of this Annual Report. Other tracking requirements include:

- *Tracking for Covered Plant Species Policy* – OCTA tracks the credits for covered plant species protection (on Preserves) and restoration/enhancement (restoration projects) relative to allowable impacts. The Plan-to-date balance for each plant species is net positive (intermediate mariposa lily [+1303], many-stemmed dudleya [+180], southern tarplant [+8,377 + 1 acre]).
- *Tracking Impacts on Habitat Types Resulting from Covered Activities within Preserves* – The Plan establishes a cap that no more than 13 acres (approximately 1%) of the natural habitat within the OCTA Preserves will be impacted by Preserve management activities. To date, no measurable permanent impacts have been recorded on the Preserves.
- *Maintaining Rough Proportionality* – The Plan requires implementation of conservation measures roughly proportional in time and extent to impacts on natural communities and Covered Species. To date, three restoration projects, Big Bend, City Parcel and Bee Flat, have received sign-off from the Wildlife Agencies as meeting their success criteria and have achieved conservation credits that keeps the Plan ahead of allowable impacts.

OCTA Preserves

OCTA acquired seven properties resulting in the protection of 1,236¹ acres of natural habitat (see Figure 1). In all instances, the seven Preserves are located within priority conservation areas and immediately adjacent to other protected lands. These Preserves add to the protection of large blocks of natural open space in areas important for regional conservation. OCTA has completed Resource Management Plans (RMPs) for each Preserve that includes Preserve-specific goals and objectives and define an appropriate level of public access and trail use consistent with protection of biological resources. It is anticipated that Conservation Easements will be completed and recorded in the near future. Currently each Preserve is being managed by OCTA. OCTA is working to identify and transition to long-term Preserve Managers in the near future. OCTA has contracted with the following consulting firms to support Preserve management: (1) Glenn Lukos Associates to provide biological monitoring, prepare invasive species management plans, and assist with public outreach events, (2) RECON Environmental to support general Preserve stewardship including maintenance of access roads, tree trimming, and control of public access, (3) Wildland Res Mgt to complete Fire Management Plans (FMPs), and (4) ICF to assist with general program needs including the development of the Conservation Easements. OCTA has hosted numerous Preserve-specific outreach events to educate the public about property value and access and plans to continue this process in the near term as part of a managed access approach. No fires or major events have occurred on the Preserves in 2020, although a level of trespassing and vandalism continues to occur requiring ongoing monitoring and enforcement.

OCTA-Funded Restoration Projects

OCTA has approved funding for 11 restoration projects and a check dam removal project that will result in over 350 acres of restored habitats and improvement to habitat functions for Covered Species. The restoration projects occur throughout the Plan Area in core habitat areas and within key habitat linkages and riparian corridors (see Figure 1). The restoration projects are on lands that are currently managed and will enhance habitat for Covered Species. OCTA is working with the restoration project sponsors to complete implementation and monitoring of the restoration activities and achieve sign-off from the Wildlife Agencies that the restoration projects meet their success criteria. Each restoration project is at different stages of the process. Wildfires in late 2020, impacted three OCTA funded restoration projects. To date, 3 of the 11 restoration projects have obtained sign-off.

Additional Conditions for Coverage

As part of the Conservation Analysis (Chapter 6) in the Plan, there were two Covered Species, arroyo chub and many-stemmed dudleya, noted for additional conditions for coverage above and beyond the acquisition of the OCTA Preserves and funding of restoration projects. In 2017, the EOC and Wildlife Agencies approved OCTA to fund the United States Forest Service Dam Removal restoration project

¹ The acreage of natural habitat preserved is based on best available information using during the preparation of RMPs and may be slightly different from acreages reported in the M2 NCCP/HCP.

that, when complete, will satisfy the conditions for coverage of arroyo chub. Work began in 2018 and was completed in 2020. A total of 14 dams were removed using the funds provided by OCTA. For many-stemmed dudleya, OCTA is currently taking steps to protect and enhance an existing population of many-stemmed dudleya on the Pacific Horizon Preserve with the hope that it will expand to help meet or will meet the criteria needed to achieve coverage for many-stemmed dudleya.

Public Outreach

OCTA has been committed to transparency in how the M2 funds have been and are being used to implement the Plan and the broader Environmental Mitigation Program (EMP). OCTA has conducted a variety of public outreach activities aimed at informing and engaging the public on the overall EMP as well as Preserve-specific issues and events. These have included public meetings during the preparation of the Preserve RMPs, maintaining a website with information and documents related to the program, and engaging in various outreach efforts and encouraging volunteer programs. Many events planned for 2020 were impacted due to stay at home orders and restrictions relating to the COVID-19 epidemic. In 2020, OCTA participated in 3 EMP public outreach events and meetings and 2 Preserve-specific public outreach events.

Plan Funding

The primary source of funding for the Plan will derive from the M2 transportation sales tax designed to raise money to improve Orange County's transportation system. As part of the M2 sales tax initiative, at least 5% of the revenues from the freeway program will be set aside for the M2 EMP revenues. There are sufficient funds available through the M2 EMP to cover the development and implementation of the Plan. OCTA is currently in a 12-15 year process to accumulate and establish an endowment that will provide a long-term funding source to cover ongoing Preserve management and monitoring, adaptive management, and responses to changed circumstances, in perpetuity. In the short-term, the current M2 EMP revenue stream is used to cover Plan implementation and administration.

Plan Administration

OCTA is responsible for implementing the Plan and staffing an NCCP/HCP Administrator position. OCTA has designated Lesley Hill as the NCCP/HCP Administrator. Her role includes overseeing Preserve management and monitoring, coordinating with restoration project sponsors, serving as the primary point of contact with the Wildlife Agencies, ensuring avoidance and minimization measures are implemented pursuant to the Plan, tracking impacts and conservation, assisting with public outreach, and preparing this Annual Report.

The Plan outlines how modifications, Minor Amendments, and Major Amendments can be made to the Plan. This Annual Report summarizes Plan modifications that have been made in collaboration with the Wildlife Agencies that address revisions to restoration project design plans and sponsors, minor Preserve boundary adjustments, and approval of a new restoration project since Plan approval. No Minor or Major Amendments are proposed.

1.1 Background

In 2006, Orange County voters approved the renewal of Measure M, effectively extending the half cent sales tax to provide funding for transportation projects and programs in the county. As part of the renewed Measure M (or Measure M2), a portion of the M2 freeway program revenues were set aside for the M2 Environmental Mitigation Program (EMP) to provide funding for programmatic mitigation to offset impacts from the freeway projects in the 13 freeway segments covered by Measure M2. In 2017, Measure M2 was rebranded as OC Go. The Orange County Transportation Authority (OCTA) prepared a Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP or Plan) as a mechanism to offset potential project-related effects on threatened and endangered species and their habitats in a comprehensive manner. The Plan achieves higher-value conservation than what would be expected through project-by-project mitigation in exchange for a streamlined project review and permitting process for the Measure M2 freeway program as a whole.

1.2 Introduction

The purpose of this document is to provide an update on the status of the Plan implementation activities that have occurred during the reporting period for this Annual Report. This Annual Report includes all Plan implementation undertaken in 2020. The information in this report will be used in compliance monitoring to determine if OCTA is properly implementing the M2 NCCP/HCP pursuant to relevant regulations and permit conditions. Annual tracking and reporting of the Plan implementation activities is required by Section 8.4 of the Plan; Section 10.1 of the Implementing Agreement, dated November 2016; the Federal Fish and Wildlife 10(a)(1)(B) Permit No. TE32842C-0, dated June 19, 2017; and the NCCP Permit No. 2835-2017-001-05, dated June 19, 2017.

1.3 Compliance Matrix

To satisfy the terms and conditions of the state and federal take authorization, OCTA is required to fulfill the obligations outlined in the Plan and Implementing Agreement (IA). Implementation tasks associated with these regulations are completed or ongoing, as described in Table 1-1. This table summarizes the compliance actions, identifies the Plan sections, briefly describes the compliance requirement, and summarizes the steps OCTA is currently taking. The compliance actions are described in greater detail later in this report.

Table 1-1. M2 NCCP/HCP Compliance Matrix

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
<i>Tracking Impacts</i>	5.8.1, 7.1	The NCCP/HCP Administrator will be responsible for collecting and maintaining information that tracks impacts on natural resources resulting from covered freeway improvement projects and other management and monitoring activities on Preserves (Covered Activities) to ensure that the amount of impacts that ultimately occur under the Plan stays below the amount of impacts estimated during Plan development.	OCTA has developed procedures and approaches to track project impacts to ensure they are consistent with the Plan.	Chapter 2
Freeway Improvement Projects	5.8.1.1	The NCCP/HCP Administrator will be responsible for tracking the status of covered freeway improvement projects.	OCTA maintains a table summarizing the status of the M2 freeway improvement projects.	2.1.1
Habitat Types	5.8.1.1, Appendix F	OCTA will record the acres of direct and temporary impacts to natural communities using detailed vegetation mapping completed as part of pre-construction field surveys. The detailed vegetation mapping will be cross-walked and aggregated into the major vegetation types using the Plan. Impacts on natural communities from covered	OCTA has established methods to track the amount of habitat impacts from each covered freeway improvement project. The spreadsheet tracks the cumulative amount of habitat types relative to caps established under the M2 NCCP/HCP.	2.1.2

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
		freeway improvement projects will be measured against caps on impacts on individual habitat types and overall habitat.		
Avoidance and Minimization Measures	5.8.1.1	Based on the project-specific biological surveys, OCTA will ensure covered freeway improvement projects include avoidance and minimization measures into project design per guidelines and criteria included in the Plan.	OCTA has developed a consistency determination checklist used to evaluate how and when avoidance and minimization measures are implemented on covered freeway improvement projects. These checklists are submitted to the Wildlife Agencies for review and approval and measures are then included in the Certificate of Inclusion for the project.	2.1.3
Covered Plant Species	5.6.2.2, 5.8.1.2	To ensure any actual impacts on covered plant species are properly addressed, OCTA will implement a Covered Plant Species Policy that will involve the evaluation of impacts based on project-specific field surveys. The policy will also set forth mitigation of impacts using credits determined through field surveys of Preserves and actions taken to enhance, restore, and create populations of covered plant species as part of restoration projects approved for funding	OCTA has established a ledger to track credits and debits for covered plant species.	2.2

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
		by OCTA. This policy will require OCTA to maintain a ledger-type accounting system to track credits and debits.		
Preserve Management	5.8.1.3	The Plan establishes that no more than 13 acres (approximately 1%) of the natural habitat within the Preserves will be impacted by Preserve management activities. OCTA and Preserve Managers will track any activities resulting in more than 0.1 acre of new direct effects on natural habitat within the Preserves and record this information in a ledger that will be submitted to the Wildlife Agencies as part of the Plan’s Annual Report.	OCTA has established a process to track and monitor any Preserve management activities that would result in permanent impacts more than 0.1 acres. A ledger has been created. To date, no permanent impacts have been recorded on the Preserves.	2.3
Maintain Rough Proportionality	5.8.2	The Plan specifies that conservation measures must be implemented roughly proportional in time and extent to the impacts on habitat authorized under the Plan. Conservation measures are measured once conservation easements are recorded on Preserves and when restoration projects are signed off as meeting their success criteria.	OCTA is tracking the progress of the implementation of conservation measures relative to impacts associated with Covered Activities. The Big Bend and City Parcel restoration projects have been signed off, and the habitat credits from these restoration projects are sufficient to be ahead of impacts to date.	2.4

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
<i>Oversight of M2 Preserve Management and Monitoring</i>	5.4, 7.1, 7.2			Chapter 3
Acquisition	5.4	The acquisition of habitat Preserves was a key component of the Plan conservation strategy. Prior to the Plan being completed, OCTA selected and acquired seven Preserves with approximately 1,236 ^a acres of natural habitat. The locations of the Preserves across the Plan Area are shown on Figure 1. The selection of the Preserves, completed in coordination with the Environmental Oversight Committee (EOC) and Wildlife Agencies, was designed to meet the biological goals and objectives of the Plan while also contributing to the collective goals of the existing regional network of protected areas within the Plan Area.	The collection of Preserves acquired by OCTA in the Trabuco Canyon area has created a substantial block of conservation in an area that did not previously exist as protected open space. The Preserves in Laguna Beach (Pacific Horizon), Brea (Eagle Ridge), and Silverado Canyon area (Silverado Chaparral) add to blocks of existing protected open space in Orange County. These Preserves provide for the protection of diverse habitats across the Plan Area.	3.2
Initial Reconnaissance and Baseline Surveys	7.2.7.4	Baseline monitoring establishes conditions at a given point in time. It is a one-time event that characterizes the status of conserved resources, as well as threats and stressors, for planning or future comparisons.	For each of the seven Preserves, OCTA contracted with Bonterra Psomas to complete baseline biological surveys that included detailed vegetation mapping and focused surveys of Covered Species.	3.2 and summarized in the 2018 First Annual Report
Preparation of RMPs	7.2.4	A Resource Management Plan (RMP) will be developed for	OCTA has completed RMPs for all seven Preserves. Each	3.2

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
		<p>each Preserve that will include Preserve-specific goals and objectives relating to natural communities, Covered Species, and other ecosystem function(s), which demonstrate how the Preserve supports the overall goals and objectives of the OCTA NCCP/HCP.</p>	<p>RMP was reviewed and approved by the Wildlife Agencies. Draft RMPs were circulated for public review and OCTA held public workshops to obtain input. The Final RMPs are posted on the OCTA EMP website. The RMPs will be reviewed every 5 years and updated as necessary to prioritize management actions based on the changing Preserve needs.</p>	
<p>Recording of Conservation Easements (CEs)</p>	<p>7.2.4.1</p>	<p>Conservation easements will be recorded for each Preserve that will provide a legal mechanism to ensure each Preserve is maintained and managed in perpetuity as a habitat Preserve. Conservation easements will be recorded not later than 2 years from permit issuance. Conservation easements for each Preserve will be held by appropriate entities, depending upon the Preserve Manager.</p>	<p>OCTA is currently working on the preparation of conservation easements for each Preserve and anticipates these will be finalized in the future.</p>	<p>3.2</p>
<p>Identification of Preserve Manager</p>	<p>8.2.1.2</p>	<p>For each Preserve, a long-term Preserve Manager will be identified.</p>	<p>OCTA is currently serving as the Preserve Manager for each Preserve. OCTA has contracted with firms (RECON and Glenn Lukos Associates [GLA]) to provide Preserve management and</p>	<p>3.2</p>

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
			<p>monitoring assistance. High Level Security Services (HLSS) as well as Orange County Sheriff are providing security services for OCTA. OCTA will transition to a long-term Preserve Manager for each Preserve in the near future.</p>	
<p>General Stewardship and Preserve Management</p>	<p>7.2.5</p>	<p>The M2 NCCP/HCP includes guidelines for management of Preserves. These guidelines are meant to describe the range of management activities that could be needed, depending on a variety of Preserve-specific conditions.</p>	<p>OCTA has completed RMPs for each Preserve that define the Preserve-specific management activities. OCTA is currently serving as the Preserve Manager for each Preserve and has contracted with firms (RECON, GLA and HLSS), to provide Preserve management assistance.</p>	<p>3.2, Appendix C and D</p>
<p>Public Access Policy and Enforcement</p>	<p>7.2.5.7, 7.2.5.8</p>	<p>The primary purpose of acquiring the Preserves is to meet the biological requirements of the NCCP/HCP; however, the Preserves provide additional benefits, such as opportunities for passive recreation. Passive recreational use in the Preserves will be managed to be consistent with the protection and enhancement of biological resources.</p>	<p>For each Preserve, a public access approach was developed for the RMPs that addressed recreation and allowable uses that are compatible with the biological goals and objectives of the Plan. The RMPs were reviewed and approved by the Wildlife Agencies. OCTA conducts public hikes and equestrian rides at designated Preserves.</p>	<p>3.2, 6.1.2</p>
<p>Invasive Species Control Plan and Implementation</p>	<p>7.2.5.1</p>	<p>The control of invasive nonnative plant species is one of the most important</p>	<p>Invasive Species Management Plans were completed and approved by</p>	<p>3.2, Appendix C and D</p>

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
		<p>components of Preserve management because these species can aggressively out-compete native species, thereby reducing habitat quality within a Preserve.</p>	<p>the Wildlife Agencies for each Preserve. These Plans (authored by GLA) include detailed mapping for existing invasive species and prioritization for invasive species treatment actions. OCTA has begun the implementation of invasive species control on the Trabuco Rose Preserve.</p>	
<p>Fire Management Plan and Fire Response</p>	<p>7.2.5.9</p>	<p>The Plan outlines the requirement for the preparation of a Fire Management Plans (FMPs) for each Preserve.</p>	<p>OCTA has contracted with Wildland Res Mgt to complete a FMP for each Preserve. Work begin in 2018 and a FMP of the Silverado Chaparral Preserve has been drafted and reviewed/approved by Orange County Fire Authority in 2020. It is anticipated that these FMPs will be completed in 2021. The FMPs establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. In 2016, there was a 1.5-acre fire on the Eagle Ridge Preserve. The fire was extinguished quickly and the burn area recovered. No fires within the OCTA Preserves have occurred during the period covered by this Annual Report.</p>	<p>3.2</p>

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
<p>Biological (Effectiveness) Monitoring</p>	<p>7.2.7.4 Table 7-1</p>	<p>Effectiveness monitoring assesses status and trends, as well as threats and stressors, and requires biological expertise. Effectiveness monitoring will be completed following the frequency and survey protocols listed in Table 7-1 of the M2 NCCP/HCP in perpetuity.</p>	<p>OCTA has been completing surveys for Covered Species and their habitat within the Preserves based on schedules set forth in the RMPs. In 2020, no biological effectiveness monitoring was completed. Surveys for covered birds and reptiles will be completed in 2021. Surveys for covered plants will be postponed due to low rainfall.</p>	<p>3.2, Appendix C</p>
<p>Adaptive Management</p>	<p>7.2.7</p>	<p>The Plan sets forth the expectation and outlines an approach for the Preserves to be managed using an adaptive management strategy. Adaptive management provides a strategy to improve future management actions through monitoring to evaluate management effectiveness.</p>	<p>For each Preserve, OCTA has identified key issues for a focused adaptive management approach as part of the RMP development. These key issues are included as tasks in the monitoring and management of the Preserves.</p>	<p>3.2</p>
<p>Changed Circumstances</p>	<p>8.6.2</p>	<p>Changed Circumstances are defined as those events (flood; fire; drought; invasion by exotic species or disease; toxic spills, vandalism, encroachment, and other illegal human activity; and listing of non-Covered Species) that may affect a species or geographic area covered by this Plan that can reasonably be foreseen by</p>	<p>The Plan outlines how Changed Circumstances will be addressed should they occur. During the time period covered by this Annual Report, no events warranting a Changed Circumstance has occurred.</p>	<p>3.2</p>

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
		OCTA and the Wildlife Agencies during planning and development of the Plan.		
Bi-annual Meeting of Preserve Managers	7.1, 7.2.7.6	OCTA will host bi-annual meetings involving the Preserve Managers, Monitoring Biologists, the NCCP/HCP Administrator, and the Wildlife Agencies where implementation, policy, and technical issues of Preserve management will be addressed.	Because OCTA is functioning as the Preserve Manager each of the Preserves, the bi-annual meetings have not been initiated to date. OCTA has been coordinating closely with the Wildlife Agencies on Preserve activity.	N/A
Regional Monitoring	7.2.2	OCTA is not responsible for conducting regional monitoring outside of their specific Preserves but will contribute monitoring data collected at OCTA Preserves in a format that can be integrated with regional monitoring databases as appropriate.	OCTA is continuing to coordinate and collaborate with other regional management and monitoring programs to stay abreast of regional monitoring issues. OCTA has shared monitoring results with other regional entities.	6.1.3
<i>Tracking and Facilitation of M2 Restoration Project Implementation</i>	5.5, 7.1	A key component of the M2 NCCP/HCP conservation strategy was OCTA funding restoration projects throughout the Plan Area. OCTA has funded 11 restoration projects, totaling approximately 357 acres of restored habitats, and a dam removal project. The restoration projects will enhance habitat for Covered Species.	OCTA has been providing oversight of the Restoration Project sponsors to ensure the restoration projects meet the following criteria: (1) the restored habitat meets success criteria identified in final restoration plans approved by the Wildlife Agencies; (2) the restoration project area is conserved through a conservation easement, deed restriction,	4.1, 4.2

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
			<p>or other mechanism approved by the Wildlife Agencies; and (3) the restoration site will be managed long-term in accordance with an existing management plan that defines the role for managing the biological values of the restoration project location.</p>	
<p>'Lessons learned' monitoring of restoration projects</p>	<p>7.3</p>	<p>As warranted and in consultation with the Wildlife Agencies, OCTA will conduct follow-up monitoring of restoration projects (approximately every 5 to 10 years) to evaluate the success of the restoration projects and apply 'lessons learned' to future restoration activities.</p>	<p>To be completed at a later date after restoration projects have been completed.</p>	<p>To be presented in subsequent annual reports</p>
<p><i>Additional Conditions for Coverage</i></p>	<p>6.5</p>	<p>As part of the Conservation Analysis (Chapter 6) in the M2 NCCP/HCP, there were two Covered Species, arroyo chub and many-stemmed dudleya, noted for additional conditions for coverage above and beyond the acquisition of the seven OCTA Preserves and funding of restoration projects.</p>	<p>OCTA has been working with the Wildlife Agencies to identify and implement actions to achieve coverage for arroyo chub and many-stemmed dudleya.</p>	<p>Chapter 5</p>
<p>Arroyo Chub</p>	<p>6.5</p>	<p>OCTA will implement a future restoration project focused on improving habitat conditions for arroyo chub.</p>	<p>OCTA has initiated the U.S. Forest Service (USFS) Dam Removal restoration project to provide conservation for arroyo chub. In 2017, the</p>	<p>5.1.1, 4.2.12</p>

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
			EOC and Wildlife Agencies approved moving forward with USFS Dam Removal project and OCTA has contracted with USFS to remove 14 dams. The restoration activities began in 2018 and were completed in 2020. Monitoring will continue for two more years.	
Many-stemmed Dudleya	6.5	OCTA will protect, enhance, and/or establish a major population (i.e., 500 individuals) of many-stemmed dudleya.	There is a known population (four occurrences with approximately 180 individuals) identified on the Pacific Horizon Preserve. OCTA is implementing ongoing Preserve management actions to improve habitat suitability (e.g., reduction of invasive species and minimizing recreational impacts) and will monitor results to determine if the existing population can be expanded to meet the threshold.	5.1.2, 3.2.4
Plan Funding	8.3	Both the Natural Community Conservation Plan Act (NCCPA) and Endangered Species Act (ESA) require that a conservation plan approved pursuant to the respective state or federal law must assure availability of adequate funding to implement the Plan’s conservation actions.	The primary source of funding for the Plan implementation is the M2 transportation sales tax initiative, which included at least 5% for the revenues for the EMP.	Chapter 7

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
Preserve Management	8.3.3	OCTA will establish an endowment to provide a secure and permanent funding source to cover the Preserve management (including adaptive management) cost in perpetuity.	OCTA has established a strategy to accumulate funds for an endowment to cover Preserve management over an estimated period of 10-12 years. During this accumulation phase, funding for ongoing Preserve management is covered through the M2 sales tax revenue stream.	7.1, 7.2
Effectiveness Biological Monitoring	8.3.3	OCTA will establish an endowment to provide a secure and permanent funding source to cover the effectiveness biological monitoring on the Preserves in perpetuity.	OCTA has established a strategy to accumulate funds for an endowment to cover Preserve management over an estimated period of 10-12 years. During this accumulation phase, funding for ongoing effectiveness monitoring is covered through the M2 sales tax revenue stream.	7.1, 7.2
Program Management	8.3.3	OCTA will establish an endowment to fund program management through the permit term.	OCTA will fund program management using the M2 revenue stream until 2041. Between 2041 and 2051 (end of permit term), OCTA will set aside a subfund to continue funding program management.	7.1, 7.2
Changed Circumstances	8.3.3	OCTA will establish an endowment to provide a secure and permanent funding source to cover the responses to Changed	OCTA has established a strategy to accumulate funds for an endowment to cover Preserve management over an estimated period of 10-12 years. During this	7.1, 7.2

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
		Circumstances on the Preserves in perpetuity.	accumulation phase, funding for ongoing effectiveness monitoring is covered through the M2 sales tax revenue stream.	
<i>Plan Administration</i>				Chapter 8
NCCP/HCP Administrator	8.2.1.1	OCTA is responsible for implementing the M2 NCCP/HCP and staffing an NCCP/HCP Administrator position.	The NCCP/HCP is being implemented and administered by OCTA staff.	8.1
Minor Modifications	8.5.2	The Plan allows for minor modifications to the Plan, permits, and implementing agreement if the modifications are non-substantive and do not meet the threshold of a Minor and Major Amendment.	OCTA coordinated with the Wildlife Agencies to make a number of minor modifications up through 2018. No additional minor modifications have been implemented.	8.2
Minor or Major Amendments	8.5.3, 8.5.4	The Plan outlines circumstances in which Minor or Major Amendments to the Plan, permits, and Implementing Agreement could be proposed by OCTA and implemented in collaboration with the Wildlife Agencies.	No Minor or Major Amendments have been proposed or implemented during the timeframe of this Annual Report.	8.3
Changed Circumstances	8.6.2	Changed Circumstances are defined as those events that may affect a species or geographic area covered by this Plan that can reasonably be foreseen by OCTA and the Wildlife Agencies during development of the Plan. Changed Circumstances for	No events meeting the criteria of a Changed Circumstance occurred during the timeframe of this Annual Report.	8.4

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
		this Plan include the following reasonably foreseeable events: flood; fire; extended period of reduced precipitation; invasion by exotic species or disease; toxic spills, vandalism, encroachment, and other illegal human activity; and listing of non-Covered Species.		
Annual Reporting				
Annual Report	8.4	OCTA will prepare an Annual Report summarizing activities over the reporting year (January 1 to December 31). Annual reporting will involve report submittal to the Wildlife Agencies by March 1 of each calendar year (or other date as agreed upon by OCTA and the Wildlife Agencies).	This is the third Annual Report and covers all activities in 2020.	
Public Meeting	8.4	A public meeting on the report will be held within 60 days of the report submittal or in conjunction with EOC meetings.	A virtual public meeting will be held in summer 2021 to present the Annual Report, and this document will be posted on the OCTA EMP website.	
<p>^a The acreage of natural habitat preserved is based on best available information using during the preparation of RMPs and may be slightly different from acreages reported in the M2 NCCP/HCP.</p>				

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Chapter 2

Tracking Impacts from Covered Activities

The primary goal of the Plan is to obtain authorization for take of Covered Species under the Natural Community Conservation Plan Act (NCCPA) and Endangered Species Act (ESA) for the implementation of covered freeway improvement projects and other management and monitoring activities on Preserves (Covered Activities). This chapter provides tracking of impacts associated with Covered Activities to ensure implementation stays within the impact caps and procedures outlined in the Plan.

2.1 Covered Freeway Improvement Projects

2.1.1 Status of OCTA M2 Freeway Improvement Projects

Freeway improvement projects covered by this Plan are defined to include all habitat or ground-disturbing impacts resulting from the M2 transportation planning and project implementation process. There are 13 discrete proposed freeway project areas in which freeway segments have been identified for coverage under the Plan. These proposed projects are designed to reduce congestion, increase capacity, and improve traffic flow of Orange County's important transportation infrastructure. The freeway improvement projects are, in all instances, along existing freeways and will include lane additions, interchange improvements, and associated facility upgrades. These freeway improvement projects do not include the construction of new freeways.

Table 2-1 summarizes the current status of the OCTA M2 freeway improvement projects. As the planning and implementation of the OCTA M2 freeway improvement projects progresses, the grouping and organization of segments may be adjusted. The list of segments may be slightly different than the set of projects and segments included in the M2 NCCP/HCP.

Table 2-1. OCTA M2 Freeway Improvement Projects Status

Project	Location	2020 Phase	Expected Construction Start Date	Anticipated Completed Construction	NCCP/HCP Notes
Ongoing:					
Project A	I- 5, SR-55 to SR-57	Construction	Ongoing	January 2021	<ul style="list-style-type: none"> • No Covered Species • No 1602 permit anticipated
Project B	I-5, I-405 to Yale Ave <i>Segment 1</i>	ENV (5/2014 – 1/2020)	August 2025	January 2029	<ul style="list-style-type: none"> • NCCP/HCP Consistency Determination Checklist (Checklist) and Certificate of Inclusion (COI) complete • 1602 permit anticipated
	I-5, Yale Ave to SR-55 <i>Segment 2</i>		February 2025	August 2028	
Projects C and D^a	I-5, Oso Pkwy to Alicia/La Paz Rd Interchange <i>Segment 2</i>	Construction	April 2019	November 2023	<ul style="list-style-type: none"> • NCCP/HCP Checklist and COI complete • 1602 permits per segment
	I-5, Alicia Pkwy to El Toro Rd <i>Segment 3</i>	Construction	October 2020	October 2024	
	I-5, SR-73 to Oso Pkwy/Avery Pkwy Interchange <i>Segment 1</i>	Construction	January 2020	April 2025	
Project D	I-5, I-5/El Toro Interchange	ENV	TBD	No schedule past ENV	<ul style="list-style-type: none"> • NCCP/HCP checklist complete and COI pending • No 1602 permit anticipated
Project F	SR-55, I-405 to I-5 <i>Segment 1</i>	Ad/Award/Design	May 2022	April 2026	<ul style="list-style-type: none"> • No Covered Species • NCCP/HCP checklist and COI complete • 1602 permit anticipated (all concrete impacts)
	SR-55, I-5 to SR-91 <i>Segment 2</i>	ENV (12/2016 – 3/2020)	Early 2026	Late 2028	

Project	Location	2020 Phase	Expected Construction Start Date	Anticipated Completed Construction	NCCP/HCP Notes
					<ul style="list-style-type: none"> • NCCP/HCP checklist and COI pending
Project G	SR-57 (NB), Oranewood Ave to Katella Ave (Segment 1a)	ENV (4/2016 – 3/2019)	Early 2025	Late 2027	<ul style="list-style-type: none"> • NCCP/HCP checklist and COI complete
	SR-57 (NB), Lambert to Tonner Canyon	ENV (Expected to begin – 2023)	No schedule past ENV	No schedule past ENV	<ul style="list-style-type: none"> • Pending
Project I	SR-91, SR-55 to Lakeview Ave <i>Segment 1</i>	ENV (1/2015–6/2020)	March 2024	September 2027	<ul style="list-style-type: none"> • NCCP/HCP checklist and COI complete • 1602 permit anticipated per segment
	SR-91, La Palma Ave to SR-55 <i>Segment 2</i>	Ad/Award/Design	August 2024	March 2028	
	SR-91, Acacia St to La Palma Ave <i>Segment 3</i>		October 2024	May 2028	
Project J	SR-91, SR-241 to Riverside County Line ^b	ENV (9/2007–10/2012)	TBD (contingent upon future widening in Riverside County)	No schedule past ENV	<ul style="list-style-type: none"> • Full build out not yet scheduled
Project K	I-405, I-605 to SR-73	Construction	On-going	February 2024	<ul style="list-style-type: none"> • All permits obtained
Project L	I-405, I-5 to SR-55	ENV (12/2014–late 2018)	No schedule past ENV	No schedule past ENV	<ul style="list-style-type: none"> • NCCP/HCP checklist and COI complete • 1602 permit anticipated
Project M	I-605, I-605/Katella Interchange	Ad/Award/Design	December 2023	August 2025	<ul style="list-style-type: none"> • NCCP/HCP checklist and COI complete • 1602 permit anticipated

Project	Location	2020 Phase	Expected Construction Start Date	Anticipated Completed Construction	NCCP/HCP Notes
Completed:					
Project C	I-5, Vista Hermosa to PCH	Completed		July 2017	
Project D	I-5, I-5/Ortega Interchange	Completed		January 2016	
Project E	SR-22 Access Improvements	Completed		December 2014	
Project G	SR-57 (NB), Katella to Lincoln	Completed		April 2015	
	SR-57 (NB), Orangethorpe to Yorba Linda	Completed		November 2014	
	SR-57 (NB), Yorba Linda to Lambert	Completed		May 2014	
Project H	SR-91 (WB), I-5 to SR-57	Completed		June 2016	
Project I	SR-91 (WB), Tustin Interchange to SR-55	Completed		July 2016	
Project J	SR-91, SR-55 to SR-241	Completed		March 2013	
	SR-91 (EB), SR-241 to SR-71	Completed		January 2011	

^a Project C and portions of Project D were combined. This included Project C: (I-5, south of El Toro “Y” Area to Avenida Pico) and Project D: (I-5 between SR-73 and El Toro Road through Lake Forest, Laguna Hills, Laguna Niguel, Laguna Woods, Mission Viejo, and San Juan Capistrano)

^b This project extends to the I-15. The OCTA NCCP/HCP only covers those anticipated impacts within Orange County (to the County line).

I- = Interstate; SR- = State Route; ENV = Environmental; TBD = to be determined; PCH = Pacific Coast Highway; NB = northbound; WB = westbound; EB = eastbound

2.1.2 Tracking of Habitat Impacts from Covered Freeway Improvement Projects

OCTA has implemented a process to track habitat impacts resulting from covered freeway improvement projects that includes the following steps:

1. Biological field surveys are completed as part of project-specific environmental compliance (California Environmental Quality Act/National Environmental Policy Act). This involves vegetation mapping based on field surveys typically using detailed vegetation categories. The detailed vegetation categories are cross-walked to the broad habitat types addressed in the Plan.
2. Grasslands anticipated to be impacted by the freeway improvement projects are in most cases maintained and composed of nonnative grass species. Due to the largely compromised value of this habitat type, an additional assessment is made to determine if impacts on nonnative grassland should be counted against the Plan's allotted impact caps. If it can be shown that the nonnative grassland areas meet all of the following criteria, impacts on nonnative grassland will **not** be counted:
 - a) The nonnative grassland is within the median or interchanges (between on and off-ramps and the freeway or contained within clover leaves) OR within the narrow (i.e., less than 100-foot wide) strips between the freeway and adjacent development or ornamental landscaping;
 - b) The nonnative grassland is regularly maintained; and
 - c) The nonnative grassland does not provide live-in habitat or is not located within a significant dispersal corridor for Covered Species.

This determination is made on a project-by-project basis using project-specific biological surveys that will be further assessed in collaboration with OCTA and the California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Services (USFWS) (collectively, the Wildlife Agencies). The final impact acreages will be included in the NCCP/HCP Annual Report and tracking spreadsheet.

3. For each individual freeway improvement project, OCTA completes a quantification of impacts (both permanent and temporary) on each habitat type by overlaying the impact footprint with the vegetation mapping. Temporary impacts, which will require revegetation to previous conditions per restoration plans reviewed and approved by the Wildlife Agencies, are still included in this impact tracking because the impacts estimate in the Plan included both permanent and temporary impacts.

OCTA keeps an accounting of the Plan-to-date impacts on habitat types for all freeway improvement projects included under the Plan to ensure impacts stay within the caps listed in Table 5-7 of the Plan. Table 2-2 provides a program-to-date overview of habitat types impacted by OCTA M2 freeway improvement projects in comparison to caps established within the Plan. A detailed table of habitat impacts for each individual covered freeway project is included in Appendix A.

Table 2-2. OCTA M2 Freeway Improvement Project Program-to-Date Habitat Impact Tracking Sheet^a

Plan Vegetation Types	Plan Caps	Impacts (Program to Date)^b	Balance
Chaparral	5.0	-	5.0
Coniferous Forest	-	-	-
Grassland	108.1	6.460	101.7
Riparian	5.0	0.957	4.0
Scrub	10.0	1.705	8.3
Water	0.4	0.12	0.28
Wet Meadow/Marsh	2.5	-	2.5
Woodland	10.0	-	10.0
TOTALS	141.0	9.2	131.8

^a Values are in acres.

^b See Appendix A for summary of impacts from each individual covered freeway project.

2.1.3 Consistency Determinations for Covered Freeway Improvement Projects

OCTA has developed a consistency determination checklist to evaluate how and when avoidance and minimization measures and restoration of temporary impacts are implemented on covered freeway improvement projects. These consistency determinations are forwarded to the Wildlife Agencies for review and approval. The avoidance and minimization measures are then incorporated into the project-level Environmental Commitment Record (ECR) as well as the OCTA/California Department of Transportation (Caltrans) Certificate Of Inclusion (COI). The ECR is a document utilized to track a project's environmental commitments from design to post-construction. The COI enables OCTA to extend the incidental take authorization of Covered Species to Caltrans. Table 2-3 includes a summary of the consistency determinations that have been drafted, modified, or completed within the timeframe of this Annual Report.

Table 2-3. OCTA M2 Freeway Improvement Project Consistency Determinations

Project ID	Date of Biologist Review	Incorporated into ECR?	COI Signed?	Wildlife Agency Concurrence?	Restoration of Temporary Impacts Anticipated?
Project C EA 0K0200	5/30/18	Yes	Yes	Yes	Yes
Project B EA 0K6700	7/9/18	Yes	Yes	Yes	No
Project L EA 0K710K	1/29/18	Yes	Yes	Yes	Yes
Project M EA 0K8700	6/7/18	Yes	Yes	Yes	No
Project D EA 0M9800	12/10/19	Pending	Pending	Pending	No
Project F EA 0J3400	11/11/2019	N/A	N/A	Yes	No
Project G EA 0M9700	3/12/19	Yes	Yes	Yes	No
Project I EA 0K9800	3/28/19	Yes	Yes	Yes	Yes

2.2 Tracking for Covered Plant Species Policy

The OCTA M2 NCCP/HCP includes three plant species (intermediate mariposa lily, many-stemmed dudleya, southern tarplant) on the Covered Species list. These covered plant species are narrow endemics that have highly restrictive habitat requirements, localized soil requirements, or other ecological factors that limit their distribution. To ensure any actual impacts on covered plant species are properly addressed, the M2 NCCP/HCP established the Covered Plant Species Policy (see Section 5.6.2.2 of the M2 NCCP/HCP). This policy requires the evaluation of impacts on the covered plant species be based on project-specific field surveys and sets forth a process to track mitigation of impacts using credits determined through field surveys of Preserves and actions taken to enhance, restore, and create populations of covered plant species as part of restoration projects funded by OCTA. OCTA has been implementing a process to maintain a ledger-type accounting system to track credits and debits.

2.2.1 Covered Plant Species Credits/Debits Ledger

OCTA has developed a process to track credits for covered plant species protection (on Preserves) and restoration/enhancement (restoration projects). Each covered activity must include an assessment of the potential for covered plant species to occur and complete focused surveys as appropriate. Table 2-4 provides a ledger of covered plant species credits and debits as of December 31, 2020.

Table 2-4. Covered Plant Species Credits and Debits Ledger ^a

Plant	Credits	Impacts ^b	Debits ^c	Balance	Year Surveyed	Project Element	Source
Intermediate Mariposa Lily	151			+151	2015	Pacific Horizon (Aliso Canyon) Preserve	Baseline surveys (Bonterra Psomas 2015a)
	69			+220	2013	Trabuco Rose (Ferber Ranch) Preserve	Baseline surveys (Bonterra Consulting 2013)
	74			+294	2013	Bobcat Ridge (Hafen) Preserve	Baseline surveys (Bonterra Consulting 2013)
	18			+312	2015	Silverado Chaparral (MacPherson) Preserve	Baseline surveys (Bonterra Psomas 2015b)
	283			+595	2013	Wren’s View (O’Neill Oaks) Preserve	Baseline surveys (Bonterra Consulting 2013)
	2			+597	2013	Live Oak Creek (Saddle Creek South)	Baseline surveys (Bonterra Consulting 2013)
	356			+953	2013 - 2019	Monitoring at Trabuco Rose Preserve	Biological monitoring of the Trabuco Rose Preserve between 2013 and 2019 resulted in an estimated population of 356 intermediate mariposa lily plants being identified.
	10			+963	2018	Monitoring at Bobcat Ridge Preserve	Biological monitoring of the Bobcat Ridge Preserve in 2018 resulted in 10 new observations of intermediate mariposa lily plants (GLA 2019b).
	100			+1,063	2019	Monitoring at Silverado Chaparral	Biological monitoring of the Silverado Chaparral Preserve in 2019 (GLA 2020).
	27			+1,090	2019	Monitoring at Bobcat Ridge	Biological monitoring of the Bobcat Ridge Preserve in 2019 (GLA 2020).
	213 ²			+1,303	2019	Monitoring at Wrens View	Biological monitoring of the Wrens View Preserve in 2019 (GLA 2020).
		0	0	+1,303			No impacts from Covered Activities to date.
Current Balance:				+1,303			

² Wrens View monitoring documented 223 new occurrences, however approximately 10 are not being counted as they are within the routinely disturbed access road footprint.

Plant	Credits	Impacts ^b	Debits ^c	Balance	Year Surveyed	Project Element	Source
Many-stemmed Dudleya	60			+60	2017	Pacific Horizon (Aliso Canyon) Preserve	Baseline surveys (Bonterra Psomas 2017)
	40			+100			Biological monitoring of the Pacific Horizon Preserve in 2018 observed a population of 100 individuals (GLA 2019b).
	80			+180		Monitoring at Pacific Horizon	Biological monitoring of the Pacific Horizon Preserve in 2019 (GLA 2020).
		0	0	+180			No impacts from Covered Activities to date.
Current Balance:				+180			
Southern Tarplant	1,513			+1,513	2018	Harriett Wieder Restoration Project	The Bolsa Chica Conservancy began seeding activities as part of the restoration project in early January 2018. Surveys in August 2018 totaled 1,513 plants of southern tarplant (Bolsa Chica Conservancy 20198).
	6,864			+8,377		Harriett Wieder Restoration Project	The Bolsa Chica Conservancy 2019 annual report totaled 8,377 plants of southern tarplant (Bolsa Chica Conservancy 2019). An increase of 6,864 occurrences.
	51,000			+59,377		Fairview Park Resotraiton Project	The city of Costa Mesa documented just over an acre of Southern tarplant in the 2019 annual monitoring report.
		0	0	+59,377			No impacts from Covered Activities to date.
Current Balance:				+59,377			

^a Credits and debits measured in number of individual plants.

^b Cumulative impacts cap is 500.

^c The amount of debits required is calculated using a 3:1 mitigation ratio.

2.2.1.1 Documents Referenced for Covered Plant Species Credits and Debits

Bolsa Chica Conservancy. 2018. *Harriett Wieder Regional Park Habitat Restoration Project: Southern Tarplant Survey 2018.*

Bolsa Chica Conservancy. 2018. *Harriett Wieder Regional Park Habitat Restoration Project: Southern Tarplant Survey 2019.*

- BonTerra Consulting. 2013. *Draft Biological Technical Report for the South County Properties, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Irvine, CA. December.
- Bonterra Psomas. 2015a. *Baseline Biological Surveys Technical Report for the Aliso Canyon (Pacific Horizon) Property, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation in Orange County, California*. October.
- BonTerra Psomas. 2015b. *Baseline Biological Surveys Technical Report for the MacPherson Property, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Irvine, CA. September.
- Endemic Environmental Services. 2019. Fairview Park Riparian and Wetlands Mitigation Project Quarterly Report. Submitted to the City of Costa Mesa. September.
- Endemic Environmental Services. 2019. Fairview Park Riparian and Wetlands Mitigation Project. Submitted to the City of Costa Mesa. December.
- Glenn Lukos Associates (GLA). 2019a. *Annual Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose Preserve*. Prepared for OCTA. February.
- Glenn Lukos Associates (GLA). 2019b. *Biological Monitoring Report for OCTA M2 Preserves – Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren’s View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.
- Glenn Lukos Associates (GLA). 2020. *Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose, Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren’s View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.

2.3 Tracking Impacts on Habitat Types Resulting from Covered Activities within Preserves

The M2 NCCP/HCP establishes that no more than 13 acres (approximately 1%) of the natural habitat within the acquired Preserves will be impacted by Preserve management activities that will result in new permanent impacts on habitat. The 13 acres of anticipated impacts within the Preserves may be concentrated within a few of the Preserves or be spread evenly throughout each of the Preserves. Potential impacts include activities such as construction of new trails, access roads, recreation facilities, and maintenance structures. OCTA and Preserve Managers have been tracking any activities resulting in more than 0.1 acre of new direct effects on natural habitat within the Preserves and will record this information in a ledger to be included in this Annual Report.

OCTA will ensure that the overall cap across all Preserves is not exceeded. If degraded habitat and/or existing developed areas (e.g., roads and trails) within the Preserves are restored and converted to native habitat, OCTA will also be able use credits from these activities, subject to review and approval by the Wildlife Agencies, to offset impacts within the Preserves. OCTA will track impacts and credits within the Preserves for each of the individual habitat types, but will be held to a cap only for the overall amount of natural habitat impacted.

To date, no impacts or credits for habitat creations have been recorded on the Preserves. It is anticipated that as some of the trails are restored and invasive species are removed from disturbed areas that additional credits will be added (once approved by the Wildlife Agencies) to the 13 acres of allowable impacts.

2.4 Maintaining Rough Proportionality

Under the NCCPA, conservation measures in an approved NCCP must be roughly proportional in time and extent to the impact on habitat or Covered Species authorized under the plan. Similarly, the USFWS HCP Policy Handbook provides that mitigation for project impacts should generally occur prior to or concurrent with the impacts.

Implementation of conservation measures roughly proportional in time and extent to impacts on natural communities and Covered Species will be measured as follows: (1) for habitat acquired, the date of recordation of a conservation easement (CE) or other approved site protection mechanism; and (2) for restoration projects, the date on which the restoration projects have met their success criteria. For the purpose of maintaining rough proportionality, OCTA will ensure that a minimum 2:1 mitigation ratio for direct impacts will be maintained for each vegetation community, with the exception of grassland, which will be maintained at a minimum 1:1 ratio. Thus, for each acre of chaparral, riparian vegetation, scrub, and woodland that is directly impacted, at least 2 acres will have been conserved or restored before the impacts take place. For each acre of grassland that is directly impacted, at least 1 acre will have been conserved or restored before the impacts take place. If OCTA has not conserved or restored enough grassland habitat acreage to offset grassland impacts, it can offset grassland impacts with “out-of-kind” habitat at a 2:1 ratio. Compliance with the requirement to maintain rough proportionality will be monitored by OCTA and will be reported on an annual basis as part of the Annual Report.

Because OCTA was able to accelerate the implementation of conservation actions (Preserve acquisitions and restoration projects) through the early action plan, it is expected that most or all of the conservation actions under the Plan will be completed (i.e., CEs recorded for OCTA Preserves and restoration projects signed off as meeting their success criteria) within 10 years after permit issuance. This will be prior to when a substantial percentage of the impacts from Covered Activities occur. To ensure that rough proportionality will be maintained during the first few years of the Plan, OCTA will either record a CE for at least one Preserve or be able to demonstrate that one or more restoration projects have received sign-off from the Wildlife Agencies as meeting their success criteria within 2 years of permit issuance. To date, three restoration projects (Big Bend, City Parcel and Bee Flat) have met their success criteria.



Bee Flat project area “before” restoration (photo courtesy of Irvine Ranch Conservancy).

Table 2-5 provides a ledger of the balance of credits achieved and habitat impacts as of December 31, 2020. Table 2-6 lists the conservation credits that have been achieved to date.



Bee Flat project area “after” restoration (photo courtesy of Irvine Ranch Conservancy). Signed off in 2020.

Table 2-5. Rough Proportionality of Impacts and Conservation Credits Ledger^a

Habitat Type	Habitat Impacts Permitted to Date ^b	Rough Proportionality Requirements ^c	Habitat Credits Achieved to Date ^d	In-Kind Habitat Balance ^e	Out-of-Kind Credits Used ^f	Current Balance
Chaparral	--	--	4.0	--	--	+ 4.0
Coniferous Forest	--	--	--	--	--	--
Grassland	6.5	6.5	35.4	+ 28.9	+ 6.5	+ 35.4
Riparian	1.0	2.0	13.1	+ 11.1	--	+ 11.1
Scrub	1.7	3.4	70.0	+ 66.6	- 13.0	+ 53.6
Water	0.12	0.24	0.4	+ 0.16	--	+ 0.16
Wet Meadow/Marsh	--	--	--	--	--	--
Woodland	--	--	17.8	--	--	+ 17.8

^a Values are in acres.

^b See Table 2-2.

^c Based on a 2:1 ratio for all habitats except grasslands, which is 1:1.

^d See Table 2-6.

^e Habitat credits minus rough proportionality requirements.

^f Negative balance of grassland habitat can be offset with a 2:1 use of “out-of-kind” credits from another habitat type.

Table 2-6. Conservation Credits Achieved to Date^a

Conservation Action	Total	Chaparral	Coniferous Forest	Grassland	Riparian	Scrub	Water	Wet Meadows/ Marsh	Woodland
Total Conservation Credits to Date:	130.7	4.0	--	35.4	13.1	70.0	0.4	--	17.8
Big Bend Restoration Project	3.7	--	--	--	0.5	3.2	--	--	--
City Parcel Restoration Project ^b	43.0	--	--	--	12.6	40.0	0.4	--	--
Bee Flat Restoration Project	84.0	4.0	--	35.4	--	26.8	--	--	17.8

^a Values are in acres.

^b A calculation of the amount of “open water” at the City Parcel Restoration Project was determined by the project sponsor (per email from Jordan Wills dated January 14, 2019), which was subtracted from the acreage of restored riparian habitat.

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3.1 Introduction

The acquisition of Preserve lands was a primary component of the M2 NCCP/HCP conservation strategy. The selection of the Preserves was designed to meet the biological goals and objectives of the Plan while also contributing to the collective goals of the existing regional network of protected areas within the Plan Area. OCTA has acquired seven properties as part of the M2 NCCP/HCP. The locations of the M2 Preserves are shown in Figure 1 and the acreage totals are listed in Table 3-1.

Table 3-1. OCTA Preserves

OCTA Preserves	Location	Total Acres ^a	Acres of Natural Habitat
Bobcat Ridge	Trabuco Canyon	48.0	47.9
Eagle Ridge	City of Brea	301.1	296.1
Live Oak Creek^b	Trabuco Canyon	82.8	51.3
Pacific Horizon	City of Laguna Beach	151.9	148.3
Silverado Chaparral	Silverado Canyon	203.5	200.0
Trabuco Rose	Trabuco Canyon	395.7	380.4
Wren’s View	Trabuco Canyon	116.1	112.4
Totals		1,299.1	1,236.4

^a These acreages are based on best available information used during preparation of RMPs and may be slightly different from acreages reported in the M2 NCCP/HCP.

^b Live Oak Creek Preserve was purchased, in part, with funding provided by the National Fish and Wildlife Foundation. OCTA receives a percentage of the available credits based on the percentage of the total cost of acquiring and managing the Preserve contributed by OCTA (75.36%).

The M2 NCCP/HCP establishes guidelines for the management and monitoring of the Preserves to ensure the long-term health and viability of species and ecological values within the Preserves. Each Preserve has had Preserve-specific Resource Management Plans (RMPs) developed. Appendix C and D summarizes various Preserve maintenance and stewardship activities, including invasive species management, tree evaluations, and general maintenance activities.

3.2 Preserves Status

The following sections provide a status summary for each M2 Preserve.

3.2.1 Bobcat Ridge Preserve

Action	Bobcat Ridge Preserve Status
Acquisition	Acquired in May 2011.
Baseline Surveys	Baseline surveys were completed in 2013 by BonTerra Consulting and results documented in the Baseline Survey Technical Report. This report is included as an appendix to the RMP.
Preparation of Resource Management Plan	The draft RMP was completed in August 2017 and was available for public review for a 90-day period through December 2017. Final RMP was completed and posted on OCTA EMP website in September 2017. http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/
Recording of Conservation Easement	A conservation easement for the Bobcat Ridge Preserve is being prepared and is anticipated to be recorded in the near future.
Identification of Preserve Manager	Currently the Preserve is being managed by OCTA, but a long-term Preserve Manager is anticipated to be in place in the near future.
General Stewardship and Preserve Management	OCTA staff, with assistance from Preserve Management contractor RECON, and Preserve biological monitor Glen Lukos Associates (GLA) implemented routine and ongoing property management and maintenance activities. In addition, High Level Security Services (HLSS) is assisting with the private patrol needs for the Preserve. A description and inventory of general stewardship and Preserve management activities conducted is included in Appendices C and D.
Public Access Policy and Enforcement	Based on an evaluation of biological resources, safety concerns, and local land use/parking constraints conducted as part of the preparation of the Bobcat Ridge RMP, it was determined that public access cannot be accommodated on this Preserve at this point in time.
Invasive Species Control Plan and Implementation	An Invasive Species Management Plan (ISMP) for the Bobcat Ridge Preserve was completed and approved by the Wildlife Agencies in 2019. OCTA is implementing the ISMP based priorities outlined in the plan. Recent monitoring has confirmed both the Invasive Shot Hole Borer as well as the Gold Spotted Oak Borer in the Trabuco Canyon Area. OCTA will continue to monitor and treat trees that are being impacted by these invasive species. After previous negative results from monitoring, Dudek visually evaluated this Preserve again in 2020 and found no signs of GSOB or ISHB. The report containing detailed information of this study is included as an appendix to the Biological Monitoring Report (GLA 2021) (Appendix C).
Fire Management Plan and Fire Response	OCTA has contracted with Wildland Res Mgt to complete a Fire Management Plan (FMP). A draft FMP for the Silverado Chaparral Preserve was completed in 2020. The rest of the FMPs are anticipated to be completed in 2021. They will establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. No fires within the Preserve have occurred during this period.
Biological (Effectiveness) Monitoring	Biological monitoring for covered bird species was completed in 2017 (CDFW 2017). Although Cactus wren were not detected in 2017, GLA have detected them during stewardship monitoring visits at Bobcat Ridge in 2019. They were also detected during past baseline studies.

Action	Bobcat Ridge Preserve Status
	Camera monitoring occurred for covered mammal species and wildlife movement in 2019. GLA established two wildlife camera stations on the Preserve in 2019. Wildlife detected by the cameras included deer and fox. See the Effectiveness Monitoring Schedule in Appendix B.
Public Outreach / Education	OCTA has conducted public outreach and education as part of the preparation of the Draft and Final RMP.
Adaptive Management	<p>The RMP has identified the following key issues for a focused adaptive management approach to address uncertainties of Preserve management:</p> <ul style="list-style-type: none"> Vegetation Control around Cactus Patches. Research current approaches for vegetation management around cactus patches to determine if this is needed at the Bobcat Ridge (Hafen) Preserve to protect and/or improve cactus wren populations. <p>Approximately 1.47 acres of cactus patches were documented on the Preserve in 2019 (GLA 2020). This data will serve as the base for any future cactus patch vegetation management actions at the Preserve.</p>
Changed Circumstances	No events occurred that meet the Changed Circumstances requirements during this period.
General Comments / Concerns	OCTA will continue to monitor the recovery of habitat at the southern boundary of the Preserve in response to a neighbor’s unauthorized impact. The impact area totalling 0.135 acre was identified in January 2017 and new disturbance of 0.04 acre was identified (GLA 2021). OCTA will elevate or try to coordinate with other County staff regarding this enforcement issue.

3.2.1.1 Management and Monitoring Summary

The most recent effectiveness monitoring included focused surveys for covered bird species was in 2017 (CDFW 2017). No cactus wren or coastal California gnatcatcher were detected at Bobcat Ridge Preserve during the 2017 monitoring surveys, even though cactus wren had previously been documented during the biological baseline surveys (Bonterra Consulting 2013). In 2019, GLA detected a pair of cactus wren during a stewardship monitoring visit and heard cactus wren on a separate visit (GLA, 2020).

In support of the protection of Covered Species, including cactus wren, GLA mapped the locations of cactus scrub to identify key habitat areas for cactus wren, and for use in the management of sensitive resources in the context of fire management. A total of 1.47 acres of cactus scrub was mapped within Bobcat Ridge. This data will be beneficial for future decision making regarding recommended vegetation management. It will also be utilized in the Bobcat Ridge Preserve Fire Management Plan (FMP) that is currently being drafted.

GLA timed monitoring visits in the spring to coincide with the blooming period of intermediate mariposa lily, which has been previously detected onsite. GLA observed locations of the mariposa lily that had been documented during previous baseline surveys and/or monitoring as well as approximately 27 new occurrences. No new locations were detected in 2020 (GLA 2021).

As part of general stewardship monitoring, GLA staff had previously documented unauthorized impacts of coastal sage scrub at the Bobcat Ridge Preserve (2017) resulting from an adjacent neighbor intentionally clearing a path along the southern border of the Preserve to access an adjacent area of their land. The neighbor did not obtain a permit from the County for this clearing and was ordered to restore the disturbance, but to date the restoration has not been completed. In 2019, GLA conducted an assessment of the damage and concluded that passive habitat reestablishment is expected to be successful for this 0.135 acre impacted area (GLA 2020). Intermediate mariposa lily was documented within this disturbed area, although in lower numbers. In 2020, re-disturbed areas of native vegetation that had been restoring were observed within approximately 0.04 acre (GLA 2021). Three new signs were placed near the impacted area as well as two wildlife cameras. The cameras confirmed that mule deer and fox are utilizing the Preserve.



Intermediate mariposa lily during 2012 baseline surveys (photograph courtesy of M. Couffer).

An Invasive Species Management Plan (ISMP) was approved by the Wildlife Agencies in 2019 for the Bobcat Ridge Preserve. As part of the ISMP preparation, the distribution of invasive plant species on the Preserve were mapped and priority areas for removal and methodologies were identified. OCTA is prioritizing ISMP implementation based on threats to Covered Species. As the invasive species on this Preserve are not as high of a threat to Covered Species or as prevalent as some of our other Preserves, implementation of invasive species control has not yet been scheduled. Biological monitoring will continue and early detection and eradication actions will continue to ensure that any new emergent invasives will not colonize within the Preserve as outlined in the ISMP.

There were no maintenance tasks required at the Bobcat Ridge Preserve in 2020 (RECON 2021).

3.2.1.2 Planned Actions for 2021

Planned actions and priorities for 2021 include:

- Complete focused surveys as part effectiveness monitoring for coastal California gnatcatcher and cactus wren following protocols identified in the Preserve RMP.

- Complete focused visual encounter surveys as part effectiveness monitoring for reptiles, with the focus on orangethroat whiptail and coast horned lizard.
- Based on below normal rainfall to date for the 2020/2021 season, GLA recommends postponing Preserve-wide focused plant surveys until at least the following season, but to perform surveys/monitoring of select plant populations in 2021 to obtain count data for general effectiveness monitoring.
- Continue to closely monitor unauthorized activities along the southern boundary.
- Continue monitoring covered mammal species and wildlife movement utilizing the installed wildlife camera location posts. Adjust wildlife camera locations.
- Implement the approved ISMP based on priorities outlined in the plan and to continue to monitor for stink net, which has been previously detected and removed adjacent to the Preserve boundary.
- Continue preparation of the Bobcat Ridge Preserve FMP.

3.2.1.3 Related Documents and References

Audubon Starr Ranch. 2019. *Vegetation Monitoring on Three Orange County Transportation Authority Preserves: Bobcat Ridge, Wren's View, and Live Oak Creek*. Operating Agreement 3-5-3711. July 2019

BonTerra Consulting. 2013. *Baseline Biological Surveys Technical Report for the South County Properties, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Prepared for OCTA. December.

Glenn Lukos Associates (GLA). 2019. *Biological Monitoring Report for OCTA M2 Preserves – Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren's View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.

Glenn Lukos Associates (GLA). 2020. *Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose, Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren's View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.

Glenn Lukos Associates (GLA). 2021. *Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose, Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren's View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. April.

RECON Environmental Services (RECON). 2021. *2020 Summary Letter for Maintenance Activities Performed on OCTA Preserves*. Prepared for OCTA. February.

3.2.2 Eagle Ridge Preserve

Action	Eagle Ridge Preserve Status
Acquisition	Acquired in 2011.
Baseline Surveys	Baseline surveys were completed in 2013 by BonTerra Consulting and results documented in the Baseline Survey Technical Report. This report is included as an appendix to the RMP.
Preparation of Resource Management Plan	Draft RMP was completed in September 2017 and was available for public review for a 90-day period through December 2017. Final RMP was completed and posted on OCTA EMP website in September 2018. http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/
Recording of Conservation Easement	A CE for the Eagle Ridge Preserve is being prepared and is anticipated to be recorded in the near future.
Identification of Preserve Manager	Currently the Preserve is being managed by OCTA, but a long-term Preserve Manager is anticipated to be in place in the near future.
General Stewardship and Preserve Management	OCTA staff, with assistance from Preserve Management contractor RECON, and Preserve biological monitor Glen Lukos Associates (GLA) implemented routine and ongoing property management and maintenance activities. A description and inventory of general stewardship and Preserve management activities conducted by GLA and RECON is included in Appendices C and D.
Public Access Policy and Enforcement	Due to the combination of a lack of staging areas, biological sensitivity, and other constraints, OCTA determined public access on the Preserve will be very limited. It may be possible to hold a small structured event with the help of adjacent landowners for staging and/or parking. If an event is set to occur, public access would adhere to roads and trails designated for Preserve management.
Invasive Species Control Plan and Implementation	OCTA contracted with GLA to serve as a Restoration Ecologist and completed an ISMP. The ISMP was reviewed and approved by the Wildlife Agencies in 2019. No invasives pest species have been found on this Preserve.
Fire Management Plan and Fire Response	OCTA has contracted with Wildland Res Mgt to complete an FMP. A draft FMP is scheduled to be completed in 2021. The FMP will establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. A small (1.5 acre) fire occurred on this Preserve in July 2016. The fire was extinguished quickly, and the burn area has been recovering with no additional management actions. No fires in 2020.
Biological (Effectiveness) Monitoring	Camera monitoring for covered mammal species and wildlife movement began in 2018. In 2019, cameras have documented deer, coyote, bobcat, cattle and trespassers on horseback and bikes. Since the wildlife cameras are not providing new data, camera monitoring has been discontinued unless an issue arises that warrants the usage of the cameras on the property (GLA 2021). GLA conducted a focused habitat suitability assessment for Southwestern pond turtle. The assessment found that habitat potential may be low due to limited hydrology and potentially other habitat factors, compounded by disturbance due to cattle. However the site should be further investigated to

Action	Eagle Ridge Preserve Status
	determine if there are opportunities to create habitat for the pond turtle (GLA 2021).
Public Outreach / Education	OCTA has conducted public outreach and education as part of the preparation of the Draft and Final RMP.
Adaptive Management	<p>The RMP has identified the following key issues for a focused adaptive management approach to address uncertainties of Preserve management:</p> <ul style="list-style-type: none"> • Riparian Habitat Enhancement along Soquel Canyon. Collect photo monitoring of the riparian habitat enhancement with the removal of grazing to determine if passive restoration was successful. If not, determine if active restoration is needed. <p>OCTA and CHSP have been coordinating for the best approach in the removal of the cattle. OCTA will continue to coordinate with CHSP and potentially Orange County Sheriff Department in order to develop a strategy to remove the cattle .</p>
Changed Circumstances	No events occurred that meet the Changed Circumstances requirements during this period.
General Comments / Concerns	<i>Cattle Trespass.</i> Cattle have been identified trespassing on the Eagle Ridge parcel before its acquisition. New fencing was installed, but cattle trespass continues to be a problem and were observed in 2020 (GLA 2021). OCTA will continue to partner with other agencies to devise a solution to this problem.

3.2.2.1 Management and Monitoring Summary

Public access is not currently authorized at the Eagle Ridge Preserve. However, three wildlife cameras have detected multiple occurrences of unauthorized access, including mountain biking, hiking, and horseback riding. In addition, cattle are heavily using the property, and have been detected on multiple site visits by OCTA, CHSP staff, and GLA biologists, as well as by the wildlife cameras. Cattle were observed within the Eagle Ridge Preserve in 2020 (GLA 2021). The wildlife cameras also documented the following wildlife: coyote, skunk, bobcat, and mule deer.

An ISMP was prepared for the Eagle Ridge Preserve and approved by the Wildlife Agencies in 2019. OCTA is prioritizing ISMP implementation based on threats to Covered Species. As the invasive species on this Preserve are not as high of a threat or as prevalent as some of our other Preserves, implementation of invasive species control has not yet been scheduled. In addition, the fire management plan for the Eagle Ridge Preserve is being developed.

GLA assessed the property for western pond turtle suitability and found that the habitat potential is low due to the lack of observed suitable hydrology and potentially other habitat factors, compounded by disturbance due to cattle. However, the site should be further investigated to determine if there are opportunities to create habitat for the pond turtle, based on the hydrology and topography of the creek. The implementation of focused efforts for reptiles such as pit arrays to more accurately determine the presence/absence of coast horned lizard should be considered.

No maintenance tasks at the Eagle Ridge Preserve were required in 2020 (RECON 2021).

3.2.2.2 Planned Actions for 2021

Planned actions and priorities for 2021 include:

- Continue to develop solutions to remove the cattle from the Preserve (OCTA and CHSP).
- Complete focused surveys as part effectiveness monitoring for least Bell's vireo following protocols identified in the Preserve RMP.
- Completed focused visual encounter surveys as part effectiveness monitoring for reptiles, with the focus on orangethroat whiptail and coast horned lizard.
- Based on below normal rainfall to date for the 2020/2021 season, GLA recommends postponing Preserve-wide focused plant surveys until at least the following season.
- The site should be further investigated to determine if there are opportunities to create habitat for the pond turtle, based on the hydrology and topography of the creek; however, the cattle needs to be removed prior to any restoration efforts taking place.
- Continue preparation of the Eagle Ridge Preserve FMP.

3.2.2.3 Related Documents and References

BonTerra Consulting. 2013. *Baseline Biological Surveys Technical Report for the Hayashi (Eagle Ridge) Property, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation in Orange County, California*. March.

Glenn Lukos Associates (GLA). 2020. *Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose, Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren's View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.

Glenn Lukos Associates (GLA). 2021. *Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose, Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren's View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. April.

RECON Environmental Services (RECON). 2021. *2020 Summary Letter for Maintenance Activities Performed on OCTA Preserves*. Prepared for OCTA. February.

3.2.3 Live Oak Creek Preserve

Action	Live Oak Creek Preserve Status
Acquisition	Acquired in April 2011.
Baseline Surveys	Baseline surveys were completed in 2013 by BonTerra Consulting and results documented in the Baseline Survey Technical Report. This report is included as an appendix to the RMP.
Preparation of Resource Management Plan	Draft RMP was completed in August 2017 and was available for public review for a 90-day period through December 2017. Final RMP was completed and posted on OCTA EMP website in September 2017. http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/
Recording of Conservation Easement	The CE for the Live Oak Creek Preserve is being prepared and is anticipated to be recorded in the near future.
Identification of Preserve Manager	Currently the Preserve is being managed by OCTA, but a long-term Preserve Manager is anticipated to be in place in the near future.
General Stewardship and Preserve Management	OCTA staff, with assistance from Preserve Management contractor RECON, and Preserve biological monitor Glen Lukos Associates (GLA) implemented routine and ongoing property management and maintenance activities. In addition, High Level Security Services (HLSS) is assisting with the private patrol needs for the Preserve. A description and inventory of general stewardship and Preserve management activities conducted by GLA and RECON is included in Appendices C and D.
Public Access Policy and Enforcement	Due to the combination of the lack of staging areas, biological sensitivity, and other constraints, OCTA determined public access on the Live Oak Creek Preserve will be very limited. It may be possible to hold a small structured event with the help of adjacent landowners for staging and/or parking. If an event is set to occur, public access would adhere to roads and trails designated for Preserve management.
Invasive Species Control Plan and Implementation	An Invasive Species Management Plan (ISMP) for the Live Oak Creek Preserve was completed and approved by the Wildlife Agencies in 2019. OCTA is implementing the ISMP based on priorities outlined in the plan. No sign of ISHB was observed during surveys in 2020.
Fire Management Plan and Fire Response	OCTA has contracted with Wildland Res Mgt to complete an FMP. A draft FMP is scheduled to be completed in 2021. The FMP will establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. No fires within the Preserve have occurred during this period.
Biological (Effectiveness) Monitoring	Biological monitoring for covered bird species was completed in 2017 (CDFW 2017). Camera monitoring for covered mammal species and wildlife movement began in 2018. No effectiveness monitoring was completed in 2020.
Public Outreach / Education	OCTA has conducted public outreach and education as part of the preparation of the Draft and Final RMP.
Adaptive Management	The RMP has identified the following key issues for a focused adaptive management approach to address uncertainties of Preserve management: <ul style="list-style-type: none"> ● Covered Plants and Vegetation Management. Closely monitor the response of covered plant species (e.g., intermediate mariposa

Action	Live Oak Creek Preserve Status
	lily) to vegetation management actions along the side of access roads. <ul style="list-style-type: none"> ● Trails Revegetation. Collect photo monitoring of the revegetation of closed trails to determine if passive restoration was successful. If not, determine if active restoration is needed. ● Vegetation Control around Cactus Patches. Research current approaches for vegetation management around cactus patches to determine if this is needed at the Live Oak Creek Preserve to protect and/or improve cactus wren populations.
Changed Circumstances	No events occurred that meet the Changed Circumstances requirements during this period.
General Comments / Concerns	None.

3.2.3.1 Management and Monitoring Summary

Cactus wren were documented during the biological baseline surveys of this Preserve (Bonterra Consulting 2013). The most recent effectiveness monitoring included focused surveys for covered bird species in 2017 (CDFW 2017). Two cactus wren territories/use areas were detected at the Live Oak Creek Preserve. Male and female wren (i.e., pairs) were observed as well as fledglings. No coastal California gnatcatcher were detected. Suitable, high quality cactus scrub is present on the Live Oak Creek Preserve, and conditions have not changed since baseline surveys. A total of 7.27 acres of cactus scrub was mapped at Live Oak Creek. No covered wildlife species were detected during 2020 site visits; however, bobcat was detected on wildlife cameras.

GLA did not detect new populations of intermediate mariposa lily (GLA 2021). It is recommended to continue to monitor known populations of intermediate mariposa lily during spring blooming periods to detect potential trends in population growth or decline.

GLA prepared an ISMP, which was approved by the Wildlife Agencies in 2019. OCTA is prioritizing ISMP implementation based on threats to Covered Species. As the invasive species on this Preserve are not as high of a threat to Covered Species or as prevalent as some of our other Preserves, implementation of invasive species control has not yet been scheduled. GLA biologists detected and removed a clump of stink net located adjacent to the Preserve boundary in 2019. Biological monitoring will continue and early detection and eradication actions will continue to ensure that any new emergent invasives will not colonize within the Preserve as outlined in the ISMP.

The team arborist, Dudek, conducted invasive shot hole borer (ISHB; *Euwallacea* sp.) surveys in June and July 2017. No sign and/or symptom of ISHB was observed. Dudek conducted emergent pest trapping in July 2019 and a visual evaluation in 2020 to re-evaluate for the preserence of ISHB and found no sign and/or symptom of ISHB during either survey. Invasive pests will continue to be monitored for at this Preserve.

No new unauthorized trails were documented (GLA 2021). The trails and roads documented in the RMP exist and are being utilized for management on this Preserve. Monitoring will continue to document any unauthorized trail use.

Maintenance tasks performed included vegetation thinning and removal within two fuel modification zones (identified within the RMP) and vegetation removal on the fire roads/access roads. A summary of the work completed by RECON at Live Oak Creek has been included in Appendix D.

3.2.3.2 Planned Actions for 2021

Planned actions and priorities for 2021 include:

- Complete focused surveys as part effectiveness monitoring for coastal California gnatcatcher and cactus wren following protocols identified in the Preserve RMP.
- Complete focused visual encounter surveys as part effectiveness monitoring for reptiles, with the focus on orangethroat whiptail and coast horned lizard.
- Based on below normal rainfall to date for the 2020/2021 season, GLA recommends postponing Preserve-wide focused plant surveys until at least the following season, but to perform surveys/monitoring of select plant populations in 2021 to obtain count data for general effectiveness monitoring.
- Implement the approved ISMP based on priorities outlined in the plan and to continue to monitor for stink net, which has been previously detected and removed from the Preserve.
- Continue to evaluate the status and threat of ISHB and other fungal pathogens.
- Continue preparation of the Live Oak Creek Preserve FMP.

3.2.3.3 Related Documents and References

BonTerra Consulting. 2013. *Draft Biological Technical Report for the South County Properties, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Irvine, CA. December.

Glenn Lukos Associates (GLA). 2020. *Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose, Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren’s View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.

Glenn Lukos Associates (GLA). 2021. *Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose, Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren’s View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. April.

RECON Environmental Services (RECON). 2021. *2020 Summary Letter for Maintenance Activities Performed on OCTA Preserves*. Prepared for OCTA. February.

3.2.4 Pacific Horizon Preserve

Action	Pacific Horizon Preserve Status
Acquisition	Acquired in April 2015.
Baseline Surveys	Baseline surveys were completed in 2015 by Bonterra Psomas and results documented in the Baseline Survey Technical Report. This report is included as an appendix to the RMP.
Preparation of Resource Management Plan	Draft RMP was completed in August 2017 and was available for public review for a 90-day period through December 2017. Final RMP was completed and posted on OCTA EMP website in September 2018. http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/
Recording of Conservation Easement	A Conservation Easement for the Pacific Horizon Preserve is being prepared and is anticipated to be recorded in the near future.
Identification of Preserve Manager	Currently the Preserve is being managed by OCTA, but a long-term Preserve Manager is anticipated to be in place in the near future.
General Stewardship and Preserve Management	OCTA staff, with assistance from Preserve Management contractor RECON, and Preserve biological monitor Glen Lukos Associates (GLA) implemented routine and ongoing property management and maintenance activities. A description and inventory of general stewardship and Preserve management activities conducted by GLA and RECON is included in Appendices C and D.
Public Access Policy and Enforcement	The Pacific Horizon RMP establishes a public access policy that identifies appropriate recreational opportunities within the Preserve that are compatible with the protection of biological resources. Through an evaluation of biological resources and site conditions, as well as coordination with the Wildlife Agencies, a set of existing trails within the Preserve have been identified for managed public access and other trail segments planned for decommissioning. The current configuration of OCTA approved trails connects to other existing trails on County of Orange open space lands managed by Orange County Parks (OC Parks) as well as the City of Laguna Beach. OCTA will continue to coordinate with adjacent property owners, California Coastal Commission (CCC), and City of Laguna Beach to document a formalized regional trails strategy that involves public access connections to and across the Pacific Horizon Preserve.
Invasive Species Control Plan and Implementation	An Invasive Species Management Plan (ISMP) for the Pacific Horizon Preserve was completed and approved by the Wildlife Agencies in 2019. OCTA is implementing the ISMP based on priorities outlined in the plan. OCTA obtained all the necessary permits and began invasive plant species treatments in 2020. This work will continue for the next few years as outlined in the ISMP.
Fire Management Plan and Fire Response	OCTA has contracted with Wildland Res Mgt to complete an FMP. A draft FMP is scheduled to be completed in 2021. The FMP will establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. No fires within the Preserve have occurred during this period.
Biological (Effectiveness) Monitoring	Biological monitoring for covered bird species were completed in 2017 (CDFW 2017). Camera monitoring for covered mammal species and wildlife movement is scheduled to be occur in 2021. The installation of

Action	Pacific Horizon Preserve Status
	cameras will be pursuant to coastal development permit (CDP). See the Effectiveness Monitoring Schedule in Appendix B.
Public Outreach / Education	OCTA has conducted public outreach and education as part of the preparation of the Draft and Final RMP.
Adaptive Management	<p>The RMP has identified the following key issues for a focused adaptive management approach to address uncertainties of Preserve management:</p> <ul style="list-style-type: none"> • Covered Plants and Vegetation Management. Closely monitor the response of covered plant species (e.g., many-stemmed dudleya) to trail use and future closures. Permits were obtained in 2019 to conduct restoration including decommissioning of a duplicative trail that crosses through many-stemmed dudleya habitat. Implementation of the restoration efforts began in 2020 and will continue into 2021. • Trails Revegetation. A coastal development permit was obtained for the proposed trail closures at this Preserve. Photo monitoring of the revegetation of closed trails will be conducted to determine if passive restoration was successful. If not, determine if active restoration is needed. • Vegetation Control around Cactus Patches. Research current approaches for vegetation management around cactus patches to determine if this is needed at the Pacific Horizon Preserve to protect and/or improve cactus wren populations. <p>Focused efforts to address these adaptive management issues will continue in 2020.</p>
Changed Circumstances	No events occurred that meet the Changed Circumstances requirements during this period.
General Comments / Concerns	Continue to implement restoration efforts to install cameras, remove invasive plant species, and close sections of trails supporting covered plant species. Continue to monitor restoration of disturbance areas created by SCE.

3.2.4.1 Management and Monitoring Summary

The most recent effectiveness monitoring was completed during focused surveys for covered bird species in 2017. No coastal California gnatcatcher or cactus wren were detected. One male gnatcatcher was observed by CDFW and OCTA staff in 2015 (CDFW 2017). Suitable, coastal sage scrub is present on the Pacific Horizon Preserve, and conditions have not changed since the 2015 surveys. During biological monitoring visits (stewardship) GLA generally watched for OCTA M2 Covered Species, including the coastal California gnatcatcher, orangethroat whiptail, and coast horned lizard. None were observed in 2020.

In support of the protection of Covered Species, including cactus wren, GLA mapped the locations of cactus scrub to identify key habitat areas for cactus wren, and for use in the management of sensitive resources in the context of fire management. A total of 2.76 acres of cactus scrub was mapped at Pacific Horizon. The cactus data can be used in the future to evaluate more fine scale habitat changes and to help inform management actions.

Monitoring visits have confirmed that public access is occurring at the Pacific Horizon Preserve. To better understand the level of access, GLA will implement camera monitoring in 2021 pursuant to

coastal development permit (CDP) that was needed to place cameras and establish fencing to better control some of the public access activities (GLA 2021).

GLA will time biological monitoring visits in the spring to coincide with the blooming periods of the OCTA M2 covered plant species, specifically many-stemmed dudleya and intermediate mariposa lily. GLA did not observe new many-stemmed dudleya or intermediate mariposa lily occurrences in 2020.

Mountain biking and hiking continue to occur at the Pacific Horizon Preserve, which are authorized activities. GLA continued to document unauthorized trail modifications. OCTA obtained coastal development permit (CDP) from the CCC to conduct restoration of unauthorized trail use. Work began in 2020 with the decommissioning of a duplicative trail segment which is a threat to many-stemmed dudleya, and restoration of other disturbed areas in the vicinity of the trail which support intermediate mariposa lily and coastal sage scrub habitats. The fence line was fixed and signs were installed. The treatment of the invasive plant species also occurred. Wildlife cameras will to be placed in 2021 around the restoration areas and on the Preserve in specific locations. Monitoring and reporting of these restoration tasks will be performed and provided to the Wildlife Agencies as well as the CCC.



Fence replacement and signage installed at the Pacific Horizon Preserve in 2020.

GLA completed the Pacific Horizon Preserve ISMP and OCTA obtained approval from CDFW and USFWS in 2019. Invasive species were mapped, and priorities for removal have been set. The first phase of the restoration actions focuses on removing Priority 1 plants consistent with the ISMP and planting disturbed areas. In October 2020, restoration activities began with seed head removal from the pampas grass and spraying the remaining foliage with herbicide in the northern area of the Preserve. OCTA also began the treatment of hottentot fig on by spraying in place. The adjacent County of Orange invasive plants are planned for treatment in early 2021.

The maintenance tasks performed at the Pacific Horizon Preserve during 2020 included the installation of posts and barbless wire, the removal of barbed wire, the installation of habitat restoration signs and posts for wildlife cameras, the decommissioning of an unauthorized trail, and invasive plant treatments. A fence was installed in October 2020 along the northern perimeter of the preserve where native vegetation is sparse and unauthorized access is high, and which has historically been an area where bike trails and bike jumps have been illegally created. Additional information pertaining to maintenance activities by RECON are included in Appendix D.

3.2.4.2 Planned Actions for 2021

Planned actions and priorities for 2021 include:

- Complete focused surveys as part effectiveness monitoring for coastal California gnatcatcher and cactus wren following protocols identified in the Preserve RMP.
- Complete focused visual encounter surveys as part effectiveness monitoring for reptiles, with the focus on orangethroat whiptail and coast horned lizard.

- Based on below normal rainfall to date for the 2020/2021 season, GLA recommends postponing Preserve-wide focused plant surveys until at least the following season, but to perform surveys/monitoring of select plant populations in 2021 to obtain count data for general effectiveness monitoring.
- Monitor restoration activities including invasive species removal and select duplicative trail restoration.
- Install cameras to monitor wildlife use.
- Continue monitoring of unauthorized trail use, particularly in the northern portion of the Preserve and near known populations of many-stemmed dudleya.
- Continue preparation of the Pacific Horizon Preserve FMP.

3.2.4.3 Related Documents and References

Bonterra Psomas. 2015. *Baseline Biological Surveys Technical Report for the Aliso Canyon (Pacific Horizon) Property, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation in Orange County, California*. October.

Glenn Lukos Associates (GLA). 2021. *Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose, Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren's View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. April.

RECON Environmental Services (RECON). 2021. *2020 Summary Letter for Maintenance Activities Performed on OCTA Preserves*. Prepared for OCTA. February.

3.2.5 Silverado Chaparral Preserve

Action	Silverado Chaparral Preserve Status
Acquisition	Acquired in December 2014.
Baseline Surveys	Baseline surveys were completed in 2015 by BonTerra Consulting and results documented in the Baseline Survey Technical Report. This report is included as an appendix to the RMP.
Preparation of Resource Management Plan	Draft RMP was completed in August 2017 and was available for public review for a 90-day period through December 2017. Final RMP was completed and posted on OCTA EMP website in September 2017. http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/
Recording of Conservation Easement	Draft CE for the Silverado Chaparral Preserve is being prepared and is anticipated to be recorded in the near future.
Identification of Preserve Manager	Currently the Preserve is being managed by OCTA, but a long-term Preserve Manager is anticipated to be in place in the near future.
General Stewardship and Preserve Management	OCTA staff, with assistance from Preserve Management contractor RECON, and Preserve biological monitor Glen Lukos Associates (GLA) implemented routine and ongoing property management and maintenance activities. In addition, High Level Security Services (HLSS) is assisting with the private patrol needs for the Preserve. A description and inventory of general stewardship and Preserve management activities conducted by GLA and RECON is included in Appendices C and D.
Public Access Policy and Enforcement	OCTA will continue to implement a managed public access approach for the Silverado Chaparral Preserve in coordination with the adjoining OC Parks lands.
Invasive Species Control Plan and Implementation	An Invasive Species Management Plan (ISMP) for the Silverado Chaparral Preserve was completed and approved by the Wildlife Agencies in 2019. OCTA is implementing the ISMP based on priorities outlined in the plan.
Fire Management Plan and Fire Response	OCTA has contracted with Wildland Res Mgt to complete an FMP. A draft FMP has been reviewed and approved by Orange County Fire Authority. OCTA is currently coordinating with the Wildlife Agencies to obtain their approval. The review and approval of this first FMP is key to developing and streamlining the remaining FMPs. It is anticipated that these FMPs will be completed in 2021. Once completed, they will be shared with the EOC as well as interested stakeholders. The FMP will establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. No fires within the Preserve have occurred during this period.
Biological (Effectiveness) Monitoring	Biological monitoring for Covered Birds and Reptiles will be completed in 2021. Based on below-normal rainfall to date for the 2020/2021 season, Preservewide focused plant surveys will be postponed until at least the following season. Camera monitoring for Covered Mammals and wildlife movement occurred in 2019. More protected cameras will need to be set (one was stolen in 2019). Camera monitoring will be reinitiated in 2021. See the Effectiveness Monitoring Schedule in Appendix B.
Public Outreach / Education	OCTA has conducted public outreach and education as part of the preparation of the Draft and Final RMP.

Action	Silverado Chaparral Preserve Status
Adaptive Management	<p>The RMP has identified the following key issues for a focused adaptive management approach to address uncertainties of Preserve management:</p> <ul style="list-style-type: none"> • Public Access and Wildlife Activity. Use wildlife movement cameras to monitor and gauge wildlife activity to evaluate changes in the Silverado Chaparral Preserve public access policies. This monitoring would be collected while the levels of public access are being reviewed and potentially changed. • Covered Plants and Vegetation Management. Closely monitor the response of covered plant species (e.g., intermediate mariposa lily) to vegetation management actions along the side of access roads. • Trails Revegetation. Collect photo monitoring of the revegetation of closed trails to determine if passive restoration was successful. If not, determine if active restoration is needed. • Vegetation Control around Cactus Patches. Research current approaches for vegetation management around cactus patches to determine if this is needed at the Silverado Chaparral Preserve to protect and/or improve cactus wren populations. <p>Focused monitoring efforts to address these adaptive management issues will continue in 2021.</p>
Changed Circumstances	No events occurred that meet the Changed Circumstances requirements during this period.
General Comments / Concerns	None.

3.2.5.1 Management and Monitoring Summary

While performing general stewardship biological monitoring, GLA generally watched for OCTA M2 Covered Species, including the coastal California gnatcatcher, coastal cactus wren, orangethroat whiptail, and coast horned lizard. GLA did not detect gnatcatcher, cactus wren, or orangethroat whiptail in 2020. Focused surveys for Covered Birds and Reptiles in following protocols listed in the RMP will be completed in 2021.

In support of the protection of Covered Species, including cactus wren, GLA mapped the locations of cactus scrub to identify key habitat areas for cactus wren, and for use in the management of sensitive resources in the context of fire management. A total of 0.61 acre of cactus scrub was mapped at Silverado Chaparral.

Public access is not currently authorized at the Silverado Chaparral Preserve. During 2020 monitoring visits, GLA observed that mountain biking continues to be an issue. The Preserve will continue to be monitored to document unauthorized access and activities, including by OCTA’s private security company and GLA’s monitoring team.



Photo of coast horned lizard documented at Silverado Chaparral in 2019.

Two cameras were installed in May 2019. One camera was stolen. Wildlife cameras detected deer and bobcat. Wildlife cameras also detected unauthorized people on the Preserve including a man, a woman hiking with several dogs, and another hiker with two dogs. Through coordination with OCTA, GLA removed the remaining wildlife camera on an interim basis in September 2019 due to the theft risk as well as reducing the effort through the winter months to save funding for spring monitoring. Camera monitoring will be reinitiated in 2021.

GLA prepared an ISMP, which was approved by the Wildlife Agencies in 2019. OCTA is prioritizing ISMP implementation based on threats to Covered Species. As the invasive species on this Preserve are not as high of a threat to Covered Species or as prevalent as some of our other Preserves, implementation of invasive species control has not yet been scheduled.

Maintenance tasks performed at the Silverado Chaparral Preserve included vegetation removal on some of the fire roads, the shoring up of loose rocks in select areas, and the installation of posts, barbed wire, and Preserve signs to deter the unauthorized trail use (RECON 2021).

3.2.5.2 Planned Actions for 2021

Planned actions and priorities for 2021 include:

- Complete focused surveys as part effectiveness monitoring for coastal California gnatcatcher and cactus wren following protocols identified in the Preserve RMP.
- Complete focused visual encounter surveys as part effectiveness monitoring for reptiles, with the focus on orangethroat whiptail and coast horned lizard.
- Based on below normal rainfall to date for the 2020/2021 season, GLA recommends postponing Preserve-wide focused plant surveys until at least the following season, but to perform surveys/monitoring of select plant populations in 2021 to obtain count data for general effectiveness monitoring.
- Continue monitoring unauthorized trail use activity (particularly mountain biking). Coordinate with staff at County of Orange and Irvine Ranch Conservancy to address this issue.
- Re-install cameras for tracking wildlife use and to capture images of unauthorized access throughout the Preserve. Increase security for the cameras as necessary.
- Finalize the Silverado Chaparral Preserve FMP.

3.2.5.3 Related Documents and References

BonTerra Psomas. 2015. *Baseline Biological Surveys Technical Report for the MacPherson Property, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Irvine, CA. September.

Glenn Lukos Associates (GLA). 2021. *Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose, Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren's View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. April.

RECON Environmental Services (RECON). 2021. *2020 Summary Letter for Maintenance Activities Performed on OCTA Preserves*. Prepared for OCTA. February.

3.2.6 Trabuco Rose Preserve

Action	Trabuco Rose Preserve Status
Acquisition	Acquired in May 2011.
Baseline Surveys	Baseline surveys were completed in 2013 by BonTerra Consulting and results documented in the Baseline Survey Technical Report. This report is included as an appendix to the RMP.
Preparation of Resource Management Plan	Draft RMP was released in November 2015 and was available for public review for a 90-day period through February 2017. Final RMP was completed and posted on OCTA EMP website in September 2017. http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/
Recording of Conservation Easement	Draft CEs for the Trabuco Rose Preserve are being prepared and are anticipated to be recorded in the near future. There will be two CEs for this Preserve. One will cover the portion (1.6 acres) of the Preserve that provides mitigation under the U.S. Army Corps of Engineers (ACOE) permit and has been structured to follow the CE template from the ACOE. A second CE utilizing the CDFW template will cover the rest of the Preserve.
Identification of Preserve Manager	Currently the Preserve is being managed by OCTA, but a long-term Preserve Manager is anticipated to be in place in the near future.
General Stewardship and Preserve Management	OCTA staff, with assistance from Preserve Management contractor RECON, and Preserve biological monitor Glen Lukos Associates (GLA) implemented routine and ongoing property management and maintenance activities. In addition, High Level Security Services (HLSS) is assisting with the private patrol needs for the Preserve. A description and inventory of general stewardship and Preserve management activities conducted by GLA and RECON is included in Appendices C and D.
Public Access Policy and Enforcement	The Trabuco Rose (Ferber Ranch) RMP establishes a public access policy that identifies appropriate recreational opportunities within the Preserve that are compatible with the protection of biological resources. Through an evaluation of biological resources and site conditions, as well as coordination with the Wildlife Agencies, a set of existing trails within the Preserve have been identified for managed public access and other trail segments planned for decommissioning. OCTA has held a number of public access events on the Trabuco Rose Preserve, although limited in 2020 due to the COVID-19 epidemic (see Table 6-2).
Invasive Species Control Plan and Implementation	An Invasive Species Management Plan (ISMP) for the Trabuco Rose Preserve was completed and approved by the Wildlife Agencies in 2019. Implementation of the ISMP is ongoing. Additional follow-up retreatments of select locations were completed in 2020. <ul style="list-style-type: none"> Invasive Pests. Previous monitoring has confirmed both the Invasive Shot Hole Borer as well as the Gold Spotted Oak Borer in the Trabuco Canyon Area. Continue to monitor and treat trees that being impacted by these invasive species. Invasive Shothole Borer (<i>Euwallacea fornicatus</i> ; ISHB) monitoring and evaluation surveys were conducted in previous years to evaluate levels of infestation within the Preserve. Dudek arborists evaluated a total 134 riparian trees within the Trabuco Rose Preserve. Of the 134 trees evaluated, a total of eight trees exhibited signs and symptoms of ISHB, of

Action	Trabuco Rose Preserve Status
	<p>which seven were determined to have low infestation rates and one had moderate infestation rate. Based on the results of the 2020 surveys, ISHB is considered active within the Trabuco Rose Preserve. However, based on the findings of the 2019 and 2020 ISHB surveys, ISHB continues to be in the early stages of infestation. Furthermore, with the exception of three interior trees found on the Trabuco Rose Preserve, the majority of ISHB signs and symptoms continue to be found on the periphery of the western boundary.</p>
Fire Management Plan and Fire Response	<p>OCTA has contracted with Wildland Res Mgt to complete an FMP. A draft FMP is scheduled to be completed in 2021. The FMP will establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. No fires within the Preserve have occurred during this period.</p>
Biological (Effectiveness) Monitoring	<p>Biological monitoring for Covered Birds were completed in 2017. Camera monitoring for Covered Mammals and wildlife movement has been occurring from 2013 to 2019. In addition, approximately 35.03 acres of cactus patches were documented on the Preserve in 2019 (GLA 2020). This data will serve as the base for any future cactus patch vegetation management actions at the Preserve. See the Effectiveness Monitoring Schedule in Appendix B.</p>
Public Outreach / Education	<p>OCTA has conducted public outreach and education as part of the preparation of the Draft and Final RMP. In addition, public access occurs with scheduled hikes and rides on this Preserve.</p>
Adaptive Management	<p>The RMP has identified the following key issues for a focused adaptive management approach to address uncertainties of Preserve management:</p> <ul style="list-style-type: none"> • Covered Plants and Vegetation Management. Monitor effectiveness of methods to protect Covered Plants from vegetation management activities along access roads. <p>GLA evaluated the potential effect of road maintenance on intermediate mariposa lily and did not document impacts to intermediate mariposa lily (or suspect any) as a result of road maintenance. Additionally, intermediate mariposa lily at the Preserve are far enough from the roads that impacts are not expected from typical road maintenance. Monitoring for these species will continue.</p> <ul style="list-style-type: none"> • Trails Revegetation. Monitor passive restoration of trails identified for decommissioning in the RMP. <p>In 2018, GLA staff inspected and evaluated all the trails identified in the Preserve RMP for “passive restoration.” GLA reviewed 13 trails or trail segments. Of the 13 trails, of which were assessed in 2018 and 2019, one trail had fully grown in, most trails were passively restoring with natives, and hand-weeding was recommended for a few. Passive trail restoration monitoring will continue in 2021.</p>
Changed Circumstances	<p>No events occurred that meet the Changed Circumstances requirements during this period.</p>
General Comments / Concerns	<p>Ongoing trespassing is a major concern for this Preserve due to its proximity to local rural development and history as a property with adjacent neighbor access. In general, trespassing declined in comparison to previous years, but remains a concern. OCTA is continuing to monitor unauthorized access and working to address the problem through enforcement actions, public engagement and education, and hosting managed access events.</p>

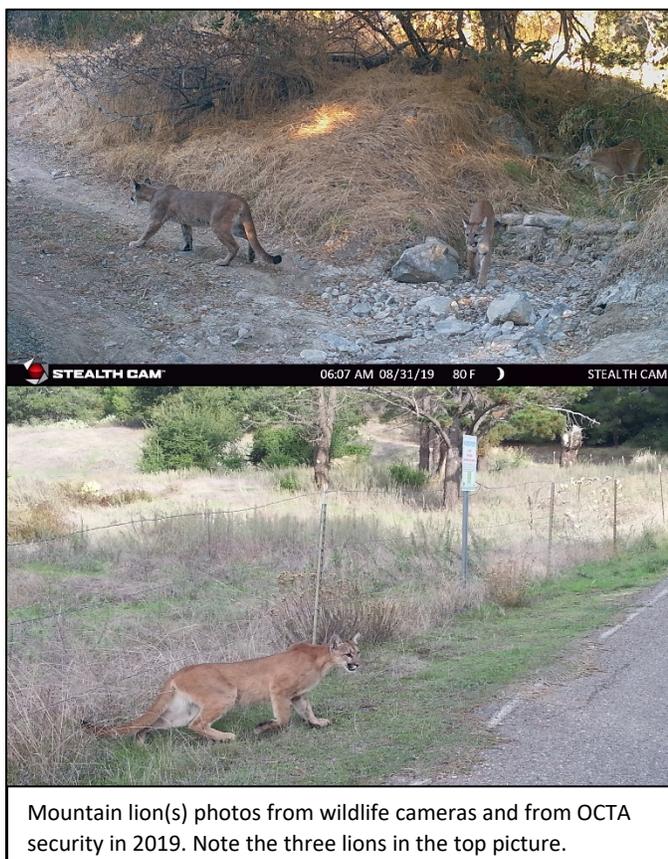
3.2.6.1 Management and Monitoring Summary

Effectiveness monitoring completed included focused surveys for covered bird species in 2017 (CDFW 2017). Seven cactus wren territories/use areas were detected at the Trabuco Rose Preserve. Male and female wren (i.e., pairs) were observed. Suitable, high quality cactus scrub is present on the Trabuco Rose Preserve, and conditions have not changed since baseline surveys. A pair of coastal California gnatcatcher were observed in 2017, which was similar to the level of occupancy recorded during baseline surveys. During 2020, GLA biologists did not detect the gnatcatcher within the property but did confirm the cactus wren in some of the areas of previous detections. Focused surveys of coastal California gnatcatchers and cactus wren will be conducted in 2021.

Table 4-1 of the RMP noted that prior to effectiveness monitoring, wildlife cameras would be set up and monitored for at least six months to assess movement and connectivity for bobcat and mountain lion. GLA continued to operate and monitor wildlife cameras at various stations in 2019. As with past monitoring, GLA observed a range of wildlife with the cameras, including mountain lion, bobcat, mule deer, coyote, and gray fox. Mountain lions were detected at 4 different camera stations including three mountain lions detected at the same time on August 21, 2019. Two cameras detected numerous trespassers, including hikers and people on mountain bikes. Through coordination with OCTA, GLA removed the wildlife cameras in 2019 due to the level of effort and costs associated with maintenance, checking the cameras, and managing the data combined with the lack of new data being collected.

While performing biological monitoring, GLA generally watched for OCTA M2 Covered Species, including the coastal California gnatcatcher, coastal cactus wren, orangethroat whiptail, and coast horned lizard. For any species detected incidentally, its location was recorded through Global Positioning System (GPS), as well as noting whether it was a new occurrence/location, or a likely confirmation of a previously noted occurrence. GLA did not detect the orangethroat whiptail or coast horned lizard during the various monitoring visits, although the whiptail is expected to occur throughout the Preserve since it has been detected multiple times during past monitoring visits. Although not previously detected at the Preserve, the horned lizard also has the potential to occur.

In support of the protection of Covered Species, including cactus wren, GLA mapped the locations of cactus scrub to



Mountain lion(s) photos from wildlife cameras and from OCTA security in 2019. Note the three lions in the top picture.

identify key habitat areas for cactus wren, and for use in the management of sensitive resources in the context of fire management. A total of 35.03 acres of cactus scrub was mapped at Trabuco Rose.

GLA will time biological monitoring visits in the spring to coincide with the blooming periods of the OCTA M2 covered plant species, specifically many-stemmed dudleya and intermediate mariposa lily. GLA did not detect any many-stemmed dudleya at the property in 2020.



Cactus wren nest from the Trabuco Rose Preserve.

OCTA sponsored a limited number of docent hikes and equestrian rides in 2020 but was limited due to the COVID-19 epidemic (see Section 6.1.2, *Preserve-Specific Public Outreach Events*). OCTA will continue to implement a managed public access approach along authorized trail segments. GLA noted multiple occurrences of unauthorized public use at the Preserve documented by the wildlife cameras, including hiking and mountain bikes. In some instances, the hikers brought dogs in and were seen taking plants from the Preserve, which is prohibited. Trespassing has been documented by the OCTA private security company and warnings were issued. The site will continue to be monitored by OCTA private security as well as OC Sheriff officers to document unauthorized access and activities, including by OCTA's private security company and GLA's monitoring team. The trails marked for decommissioning are doing quite well passively restoring.

Implementation of the ISMP is ongoing. RECON conducted initial treatment of the Priority 1 invasive species and some of the Priority 2 invasive species in 2018. RECON conducted follow-up treatment in 2019 and 2020. The primary invasive species that was retreated was artichoke thistle/cardoon (*Cynara cardunculus*). For pampas grass (*Cortaderia selloana*), initial treatments were very effective as there were only a few plants with limited green growth observed this spring. No retreatment of salt cedar (*Tamarix spp.*) was necessary.

Invasive Shothole Borer (*Euwallacea fornicatus*; ISHB) monitoring and evaluation surveys were conducted in 2019 to evaluate levels of infestation within the Preserve. Dudek arborists evaluated a total 134 riparian trees within the Trabuco Rose Preserve. Of the 134 trees evaluated, a total of eight trees exhibited signs and symptoms of ISHB, of which seven were determined to have low infestation rates and one had moderate infestation rate (same results as 2018; no newly infested trees were observed). In addition, to evaluate for the presence of ISHB in areas previously found to not be infested with ISHB, Dudek conducted emergent pest trapping over a 1-month period in July 2019 to evaluate for the presence of ISHB. Two panel traps were submitted to the State of California Department of Food and Agriculture (CDFA) Plant Health and Pest Prevention Services for identification/ confirmation of ISHB. Both traps submitted for evaluation were found to not have

ISHB. Two traps positively identified scolytid beetle (*Euwallacea spp*), a common ambrosia beetle that attacks distressed trees. No new pests and/or disease were observed on the Trabuco Rose Preserve.

Based on the results of the 2019 surveys and supplemental emergent pest trapping, ISHB is considered active within the Trabuco Rose Preserve. However, based on the findings of the 2019 and 2020 ISHB survey, ISHB continues to be in the early stages of infestation. Furthermore, with the exception of three interior trees found on the Trabuco Rose Preserve, the majority of ISHB signs and symptoms continue to be found on the periphery of the western boundary. Alternatively, the observation of ISHB sign within the interior of the Preserve continues to be considered an outlier from the observed population along the edge of the property. However, based on the ISHB’s potential for spread, it is within the ISHB’s zone of influence/impact for the area.



Trail revegetation continues. Cactus pads were installed on this unauthorized trail in 2013 and have very successfully matured.

Erosion continues to be an issue in between the main gate and the Preserve access road entering east into the Preserve. There is a large eroded gully that continues to increase with larger rain systems. This area showed additional signs of erosion after large storm events in 2019. The main access road into the Preserve is at risk due to the growing size of this gully. This work is anticipated to include engineering and will require the assistance of contractors. OCTA worked with engineers and the Wildlife Agencies to permit and design a solution to this feature in 2020. OCTA anticipates that erosion repair work will begin in 2021.

During 2020, the majority of the maintenance work was conducted at the Trabuco Rose Preserve. Tasks included the following: invasive plant treatments, removal of fallen branches and debris, fence repairs to deter unauthorized access, vegetation removal on fire roads/access roads, and vegetation thinning and removal within two fuel modification zones. Invasive plant species control work on Trabuco Rose Preserve continued in 2020 and followed the methodology in the approved ISMP. RECON field crews cut up and removed large oak branches that had fallen on interior fire roads, in areas along Hickey Spur, and along Rose Canyon Road. Vegetation control began on select fire roads and fence repair work was completed along Rose County Road. A summary of the work completed at Trabuco Rose has been included in Appendix D (RECON 2021).



Eroded gully near the main gate of the Trabuco Rose Preserve in 2020.

3.2.6.2 Planned Actions for 2021

Planned actions and priorities for 2021 include:

- Complete focused surveys as part effectiveness monitoring for coastal California gnatcatcher and cactus wren following protocols identified in the Preserve RMP.
- Complete focused visual encounter surveys as part effectiveness monitoring for reptiles, with the focus on orangethroat whiptail and coast horned lizard.
- Based on below normal rainfall to date for the 2020/2021 season, GLA recommends postponing Preserve-wide focused plant surveys until at least the following season, but to perform surveys/monitoring of select plant populations in 2021 to obtain count data for general effectiveness monitoring.
- Begin installation of a long-term solution for the gully near the main gate.
- Continue monitoring for unauthorized trail use.
- Conduct docent lead field trips as part of managed public access program once allowable.
- Continue to evaluate the status and threat of ISHB. Continue to monitor and collaborate with other scientists regarding the ISHB presence and impacts to this Preserve.
- Continue to implement the ISMP recommendations.
- Continue preparation of the Trabuco Rose Preserve FMP.

3.2.6.3 Related Documents and References

BonTerra Consulting. 2013. *Draft Biological Technical Report for the South County Properties, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Irvine, CA. December.

Glenn Lukos Associates (GLA). 2020. *Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose, Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren’s View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.

Glenn Lukos Associates (GLA). 2021. *Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose, Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren’s View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. April.

RECON Environmental Services (RECON). 2021. *2020 Summary Letter for Maintenance Activities Performed on OCTA Preserves*. Prepared for OCTA. February.

3.2.7 Wren's View Preserve

Action	Wren's View Preserve Status
Acquisition	Acquired in May 2011.
Baseline Surveys	Baseline surveys were completed in 2013 by BonTerra Consulting and results documented in the Baseline Survey Technical Report. This report is included as an appendix to the RMP.
Preparation of Resource Management Plan	Draft RMP was released in November 2016 and was available for public review for a 90-day period through February 2017. Final RMP was completed and posted on OCTA EMP website in September 2017. http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/
Recording of Conservation Easement	Draft CE for the Wren's View Preserve is being prepared and is anticipated to be recorded in the near future.
Identification of Preserve Manager	Currently the Preserve is being managed by OCTA, but a long-term Preserve Manager is anticipated to be in place in the near future.
General Stewardship and Preserve Management	OCTA staff, with assistance from Preserve Management contractor RECON, and Preserve biological monitor Glen Lukos Associates (GLA) implemented routine and ongoing property management and maintenance activities. In addition, High Level Security Services (HLSS) is assisting with the private patrol needs for the Preserve. A description and inventory of general stewardship and Preserve management activities conducted by GLA and RECON is included in Appendices C and D.
Public Access Policy and Enforcement	The Wren's View (O'Neill Oaks) RMP establishes a public access policy that identifies appropriate recreational opportunities within the Preserve that are compatible with the protection of biological resources. Through an evaluation of biological resources and site conditions, as well as coordination with the Wildlife Agencies, a set of existing trails within the Preserve have been identified for managed public access and other trail segments planned for decommissioning. OCTA did not hold public access events on the Wren's View Preserve in 2020 due to COVID-19 epidemic.
Invasive Species Control Plan and Implementation	An Invasive Species Management Plan (ISMP) for the Wren's View Preserve was completed and approved by the Wildlife Agencies in 2019. OCTA is implementing the ISMP based on priorities outlined in the plan. Due to the 2017, 2018, and 2019 on-site identification of ISHB, ISHB monitoring and evaluation surveys were conducted in 2020 to evaluate levels of ISHB infestation within the Preserve. No newly infested trees were observed. GSOB was positively identified on Wren's View Preserve in 2019 and reconfirmed in 2020. Through partnership with OCFA, one GSOB infected dead oak was chipped per protocol. In addition, trees with exit holes and trees within 100 meters of those trees were treated preventatively with a barrier spray. No other new pests and/or disease were observed on the Preserve.
Fire Management Plan and Fire Response	OCTA has contracted with Wildland Res Mgt to complete an FMP. A draft FMP is scheduled to be completed in 2021. The FMP will establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. No fires within the Preserve have occurred during this period.

Action	Wren’s View Preserve Status
Biological (Effectiveness) Monitoring	Biological monitoring for covered bird species were completed in 2017 (CDFW 2017). Camera monitoring for covered mammal species and wildlife movement was conducted between 2018 and 2019. Camera monitoring detected deer, coyote, bobcat, gray fox and mountain lion. See the Effectiveness Monitoring Schedule in Appendix B.
Public Outreach / Education	OCTA has conducted public outreach and education as part of the preparation of the Draft and Final RMP.
Adaptive Management	<p>The RMP has identified the following key issues for a focused adaptive management approach to address uncertainties of Preserve management:</p> <ul style="list-style-type: none"> • Public Access and Wildlife Activity. Wildlife movement cameras were utilized to monitor and gauge wildlife activity in 2018 and 2019. Wildlife detected at the camera stations include mountain lion, bobcat, deer, coyote, and gray fox. At this point in time in does not seem that the public access levels are high enough to warrant further assessments or a reduction in the public access events at this Preserve. • Covered Plants and Vegetation Management. Closely monitor the response of covered plant species (e.g., intermediate mariposa lily) to vegetation management actions along the side of access roads. • Trails/Grazed Areas Revegetation. Collect photo monitoring of the revegetation of closed trails and degraded habitat areas due to past grazing to determine if passive restoration was successful. If not, determine if active restoration is needed. • Vegetation Control around Cactus Patches. Research current approaches for vegetation management around cactus patches to determine if this is needed at the Pacific Horizon Preserve to protect and/or improve cactus wren populations.
Changed Circumstances	No events occurred that meet the Changed Circumstances requirements during this period.
General Comments / Concerns	Continue to monitor and collaborate with other scientists regarding the ISHB/GSOB presence and impacts on this Preserve.

3.2.7.1 Management and Monitoring Summary

Effectiveness monitoring completed included focused surveys for covered bird species in 2017 (CDFW 2017). Two cactus wren territories/use areas were detected at the Wren’s View Preserve. Male and female wren (i.e., pairs) were observed as well as fledglings. Cactus wren were documented during the biological baseline surveys of this Preserve (Bonterra Consulting 2013). Suitable, high quality cactus scrub is present on the Wren’s View Preserve, and conditions have not changed since baseline surveys. A pair of coastal California gnatcatcher had previously been documented during the biological baseline surveys, but none were detected in 2019 or 2020. Suitable habitat is still present on the Preserve and it is unclear why this species was not detected.

While performing general stewardship biological monitoring, GLA generally watched for Covered Species, including the coastal California gnatcatcher, coastal cactus wren, orangethroat whiptail, and coast horned lizard. For any species detected incidentally, its location was recorded. No gnatcatchers were detected during GLA’s monitoring visits. GLA biologists detected cactus wrens in three separate locations at the property in 2019. Two of the territories corresponded with locations noted by CDFW biologist Christine Beck (accompanied by Lesley Hill) during focused surveys performed in 2017. The third group was detected near the northern property boundary. GLA also detected an orangethroat whiptail during monitoring visits. The coast horned lizard has not yet been detected at this Preserve.



Oak tree (ax cut) trunk on Wren’s View showing evidence of GSOB.

GLA has initiated camera monitoring for covered mammal species and wildlife movement in 2018 and continued camera monitoring into 2019. Wildlife detected at the camera stations include deer, coyote, bobcat, gray fox and mountain lion.

GLA biologists mapped multiple locations of intermediate mariposa lily. Previous monitoring visits have noted disturbance to no more than ten intermediate mariposa lilies as a result of maintenance of the main road going up to the gate. In one instance, the intermediate mariposa lily was growing out of the road itself off to the side. In other instances, the intermediate mariposa lily was mixed in with vegetation growing on the immediately adjacent berm that was encroaching into the road. In all instances it appeared that the intermediate mariposa lily was cut from mechanical trimming of the vegetation.



Camera monitoring photo (bobcat) from 2019.

Note that for those that are growing in the road or at the very edge, it would be difficult to avoid completely to keep the road clear for access. The disturbance was not the result of overzealous trimming. These ten occurrences are not being counted as they are within the routinely disturbed access road footprint.

OCTA has previously sponsored a number of docent hikes on the Wren’s View Preserve but was able to schedule only one hike in 2020 due to the COVID-19 epidemic. OCTA will continue to implement a managed public access approach along authorized trail segments. GLA did not observe any new trail cuts or evidence of unauthorized access; however, trespassing through the property has been a common daytime and nighttime occurrence, in part due to the location of the former home site to the northeast of the Preserve. An increase in trespassing has been documented by the OCTA private security company and warnings were issued. The increase may be attributed to COVID-19 stay at home orders or new ownership and less presence on the adjacent parcel to the west of the Preserve. The site will continue to be monitored to document unauthorized access and activities, including by OCTA’s private security company, OC Sheriff officers, and GLA’s monitoring team. As part of GLA’s

efforts, the biological monitors will periodically check any evidence of habitat disturbance within the Preserve due to human activity.

GLA established three camera stations on the Preserve in 2018, which were maintained at the Preserve until October 2019. Wildlife detected at the camera stations include mountain lion, bobcat, deer, coyote, and gray fox. People were detected multiple times hiking and using mountain bikes.

Internal barbed wire (and a small section of chain link) fencing has been mapped and is recommended for removal. Livestock no longer reside on the property to the west, and coordination with the new property owner should continue in order to determine what other type of fencing may be warranted to better promote wildlife movement. Unauthorized (human) access should also be considered before making modifications to the fenceline.

GLA conducted comprehensive invasive species mapping and has prepared an ISMP that has been reviewed and approved by CDFW and the USFWS. OCTA will begin implementing the finalized ISMP based on priorities outlined in the plan.

In 2020, ISHB surveys continued on the Preserve. Based on the results of the 2020 surveys, ISHB is considered active within the Wren's View Preserve. However, based on the findings of the 2019 and 2020 ISHB survey, ISHB continues to be in the early stages of infestation. Furthermore, with the exception of two interior trees found on the Wren's View Preserve, the majority of ISHB signs and symptoms continue to be found on the periphery of the western boundary. The observation of ISHB along the site's western boundary along Trabuco Canyon is believed to be due to high infestation levels observed throughout O'Neill Regional Park and ISHB's active spread throughout the region. Alternatively, the observation of ISHB within the interior of the Preserve continues to be considered an outlier from the observed population along the edge of the property. However, based on the ISHB's potential for spread, it is within the ISHB's zone of influence/impact for the area. In an effort to maintain and limit the spread of ISHB throughout the remaining areas of the Preserve, it is recommended that the trees observed to have low to moderate signs and symptoms of ISHB be treated by means of a trunk spray with pesticide and fungicide treatments should be conducted by a reputable licensed company (GLA 2021).

GSOB was detected and confirmed within the Preserve in 2018 and 2019. The observation of GSOB within the Wren's View Preserve is considered a threat to Trabuco Canyon's oak tree resources. The total extent of GSOB within the canyon is unknown. However, based on the 2019 and 2020 surveys conducted within the Preserve, the infestation is suspected to be at the early stages and, as such, may be controllable. To manage the observed GSOB outbreak within Wren's View, OCTA has partnered with OCFA. OCFA received funding under the CalFire Fire Prevention Grant Program, to treat infested trees located on both County- and privately-owned properties with a contact insecticide to prevent the spread of resident beetles to neighboring trees and re-infestation of current host trees. In addition, trees lacking pest exit holes, but within approximately 100 meters of trees with exit holes, are treated preventatively with a barrier spray. These trees may either be infested from eggs laid during the previous flight season or may be uninfested but vulnerable due to their proximity to infested trees.

Treatment of infested trees would eliminate pests and slow the spread rate, enhancing the survival rate of existing tree populations. A decrease in tree mortality would ultimately reduce the wildfire risks to habitable structures by reducing potential fuel within parks and adjacent to roads, homes, and HOAs. The treatment involves the spraying of insecticide, using up to two large diesel trucks with attached pressurized rigs, on beetle infested trees. All infested trees are treated with a barrier insecticide to prevent the spread of resident beetles to neighboring trees and reinfestation of current

host trees. Contact insecticides kill adult beetles when ingested at emergence and kill eggs laid on the bark surface. These sprays would not control larvae feeding in the tree but are effective at killing adult beetles as they directly contact the insecticide on the bark surface. It is moderately to very toxic to humans and nontoxic to wild bird species, but it is toxic to bees and beneficial insects and would not be applied to flowers when bees are active. Carbaryl is non-toxic to plant species. Furthermore, carbaryl is toxic to aquatic and estuarine invertebrates and would not be applied to water or wetted areas. Treatment of infested trees include oak trees, sycamores, and other infected trees (outside of water areas). Treatment will reduce tree mortality and fire risk, will improve the quality of oak woodland and riparian habitat and natural communities, and will benefit species that occur within those habitats. One dead oak tree infected with GSOB was removed and chipped by OCFA following the required chipping protocol. The remaining OCTA oak trees with signs of GSOB and oak trees within the 100-meter buffer area, totaling 248 trees, were treated as described above by OCFA the week of May 15, 2020.

In support of the protection of Covered Species, including cactus wren, GLA mapped the locations of cactus scrub to identify key habitat areas for cactus wren, and for use in the management of sensitive resources in the context of fire management. A total of 14.73 acres of cactus scrub was mapped at Wren's View (GLA 2021).

There were no maintenance tasks required at the Wren's View Preserve in 2020 (RECON 2021).

3.2.7.2 Planned Actions for 2021

Planned actions and priorities for 2021 include:

- Complete focused surveys as part effectiveness monitoring for coastal California gnatcatcher and cactus wren following protocols identified in the Preserve RMP.
- Complete focused visual encounter surveys as part effectiveness monitoring for reptiles, with the focus on orangethroat whiptail and coast horned lizard.
- Based on below normal rainfall to date for the 2020/2021 season, GLA recommends postponing Preserve-wide focused plant surveys until at least the following season, but to perform surveys/monitoring of select plant populations in 2021 to obtain count data for general effectiveness monitoring.
- Continue monitoring for unauthorized trail use.
- Conduct docent lead field trips as part of managed public access program as allowable.
- Implement recommendations for GSOB and ISHB infestation and continue to evaluate the status and threat of these pests.
- Continue preparation of the Wren's View Preserve FMP.

3.2.7.3 Related Documents and References

Audubon Starr Ranch. 2019. *Vegetation Monitoring on Three Orange County Transportation Authority Preserves: Bobcat Ridge, Wren's View, and Live Oak Creek*. Operating Agreement 3-5-3711. July 2019.

BonTerra Consulting. 2013. *Baseline Biological Surveys Technical Report for the South County Properties, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Prepared for OCTA. December.

Glenn Lukos Associates (GLA). 2020. *Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose, Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren’s View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.

Glenn Lukos Associates (GLA). 2021. *Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose, Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren’s View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. April.

RECON Environmental Services (RECON). 2021. *2020 Summary Letter for Maintenance Activities Performed on OCTA Preserves*. Prepared for OCTA. February.

3.3 OCTA Preserve-Wide Actions

The following sections provide a status of actions undertaken and coordinated across multiple OCTA Preserves.

3.3.1 Vegetation Cover Quantitative and Qualitative Monitoring

Audubon Starr Ranch, with direction and support from OCTA, completed three seasons of qualitative monitoring plant communities to assess stability of vegetation cover on three OCTA Preserves: Bobcat Ridge (Hafen), Wren’s View (O’Neill Oaks), and Live Oak Creek (Saddlecreek South). Baseline sampling occurred in April 2016, followed by annual monitoring in April 2017 and April 2018. A final report (Audubon Starr Ranch 2019) was included in the 2019 Annual Report.

3.3.1.1 Related Documents and References

Audubon Starr Ranch. 2019. *Vegetation Monitoring on Three Orange County Transportation Authority Preserves: Bobcat Ridge, Wren’s View, and Live Oak Creek*. Operating Agreement 3-5-3711. July 2019.

Chapter 4

OCTA-Funded Restoration Projects

4.1 Introduction

As part of its commitments to deliver more effective mitigation for the M2 freeway projects, OCTA allocated funds towards habitat restoration projects. Potential habitat restoration properties were evaluated based on biological and non-biological criteria, a process that included a prioritization process to select restoration programs that would be funded by OCTA. There were two separate rounds of funding for restoration, totaling over \$10 million. The restoration projects are being implemented by various cities and non-profit entities within Orange County. Project sponsors are required to prepare annual monitoring reports to track progress towards meeting success criteria and updates on implementation status. Table 4-1 lists the OCTA-funded restoration projects, with summaries of each following.

Table 4-1. OCTA-Funded Restoration Projects – Rounds 1 and 2

Round	Project	Sponsor	Description	Signed Off
1	Agua Chinon/ Bee Flat Canyon	Irvine Ranch Conservancy	90.1 acres of restoration consisting of chaparral, grassland, coastal sage scrub, elderberry scrub, oak woodland, and riparian	√ (Bee Flat)
	Big Bend	Laguna Canyon Foundation	3.7 acres of restoration consisting of coastal sage scrub and riparian woodland to enhance wildlife connectivity	√
	City Parcel	City of San Juan Capistrano	53 acres of restoration consisting of riparian and coastal sage scrub within Trabuco Creek Wildlife Linkage	√
	Fairview Park	City of Costa Mesa	23 acres of restoration consisting of wetlands, grasslands, coastal sage scrub, and riparian	
	UCI Ecological Preserve	Nature Reserve of Orange County	8.5 acres of restoration consisting of cactus scrub	
2	Aliso Creek	Laguna Canyon Foundation	55 acres of restoration consisting of riparian and transitional habitat	
	Chino Hills State Park	Habitat Restoration Science/Chino Hills State Park	11.0 acres of cactus scrub restoration ³	
	Harriett Weider Regional Park	Bolsa Chica Conservancy	8.2 acres of restoration consisting of grassland, coastal sage scrub, and riparian habitat	

³ The original restoration design for this project included riparian and woodland habitats. An amendment was approved to focus this restoration effort on cactus scrub restoration.

Round	Project	Sponsor	Description	Signed Off
	Lower Silverado Canyon	Irvine Ranch Conservancy	28.4 acres of restoration consisting of riparian and coastal sage scrub habitat	
	North Coal Canyon	RECON Environmental Inc./Chino Hills State Park	5.5 acres of restoration consisting of coastal sage scrub habitat within a key wildlife connectivity linkage area	
	West Loma	Irvine Ranch Conservancy	62.47 acres of restoration consisting of grassland, coastal sage scrub, and riparian habitat	
2016	USFS Dam Removal	U.S. Forest Service	Removal of 14 dams along San Juan Creek to improve hydrologic functions	

4.2 Restoration Project Status

4.2.1 Agua Chinon/Bee Flat Canyon

Action	Agua Chinon/Bee Flat Canyon Status
Sponsor	Irvine Ranch Conservancy
OCTA Funding	\$1,497,160
Location	Irvine
Acreage	90.1 acres
General Habitat Types	Chaparral, coastal sage scrub, coast live oak/sycamore, oak woodland, native grassland, riparian
Restoration Design Plans	Approved in 2010. ⁴
Restoration Installation	Implementation began in 2011 and is ongoing.
Restoration Monitoring of Success Criteria	Bee Flat project area (84 acres) was signed of in 2020. Due to 2020 wildfires, it is anticipated that three more years of management and monitoring will be required for the Agua Chinon (6.1 acres) restoration project.
Land Protection Mechanism	Lands are deed restricted for open space and conservation purposes as the result of the transfer of land from the Irvine Company to the County of Orange. Lands still under the Irvine Company are subject to an Irrevocable Offer of Dedication to the City of Irvine (Preservation Area R).
Long-Term Management of Restoration Site	The project area is owned in fee by the County of Orange, with portions of Agua Chinon owned by the Irvine Company. The Orange County Parks Department and the Irvine Company are responsible for their long-term stewardship subject to the terms and conditions of the Central-Coastal NCCP/HCP.
General Comments / Concerns	None.

⁴ The USFWS and CDFW approved the restoration plan framework for this project in 2010. A more detailed plan was drafted and approved by USFWS and CDFW in 2011. To also obtain mitigation credit from the ACOE, the restoration plan for the Agua Chinon subwatershed was developed further into a Habitat Mitigation Monitoring Plan to comply with the Environmental Protection Agency 2008 Final Mitigation Rule.

4.2.1.1 Project Summary

The Agua Chinon/Bee Flat Canyon restoration project is being completed by The Irvine Ranch Conservancy (IRC) and includes restoration of 90.1 acres of natural habitat in the San Diego Creek watershed, within the sub-watersheds of Agua Chinon and Bee Flat Canyon. The sites include disturbed coastal sage scrub, grassland, and chaparral, as well as woodland and riparian habitat. The OCTA-funded restoration project will add to the other ongoing restoration projects in the same watershed that are being funded by other entities. The project site is within the Central-Coastal NCCP/HCP Central Reserve system, but the restoration proposed for this project is above and beyond the requirements of the Central-Coastal NCCP/HCP.

The long-term goal of the restoration is to facilitate habitat restoration and enhancement for the purpose of increasing landscape-scale ecosystem resilience and resistance to disturbance, primarily from catastrophic wildfire and invasive species. Sub-watershed-wide weed targets also will be controlled. The restoration success criteria include the reduction of nonnative cover of grasslands to native cover.

Bee Flat Update

In evaluation of the project, the Wildlife Agencies reviewed the 2019 Annual Status Report and follow-up Addendum, and Summary of Management at OCTA Bee Flat Grasslands in 2020. Based on the monitoring data provided in the Annual Report and Addendum, the project met the success criteria for native and non-native cover, increases in functional group and structural complexity, and increases in co-dominant species. In addition, the IRC performed late season mowing in 2020 at select grassland polygons to further reduce non-native cover and promote native species germination and needlegrass growth the following winter. The Wildlife Agencies agreed that the Bee Flat Canyon restoration project has met the goals of the restoration plan and that the project is now complete.

Unfortunately, the entire OCTA funded project area burned in the 2020 Silverado and Bond wildfires. IRC will be monitoring the recovery of this area to evaluate its' resiliency. No further contributions are required from OCTA for this project area, as success criteria was satisfied.

Agua Chinon Update

Performance monitoring at Agua Chinon, most recently performed in 2020 indicates that restoration efforts have been highly successful in establishing native vegetation and controlling nonnative weeds. In 2020, the maintenance activities in Agua Chinon consisted of weed control, which included targeted invasive plant removal. The average native plant cover exceeded criteria thresholds for all habitat types and all 40 polygons met success standards. The project met virtually all success criterion for vegetation, arthropod, and CRAM metrics.

Unfortunately, the final report was not reviewed or approved before the project area burned in the 2020 Silverado and Bond wildfires. IRC coordinated with OCTA, the Wildlife Agencies and the United States Army Corps of Engineers to prepare a post fire remediation plan for the project area. It is anticipated that three more years of monitoring, weeding, re-seeding, installation of new plantings and general maintenance will be needed to meet the required success criteria. Additional details pertaining to the fire impacts and remediation tasks will be included in the 2021 annual report.

4.2.1.2 Related Documents and References

Irvine Ranch Conservancy. 2011a. *Restoration Plan Framework for Bee Flat Canyon Under the Renewed Measure M Freeway Mitigation and Resource Protection Program*. Irvine, CA. Report dated July 8, 2011.

Irvine Ranch Conservancy. 2017. *Habitat Mitigation and Monitoring Plan: Agua Chinon Subwatershed*. Agreement No. C-1-2384 between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2019. *Annual Status Report, January-December 2019: Renewed Measure M Freeway Mitigation and Resource Protection Program, Agua Chinon Riparian Corridor*. Agreement No. C-1-2384 between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2019. *Annual Status Report, January-December 2019: Renewed Measure M Freeway Mitigation and Resource Protection Program, Bee Flat Canyon*. Agreement No. C-1-2384 between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2020. *Annual Status Report, January-December 2020: Renewed Measure M Freeway Mitigation and Resource Protection Program, Agua Chinon Riparian Corridor*. Agreement No. C-1-2384 between OCTA and IRC. Irvine, CA.

4.2.2 Big Bend

Action	Big Bend Status
Sponsor	Laguna Canyon Foundation
OCTA Funding	\$87,500
Location	Laguna Beach
Acreage	3.7 acres
General Habitat Types	Coastal sage scrub, riparian woodland
Restoration Design Plans	Approved in 2011.
Restoration Installation	Implemented in 2011.
Restoration Monitoring of Success Criteria	Monitoring was initiated in 2011 and 5 years of monitoring complete. The project was signed off in 2017.
Land Protection Mechanism	A deed restriction is expected to be recorded for the property to ensure long-term land use consistent with the project's restoration and mitigation intent.
Long-Term Management of Restoration Site	The City of Laguna Beach owns the property and is obligated to manage it to perpetuate the benefits of the restoration project. It is anticipated that the project site will be incorporated into an Orange County Parks management agreement.
General Comments / Concerns	Work with the City of Laguna Beach to record the restoration areas land protection document.

4.2.2.1 Project Summary

The Big Bend restoration project is located in the City of Laguna Beach. Since its purchase by the City a decade ago, the site has been used as an informal trailhead to access the 20,000-acre South Coast Wilderness System. The project site was degraded by invasive species and human activity. Over the past 10 years, the City of Laguna Beach has worked with the Laguna Canyon Foundation to preserve

more than 250 acres adjacent to the proposed restoration area, which is now under City ownership and managed by OC Parks. This restoration site, however, is not part of the Central-Coastal NCCP/HCP Coastal Reserve.

The project restored 3.2 acres of disturbed coastal sage scrub and approximately 0.5 acre of riparian habitat to benefit local species and increase the wildlife corridor's local and regional effectiveness. Restoration included the removal of invasive nonnative species and debris, planting of native species, and maintenance/improvement of flood conveyance patterns across the site to enhance water quality for this important coastal watershed (the San Juan watershed). The project achieved the success criteria in January 2017. The project sponsor has continued to work with the City to draft a deed restriction. This deed restriction is anticipated to be completed soon.

4.2.2.2 Related Documents and References

Laguna Canyon Foundation. 2011. *Restoration and Enhancement Plan: Big Bend Property*. Laguna Beach, CA. Report dated May 10, 2011.

Laguna Canyon Foundation. 2015. *2014 Annual Status Report: Big Bend Habitat Restoration, 3.7 Acres*. Laguna Beach, CA. Report dated January 31, 2015.

4.2.3 City Parcel

Action	City Parcel Status
Sponsor	City of San Juan Capistrano
OCTA Funding	\$1,500,000
Location	City of San Juan Capistrano (within Trabuco Creek Wildlife Linkage)
Acreage	53 acres
General Habitat Types	Riparian corridor, coastal sage scrub, oak woodland, native grassland
Restoration Design Plans	Approved in 2011.
Restoration Installation	Implemented in 2011.
Restoration Monitoring of Success Criteria	Monitoring initiated in 2011 and 5 years of monitoring complete. The project was signed off as of October 2018.
Land Protection Mechanism	The City of San Juan Capistrano recorded a Declaration of Covenants and Restrictions in the fall of 2013 to ensure long-term land use consistent with the project's restoration and habitat management intent.
Long-Term Management of Restoration Site	The City of San Juan Capistrano owns and manages the entire property of this restoration site as part of the Northwest Open Space.
General Comments / Concerns	None.

4.2.3.1 Project Summary

The City Parcel (2C Ranch Trabuco Canyon) is located within the San Juan Creek (Trabuco Creek) watershed in the City of San Juan Capistrano. This project has been completed and restored 13 acres of riparian and 40 acres of coastal sage scrub habitats.

Restoration included the removal and control of invasive, nonnative plants across the entire restoration area, followed by the planting of native riparian and upland species. This has established

a more diverse habitat structure that is conducive to supporting an array of native plants and wildlife. California Natural Diversity Database (CNDDDB) occurrence records for coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher intersect with the restoration site. The project site is not within the Plan Area of the Central-Coastal NCCP/HCP or the Orange County Southern Subregion HCP but within the City's designated Northwest Open Space. This open space area provides an important connection between these two landscape-level planning areas. This project restored a gap linking gnatcatcher habitat and improved a corridor between the Coastal and Central NCCP/HCP areas.

The project achieved the set success criteria in October 2018. This project employed over 30 disadvantaged San Juan Capistrano youth, removed over 25,000 pounds of illegally dumped concrete and trash, and removed an additional 15,000 pounds of debris. It is estimated that over 200,000 invasive weeds were removed and over 60,000 native plants and trees were planted. The project sponsor successfully recorded a restricted covenant of the restored area in 2013. All required commitments for the project have been satisfied.

4.2.3.2 Related Documents and References

City of San Juan Capistrano. 2011. *Restoration and Enhancement Plan: 2C Ranch/Trabuco Creek Restoration*. San Juan Capistrano, CA. Report dated April 15, 2011.

Sevrens, Gail K. 2018. Response to Request for Sign-off on the 2C Ranch/Trabuco Creek Restoration Project included in the Orange County Transportation Authority NCCP/HCP. Received by Lesley Hill, October 9, 2018. (Sign Off Letter)

4.2.4 Fairview Park

Action	Fairview Park Status
Sponsor	City of Costa Mesa
OCTA Funding	\$2,000,000
Location	Costa Mesa
Acreage	23 acres
General Habitat Types	Wetlands, native grassland, coastal sage scrub, willow scrub, oak woodland
Restoration Design Plans	Approved in 2010.
Restoration Installation	Implemented in 2011.
Restoration Monitoring of Success Criteria	Monitoring initiated in 2012 and 7 years of monitoring complete.
Land Protection Mechanism	A CE was recorded in 2008 for the Orange County Public Works in favor of the Orange County Flood Control District that currently protects the site. In 2019, it was realized that the city of Costa Mesa will need to record a CE over additional of the project.
Long-Term Management of Restoration Site	The City of Costa Mesa will maintain the restored wetlands and riparian habitat project site in-perpetuity. Improvements and restoration are guided by the Fairview Park Master Plan approved by the Costa Mesa City Council in 1998.

Action	Fairview Park Status
General Comments / Concerns	City of Costa Mesa needs to provide information requested by OCTA and the Wildlife Agencies in relation to restoration acreage and history. See below.

4.2.4.1 Project Summary

The City of Costa Mesa restored 23 acres of native grassland, coastal sage scrub, wet meadow/marsh, and riparian habitats within the northwest portion of this public park. The purpose was to create native habitat for riparian birds and animals by increasing native plant diversity within 10 feet of the constructed wetlands and stream channels. The project includes the creation of wetland ponds and a water delivery irrigation system to establish and support the native habitat. This restoration site is within the Santa Ana River watershed. The project site is within the Plan Area of the Central-Coastal NCCP/HCP but is not part of the Reserve. There was a previous mitigation project at this location (for the Santa Ana River Mainstem Project Lower Santa Ana River Reach 2 Channel Excavation), but the restoration project approved for funding by OCTA is above and beyond the requirements of the previous project.

Occurrences of coastal California gnatcatcher, least Bell's vireo, and California least tern have been observed at the restoration site. In addition, successful revegetation efforts for southern tarplant have been implemented at the restoration site.

The project is well beyond established and reaching self-sustainable levels in many of the planted areas for riparian and coastal sage scrub. Compared to the quarterly inspection in September, invasive plants coverage are still less than 1%. Currently, there is 6.19 acres of coastal sage scrub, 3.11 acres of riparian, 1.12 acres of wetland, 0.98 acres of southern tarplant, and 1.46 acres of alluvial coastal sage scrub. The coastal sage scrub has been growing well without water for 5 years. The original grassland area converted to coastal sage scrub, where California gnatcatchers have been observed nesting for the past three years. Cattails and bulrush are well maintained so there is no need for large machines to enter the ponds at this time. Homeless activity and subsequent native habitat degradation is still an issue, but the City's increased efforts to discourage human use of the fenced areas has reduced usage and damage during the later part of 2020.

Coordination has been on-going with the city of Costa Mesa to resolved a few concerns . This includes areas of the restoration project site that were not planted. The city is working on the following tasks and will provide updates in 2020 to OCTA and the Wildlife Agencies:

- Cross checking current vegetation & trails map against original OCTA project restoration map.
 - Include updated figure with acreages of habitat types currently present on site for comparison to original restoration plan.
- On-site quantification of vegetation disturbed by current maintenance work to the ponds
- Determine off site mitigation ratio and areas the City might use for continued discussion

4.2.4.2 Related Documents and References

City of Costa Mesa. 2010. *City of Costa Mesa Fairview Park Wetlands and Riparian Habitat Project Restoration Plan*. Costa Mesa, CA. Report dated November 3, 2010.

Endemic Environmental Services. 2019. *Fairview Park Riparian Mitigation Wetlands Project: Annual Report 2019*. Costa Mesa, CA.

Endemic Environmental Services. 2020. *Fairview Park Riparian Mitigation Wetlands Project: Annual Report 2020*. Costa Mesa, CA.

4.2.5 UCI Ecological Reserve

Action	UCI Ecological Reserve Status
Sponsor	Nature Reserve of Orange County (Natural Communities Coalition)
OCTA Funding	\$325,000
Location	Irvine
Acreage	8.5 acres
General Habitat Types	Cactus scrub
Restoration Design Plans	Approved in 2010.
Restoration Installation	Implemented in 2011.
Restoration Monitoring of Success Criteria	Monitoring initiated in 2012 and 7 years of monitoring complete. The site is very close to meeting the set success criteria but experienced a high amount of nonnative grasses in 2017. Monitoring will continue until 2020, at which time it is expected that the nonnative cover will meet the projects' set criteria.
Land Protection Mechanism	The Preserve is designated for conservation and habitat management by University of California (UC) Irvine's long-range development plan and pursuant to the Central-Coastal NCCP/HCP.
Long-Term Management of Restoration Site	The Preserve is managed by the UC Irvine Office of Natural Resources, for the School of Biological Science.
General Comments / Concerns	Natural Communities Coalition (NCC) has been coordinating with the Wildlife Agencies in regard to the percent of non-native cover. NCC will continue to coordinate with both the Wildlife Agencies and OCTA until sign off is obtained.

4.2.5.1 Project Summary

The Natural Communities Coalition has been responsible for the planning and implementation (completed in November 2011) of the restoration and enhancement of 8.5 acres of cactus scrub in a mosaic of native grassland at the University of California (UC) Irvine Ecological Preserve, located in the San Joaquin Hills. The goal of the project was to increase breeding habitat for coastal California gnatcatcher and cactus wren. Even at the early stages of establishment, both cactus wrens and coastal California gnatcatchers were observed using the restoration area. Coastal California gnatcatchers were observed moving through the restoration site in pairs and family groups, foraging in native shrubs that were at the site prior to restoration and in native forbs that have developed since the restoration began. With respect to cactus wrens, the southern half of the restoration site was used by a family group. Cactus wrens were observed foraging in the restoration site, and a juvenile cactus wren was observed calling from planted prickly pear cactus clumps (Natural Communities Coalition 2017). The project site is within the Central-Coastal NCCP/HCP Coastal Reserve, but the proposed restoration is above and beyond the requirements of the Central-Coastal NCCP/HCP.

The project site is doing well, having met most of the set success criteria. The fifth-year of performance monitoring for the UCI Measure M cactus scrub restoration project was conducted in April 2017. Absolute native cover, including perennial and annual species, was 99%. Cactus accounted for 6.7% of the total native cover. Nonnative cover was 71%, mainly from annual grass cover at 57%. The performance monitoring report concluded that the habitat restoration goals of the project had been achieved by improving the quality of cactus scrub habitat for cactus wrens and California gnatcatchers over 8.5 acres within the UCI Preserve (Land IQ 2017). In August 2017, OCTA requested sign-off for the project from the Wildlife Agencies. In their 8-27-2017 response, the Wildlife Agencies agreed in general that the habitat restoration goals had been met, except they were concerned about the high cover of nonnative species, consisting of mostly of annual grass (56.7% absolute cover). Following several consecutive years of very low rainfall during implementation of the project, 2017 was an above-average rainfall year, which resulted in significant increases of both native and nonnative cover. Nonetheless, native perennial and annual species successfully reproduced (e.g., flowering, seed production and new recruitment) throughout the site. While the Wildlife Agencies recognized the project successfully established desirable native habitat, there was concern that the high cover of nonnative annual grasses could undermine the long-term success of the restoration effort.

The restored cactus scrub habitat continues to develop within reasonable expectations for plant growth, cover and species distribution, especially considering the historic drought conditions during the majority of the establishment period coupled with the higher than average rainfall that occurred in 2016/17 and again in 2018/19. The site demonstrates sustainability and resilience as shown by the increase in native cover and decrease in nonnative grass cover from 2017 to 2020 during which only limited spot-weeding occurred primarily in the remedial planting area. Coordination is on-going with NCC and the Wildlife Agencies on how best to address concerns related to the high non-native cover throughout the site and the continued dominance of mustard in the remedial planting area. The treatments will focus on non-native annual grasses and black mustard, which comprise the majority of the non-native cover present at the site. NCC will support this effort and coordinate with Land IQ on its implementation. The goal is to reduce the cover of non-native plants below the threshold for final approval. A summary report will be made available at the end of 2021.

4.2.5.2 Related Documents and References

Griswald, M., Preston, K., and Bowler, P. 2010. *Measure M Cactus Scrub Restoration Plan for the University of California Irvine Ecological Preserve*. Irvine, CA. Report dated December 2, 2010.

Land IQ. 2017. 2017 Performance Monitoring Report Year 5 Measure M Cactus Scrub Restoration for the University of California Irvine Ecological Preserve. Prepared for the Natural Communities Coalition. June 2017.

Natural Communities Coalition. 2019. *Measure M Cactus Scrub Restoration for the University of California Irvine 2019 Performance Monitoring Results Memorandum*. Irvine, CA. Memo dated October 31, 2019.

Natural Communities Coalition. 2021. *Measure M Cactus Scrub Restoration for the University of California Irvine 2020 Performance Monitoring Results - Email*. Irvine, CA. Email from Danny Fry, dated February 4, 2021.

4.2.6 Aliso Creek

Action	Aliso Creek Status
Sponsor	Laguna Canyon Foundation
OCTA Funding	\$1,105,000
Location	Laguna Niguel
Acreage	55 acres
General Habitat Types	Riparian and transitional habitats
Restoration Design Plans	Approved in 2014 ⁵ .
Restoration Installation	Implemented in 2015.
Restoration Monitoring of Success Criteria	Monitoring initiated in 2015 and 6 years of monitoring complete.
Land Protection Mechanism	The County of Orange is currently drafting a restrictive covenant that will cover the entire 55-acre restoration project area.
Long-Term Management of Restoration Site	Orange County Parks owns and manages this land as part of Aliso and Wood Canyons Wilderness Park, in conjunction with the Aliso and Wood Canyon RMP.
General Comments / Concerns	None.

4.2.6.1 Project Summary

Laguna Canyon Foundation restored 55 acres of riparian habitat along Aliso Creek, in the City of Laguna Niguel. The project included removing nonnative invasive plants and planting willow and mulefat scrub and transitional riparian-upland habitats. It has added to other restoration projects in the same watershed funded by other entities. The site is in the San Juan watershed and within the boundaries of the Aliso and Wood Canyons Wilderness Park, but outside of the Central-Coastal NCCP/HCP Reserve boundaries.

The restoration of riparian habitat along Aliso Creek benefits Covered Species such as the least Bell's vireo, southwestern willow flycatcher, western pond turtle, and bobcat. Known occurrences of least Bell's vireo, southwestern willow flycatcher, and western pond turtle have been recorded at this restoration site. The restoration plan includes specific actions to benefit and improve western pond turtle habitat. Western pond turtle, least Bell's vireo, and coastal California gnatcatcher were documented within the restoration area in 2020. During year 6 (2020) of the project, Laguna Canyon Foundation staff and contractors coordinated and implemented various restoration activities including remedial seeding, targeted invasive control work, and site wide weed abatement. Additionally, qualitative vegetation monitoring, annual photo-monitoring, and continued wildlife survey were carried out to help gauge project progress and inform management decisions. Cooler environmental temperatures and consistent precipitation also aided in moving the project towards performance goals.

⁵ The USFWS and CDFW approved the restoration plan for this project in 2014. To also obtain mitigation credit from the ACOE, the restoration plan was developed further into a Habitat Mitigation Monitoring Plan (HMMP) to comply with the Environmental Protection Agency 2008 Final Mitigation Rule. Implementation began while the HMMP was being developed with the ACOE.

The global COVID-19 epidemic occurred during this project year resulting in a state ordained ‘Stay-at-Home’ order beginning in the month of March, during a critical phase of weed abatement efforts. OCTA furnished an ‘Essential’ letter at the end of April allowing work to resume on the project with stringent sanitation and social distancing measures to ensure the safety of LCF staff and contractors. Cumulatively, the stay-at-home order resulted in a 6-week period of time in which no field work was carried out on the project.

No success criteria are specified for this monitoring year (2020), though calculations confirm that the habitat continues to improve and recover. The expectation is that continued site maintenance over the remaining years of the project will continue to support an increase in native cover in both habitat types.

4.2.6.2 Related Documents and References

Laguna Canyon Foundation. 2020. *Aliso Creek Habitat Mitigation and Monitoring Plan Annual Report for Year 5 (2019) of Project Implementation Aliso and Wood Canyons Wilderness Park*. Aliso Viejo, CA. Report dated February 1, 2020.

Laguna Canyon Foundation. 2021. *Aliso Creek Habitat Mitigation and Monitoring Plan Annual Report for Year 6 (2020) of Project Implementation Aliso and Wood Canyons Wilderness Park*. Aliso Viejo, CA. Report dated January 15, 2021.

4.2.7 Chino Hills State Park

Action	Chino Hills State Park Status
Sponsor	Habitat Restoration Sciences/Dudek (Chino Hills State Park approval)
OCTA Funding	\$193,000
Location	Yorba Linda
Acreage	11 acres
General Habitat Types	Cactus scrub
Restoration Design Plans	Approved in 2017 and revised in 2019.
Restoration Installation	Implemented in 2020.
Restoration Monitoring of Success Criteria	Monitoring initiated in 2020 and 1 year of monitoring complete.
Land Protection Mechanism	The property is owned in fee title and is permanently conserved by the California Department of Parks and Recreation.
Long-Term Management of Restoration Site	The park is managed according to the Chino Hills State Park General Plan (California Department of Parks and Recreation 1999).
General Comments / Concerns	None.

4.2.7.1 Project Summary

CHSP is composed of 14,102 acres in the hills of Santa Ana Canyon, with portions of the park found in Orange, Riverside, and San Bernardino Counties. Ranging from 430 to 1,781 feet above mean sea level, the park straddles the north end of the Santa Ana Mountains and the southeast portion of the Puente-Chino Hills, which together form the northern end of the Peninsular Ranges in southern California. The restoration site is outside the Central-Coastal NCCP/HCP Plan Area.

The original CHSP restoration project proposed to enhance 21 acres of riparian, woodland, and cactus scrub habitats. It was later determined that a more intensive cactus scrub restoration project within CHSP would provide better ecological benefits. This project change was coordinated with and approved by the Wildlife Agencies and is discussed in greater detail in Section 8.2.4, *Chino Hills State Park and North Coal Canyon Restoration Project Modification*. The resulting project is an intensive restoration of 11 acres of cactus scrub within CHSP on the slope overlooking Yorba Linda south of the junction of Southridge Trail and Diemer Trail. The 11-acre cactus scrub restoration project will help return this area to its previous condition and benefit the OCTA M2 Covered Species coastal California gnatcatcher and cactus wren.

Due to contracting delays, site preparation was conducted later than originally scheduled. Therefore, the appropriate window for an adequate spring season grow-kill was missed. HRS attempted to conduct the grow-kill in summer 2019, however, due to lack of precipitation and the natural phenology of the annual weeds, there was not significant germination of non-native weeds. In response to site conditions and the persistent weed seed bank, a comprehensive grow-kill approach was recommended by Dudek as an adaptive management strategy. All agencies agreed to extend the grow-kill treatments through Year One of the restoration project and delay the seeding and planting until Winter 2020/2021 (end of Year One). Additionally, locating available seed that complies with the CHSP regional seed restrictions has required timing with seasonal availability, adding to project delays. The additional year of grow-kill allowed for the securing of the majority of required species, holding the plants through the season and bolstering numbers and species with an additional season of collection. The project schedule was also revised, to accommodate delays in contracting, availability of seed and to allow for additional control of non-native invasive species prior to seeding. Installation was deemed complete in February 2020, therefore commencing the five-year maintenance and monitoring program. Maintenance activities during Year 1 of the Project consisted of weed control, hydroseeding, container planting installation, salvaged cactus planting, irrigation installation, and minor trash removal. Exotic plant species were observed to comprise greater than 45% cover within the restoration site, with annual non-native grasses identified as the dominant plant species throughout the site. Continued weed control efforts coupled with native cover from container plantings, salvaged cactus and seeded species is expected to assist the site in achieving the established non-native cover performance standards. No replacement plantings for container plants are recommended at this time, but will be needed, along with supplemental seeding, in Year 2 in areas low in establishing cover.

4.2.7.2 Related Documents and References

California State Parks. 2017. *Cactus Scrub Restoration, Northeast Preserve, Chino Hills State Park*. Perris, CA. Report dated January 10, 2017.

Dudek. 2020. *Notice of Installation Completion for Cactus Scrub Restoration, Northeast Preserve, Chino Hills State Park Memorandum*. Encinitas, CA. Report dated February 28, 2020.

Dudek. 2021. *Year 1 Long-Term Maintenance and Monitoring Period Annual Report for Cactus Scrub Restoration, Northeast Preserve, Chino Hills State Park*. Chino Hills, CA. Report dated March 2, 2021.

4.2.8 Harriet Weider Regional Park

Action	Harriet Weider Regional Park Status
Sponsor	Bolsa Chica Conservancy
OCTA Funding	\$475,000
Location	Huntington Beach
Acreage	9.65 acres
General Habitat Types	Native grassland, coastal sage scrub, riparian
Restoration Design Plans	Approved in 2017 (some trail mapping approved in 2018)
Restoration Installation	Implemented in 2016.
Restoration Monitoring of Success Criteria	Monitoring initiated in 2016 and 4 years of monitoring complete.
Land Protection Mechanism	The County of Orange executed a restrictive covenant in February 2020 to protect this site in perpetuity.
Long-Term Management of Restoration Site	The Bolsa Chica Conservancy, in partnership with Orange County Parks, will be the long-term management entity.
General Comments / Concerns	Monitor and discuss the decline of the cactus plantings.

4.2.8.1 Project Summary

The Bolsa Chica Conservancy restoration project comprises 9.65 acres of grassland, coastal sage scrub, and riparian habitat in the Santa Ana watershed. The project area may attract least Bell's vireo, coastal cactus wren, coastal California gnatcatcher and burrowing owl. Harriett Weider Regional Park is to be established as a mixed-use passive park, with sections restored to native habitat.

The Harriett Wieder Regional Park Restoration Project (sponsored by the Bolsa Chica Conservancy) was approved in the second round of restoration project funding in 2012. The original footprint occurred on County lands as well as private lands. To simplify the project, the Bolsa Chica Conservancy shifted the project area to County lands only. This shift also enabled the project to increase from 8.2 to 9.65 acres. The habitat types to be restored remain the same for the project (native grassland, coastal sage scrub, and riparian). This project modification was approved by the Wildlife Agencies and EOC. The restoration plan for this project was refined. The conservancy has successfully re-introduced southern tarplant to a site near the new interpretive center north of the park and included tarplant seed in the restoration plant palette.

The Bolsa Chica Conservancy was able to begin implementation (i.e., seed collection, plant propagation, installation of temporary irrigation, and seeding and plantings in some areas) of this project in 2016 while working out the details of the final success criteria and trail alignments with the Wildlife Agencies and OC Parks. To date, 3,713 individuals of southern tarplant have been documented within the restoration area. Thus far, growth has met two thirds of the performance criteria even though individuals have drastically reduced since 2018, most likely due to an expansion of CSS cover, lower rainfall this year than in 2019, and less soil disturbance in the project site. Cactus patches within the project site continue to decline, likely due to soils retaining moisture, competition from annuals, and a potential fungal pathogen. 7 container plants of cactus have been planted along with seeding to boost the population. The project expects continued efforts to treat sprouting weeds throughout the season, and hopefully reach control.

4.2.8.2 Related Documents and References

Bolsa Chica Conservancy. 2018. *Habitat Restoration Plan for Harriett Wieder Regional Park*. Bolsa Chica Conservancy with assistance from LSA Associates Inc., Huntington Beach, CA. December 2018.

Bolsa Chica Conservancy. 2019. *Harriett Wieder Regional Park Habitat Restoration Project Year 2 Annual Report 2019*. Huntington Beach, CA. 2019

Bolsa Chica Conservancy. 2019. *Harriett Wieder Regional Park Habitat Restoration Project Southern Tarplant Survey 2019*. Huntington Beach, CA. 2019

Bolsa Chica Conservancy. 2020. *Harriett Wieder Regional Park Habitat Restoration Project Year 3 Annual Report 2020*. Huntington Beach, CA. 2020

4.2.9 Lower Silverado Canyon

Action	Lower Silverado Canyon Status
Sponsor	Irvine Ranch Conservancy
OCTA Funding	\$1,414,435
Location	County of Orange
Acreage	28.4 acres
General Habitat Types	Riparian
Restoration Design Plans	Approved in 2014.
Restoration Installation	Implemented in 2014.
Restoration Monitoring of Success Criteria	Monitoring initiated in 2014 and 7 years of monitoring complete.
Land Protection Mechanism	The project site is subject to, and protected by, the permanent SilMod Conservation Easement Deed recorded in 2002 in favor of The Nature Conservancy. In addition, the lands are deed restricted for open space and conservation purposes under the wilderness park designation as the result of the transfer of land from the Irvine Company to the County of Orange.
Long-Term Management of Restoration Site	The project site is owned in fee by the County of Orange, and OC Parks is responsible for its long-term stewardship. IRC works under contract to the County of Orange under the supervision of OC Parks to manage this area and has existing formal permission to conduct restoration projects here. Broad management of the site, consistent with the terms of the Conservation Easement Deed, is guided by the Resource Plan for the 2009 SilMod Conservation Easement Property. The Integrated Adaptive Management Framework for the North Irvine Ranch Wildlands (Noss 2011) is the umbrella management framework that applies to all management units in the North Irvine Ranch regardless of ownership or mechanism of land protection.
General Comments / Concerns	None.

4.2.9.1 Project Summary

The IRC has implemented both active and passive restoration of 20.6 acres of riparian habitat and 7.8 acres of coastal sage scrub along Silverado Creek, a tributary to Santiago Creek (total of 28.4 acres). The project location is within the Santa Ana watershed. The degraded habitat that has been restored lies within a landscape mosaic containing patches of intact habitat. Restoring degraded patches within the mosaic has improved continuity to further benefit habitat quality of both restored and intact components. The project site is within the plan area for the Central-Coastal NCCP/HCP, but it is not currently part of the Reserve. However, the land will remain as conserved open space due to the recordation of conservation easements dedicated to The Nature Conservancy.

The Lower Silverado Canyon restoration project is now in its seventh year of active management but in its fourth year of planting. Because quantitative performance monitoring is only required for the baseline year and in Years 1, 3, and 5, no performance monitoring was conducted. This year's activities included weed control, supplemental planting, watering, and the removal of a temporary irrigation system. As of 2019, the Year 3 minimum target has been surpassed, on average, by all habitat types and the interim minimum increase of two species has been met. Additionally, three polygon areas meet the final success criteria. Qualitative evaluations in 2020 indicate that vegetation has established successfully in all restoration polygons despite substantial flooding in 2019. There were 59 bird, seven mammal, and three reptile species observed on the site in 2020. Arthropod performance monitoring results are more varied but are expected to improve as the project progresses. Between 2018 and 2019 there was abundant rainfall which caused significant flooding. Most restoration polygons were resilient but there were management challenges as invasives from upstream re-sprouted in the restoration area and water flows created unvegetated areas. Monitoring of the affected areas continued in 2020 and additional plantings, hand weeding, and targeted weed control using spot application took place. Arundo cover in particular became more prevalent since the heavy flooding in 2019 and was aggressively controlled for in 2020 and is expected to substantially decrease in 2021. Goals for 2021 also include the continued removal of high priority weeds, such as *smilo sp.*, and a focus on management of polygons that do not yet meet success criteria.

4.2.9.2 Related Documents and References

Irvine Ranch Conservancy. 2018b. *Habitat Mitigation and Monitoring Plan: Lower Silverado Canyon Under the Renewed Measure M Freeway Mitigation and Resource Protection Program*. Irvine, CA. February 2018.

Irvine Ranch Conservancy. 2019. *Annual Status Report, January-December 2019: Renewed Measure M Freeway Mitigation and Resource Protection Program, Lower Silverado Canyon*. Agreement No. C-3-1774 between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2020. *Annual Status Report, January-December 2020: Renewed Measure M Freeway Mitigation and Resource Protection Program, Lower Silverado Canyon*. Agreement No. C-3-1774 between OCTA and IRC. Irvine, CA.

4.2.10 North Coal Canyon

Action	North Coal Canyon Status
Sponsor	RECON Environmental Inc. (Chino Hills State Park approval)
OCTA Funding	\$247,500
Location	Yorba Linda
Acreage	5.5 acres
General Habitat Types	Riversidean alluvial fan, coastal sage scrub
Restoration Design Plans	Approved in 2015 and revised in 2019.
Restoration Installation	Implemented in 2019.
Restoration Monitoring of Success Criteria	Monitoring initiated in 2020.
Land Protection Mechanism	The property is owned in fee title and is permanently conserved by the California Department of Parks and Recreation.
Long-Term Management of Restoration Site	The park is managed according to the Chino Hills State Park General Plan (California Department of Parks and Recreation 1999).
General Comments / Concerns	None.

4.2.10.1 Project Summary

The North Coal Canyon property is owned by California State Parks and is within CHSP. This property is a vital link between the surrounding Puente-Chino Hills to the north and the Cleveland National Forest and the Santa Ana Mountains on the south. The proposed restoration project will enhance and restore 5.5 acres of coastal sage scrub/Riversidian alluvial fan sage scrub on the north side of SR-91. The project is expected to improve wildlife movement by making habitat north of SR-91 more attractive to wildlife and will complete the restoration of the entire Coal Canyon parcel by connecting three other restoration projects being funded by other entities. This bio-corridor is the only remaining link that allows dispersal of wildlife between CHSP and the more diverse Santa Ana Mountains. Coal Canyon provides habitat for the movement of OCTA M2 Covered Species such as mountain lion and bobcat and provides high quality habitat for coastal California gnatcatcher as well as foraging habitat for the least Bell's vireo.

Following an initial meeting in March of 2019, seed collection and site preparation took place. The preparation included cutting down eucalyptus trees, mowing large patches of invasive vegetation, and mowing and trimming of nonnative vegetation that was intermixed with native vegetation. Additionally, a mainline irrigation system and native seed was collected from Chino Hills Discovery Center. Seed collection was initiated in June 2019, and plant propagation began in the summer of 2019. Once the site was prepared and plants were of an appropriate size to out-plant, native container stock was installed, which was completed in February 2020.

The North Coal Canyon Restoration Project has a proposed five-year maintenance period. Site preparation work began in September 2019, with Year 1 of maintenance completed in August 2020. For the maintenance program, the primary activities being performed include supplemental irrigation, maintenance of the temporary irrigation system, weed control, trash removal, and replacement plantings and seeding, as needed.

The coastal sage scrub habitat restoration being implemented at the North Coal Canyon restoration site has been successful to date (RECON 2021). Based on the annual quantitative assessment, the site has met or exceeded three of the five performance standards, including non-native species cover, invasive species cover, and overall native species richness. Although the average native species cover was 30 percent, the plants had only been growing for approximately six months at the time the quantitative monitoring was conducted and are therefore expected to gain additional growth and naturally recruit in the coming years.

4.2.10.2 Related Documents and References

California State Parks. 2015. *Coastal Sage Scrub Restoration, North Coal Canyon, Chino Hills State Park*. Perris, CA. Revised March 2019.

Irvine Ranch Conservancy. 2016. *Project Summary of IRC/OCTA Measure M2 Coal Canyon Undercrossing Wildlife Connectivity Improvements*. Irvine, CA. Report dated October 27, 2016.

RECON Environmental, Inc. 2020. *OCTA North Coal Canyon Restoration Project, Summary of Work Completed (March 2019 – February 2020)*. San Diego, CA.

RECON Environmental, Inc. 2021. *Summary Letter for Coastal Sage Scrub Restoration at North Coal Canyon, Chino Hills State Park (RECON Number 9342)*. San Diego, CA.

4.2.11 West Loma

Action	West Loma Status
Sponsor	Irvine Ranch Conservancy
OCTA Funding	\$1,322,800
Location	County of Orange
Acreage	62.47 acres
General Habitat Types	Scrub, riparian
Restoration Design Plans	Approved in 2013.
Restoration Installation	Implemented in 2013.
Restoration Monitoring of Success Criteria	Monitoring initiated in 2013 and 8 years of monitoring complete.
Land Protection Mechanism	A portion of the land is under conservation easement held by The Nature Conservancy, and the other portion is deed restricted exclusively for open space by the County of Orange and is dedicated as part of the reserve lands in the Central-Coastal NCCP/HCP.
Long-Term Management of Restoration Site	OC Parks is responsible for long-term stewardship subject to the terms and conditions of the Orange County Central-Coastal NCCP/HCP and the East Orange Conservation Easement, as well as the management plans developed under these agreements.
General Comments / Concerns	In late 2020, two fires impacted the West Loma subwatershed. A total of 27.3 acres were impacted and will need remedial actions for an additional two years. More detailed information will be provided in the 2021 annual report.

4.2.11.1 Project Summary

IRC has restored 62.47 acres of grassland, coastal sage scrub, and riparian habitat and realigned existing wildlife fencing at the West Loma site. The restoration site is in the Santa Ana watershed. The degraded habitat that has been restored lies within a landscape mosaic containing patches of intact habitat. Restoring degraded patches within the mosaic has improved contiguity to further benefit habitat quality of both restored and intact components. The original restoration project design included realignment of fencing along the 241 Toll Road to improve wildlife movement, but it was determined this was not feasible (see Section 8.2.1). In place of realigning fencing, this project also includes the placement of plantings and wildlife cameras at the SR-91 Coal Canyon undercrossing and culvert. The plantings were installed to help entice more wildlife to utilize the existing potential crossing structures (freeway underpass and culvert). Cameras were installed to document wildlife movement through these structures. This project also capitalizes on a large-scale restoration project that is currently taking place within the same watershed. The project site intersects with CNDDDB occurrence records for many-stemmed dudleya, orangethroat whiptail, and coastal California gnatcatcher. A portion of the project site is within the Central-Coastal NCCP/HCP Reserve, but the restoration is above and beyond the requirements of the Central-Coastal NCCP/HCP.

As of 2020, vegetation performance monitoring indicates that restoration efforts at West Loma have been largely successful and show clear increases in native cover, habitat function, habitat structure, and shrub/tree density as well as decreases in non-native cover. Targeted invasive control monitoring indicate clear decreases in target invasive species across the larger subwatershed. Arthropod performance monitoring results are varied as some habitat types are not yet showing improvement; these areas may improve as restored habitat matures and disturbances decrease. Pre-disturbance nesting surveys were conducted in and around restoration polygons in April 2020 and a total of 20 nesting locations were observed within the West Loma subwatershed. Two of Coastal California gnatcatcher territories and eight Least Bells' Vireo territories, including two nesting locations, were observed. Appropriate buffers were established for each nesting location with guidance from the HMMP and the qualified avian biologist.

Additionally, the wildlife monitoring camera program at the SR-91 Coal Canyon undercrossing for the OCTA mitigation project was initiated in January 2017. Eight trail cameras and one vehicle counter were in operation from January 2020 to December 2020. The cameras caught a total of 629 bobcats, 542 coyotes, two mule deer, one gray fox, one opossum, and three raccoons. There were a total of 363 wildlife crossings confirmed which is a significant increase from previous years. Daily human activity in the undercrossing continues to be prevalent. Human and dog activity has greatly increased since 2019 while vehicle activity has decreased.

Unfortunately, the 27.3 acres of the project area burned in the 2020 Silevardo and Bond wildfires. IRC coordinated with OCTA and the Wildlife Agencies to prepare a post fire remediation plan for the project area. It is anticipated that two more years of monitoring, weeding, re-seeding, installation of new plantings and general maintenance will be needed to meet the required success criteria.

4.2.11.2 Related Documents and References

Irvine Ranch Conservancy. 2018b. *Habitat Mitigation and Monitoring Plan: West Loma Subwatershed Under the Renewed Measure M Freeway Mitigation and Resource Protection Program*. Irvine, CA. March 2018.

Irvine Ranch Conservancy. 2019. *Annual Status Report, January-December 2019: Renewed Measure M Freeway Mitigation and Resource Protection Program, West Loma Subwatershed*. Agreement No. C-3-1775 between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2020. *Annual Status Report, January-December 2020: Renewed Measure M Freeway Mitigation and Resource Protection Program, West Loma Subwatershed*. Agreement No. C-3-1775 between OCTA and IRC. Irvine, CA.

4.2.12 USFS Dam Removal

Action	USFS Dam Removal Status
Sponsor	United States Forest Service (Trabuco District)
OCTA Funding	\$185,000
Location	San Juan Creek
Acreage	Removal of 14 dams (acreage not measured)
General Habitat Types	Creek bed and riparian to benefit arroyo chub
Restoration Design Plans	Approved in 2016.
Restoration Installation	The first phase of dam removals (10) funded by OCTA was implemented in November 2018. Additional dam removals will be completed by 2020.
Restoration Monitoring of Success Criteria	Monitoring initiated in 2018. USFS biologist will monitor stream recovery for 3 years after dam removal.
Land Protection Mechanism	Project within the USFS protected lands. No other mechanisms are needed.
Long-Term Management of Restoration Site	To be completed by the USFS.
General Comments / Concerns	None.

4.2.12.1 Project Summary

The purpose of the Trabuco District Dam Removal Project is to enhance aquatic organism passage and stream habitat in Silverado, Holy Jim, Trabuco, and Upper San Juan Creeks. Removing human-made dams in these creeks is essential to supporting native aquatic species and providing suitable habitat for potential re-establishment of extirpated species including southern California steelhead trout. This will implement, in part, recovery plan goals for southern steelhead. Removal of fish passage barriers is one of the highest priority action items for the San Juan and Trabuco Creek watershed. A total of 81 dams are targeted for removal.

These dams presented partial or complete barriers to native fish and other aquatic organisms, especially during periods of low flow. Dams alter physical stream processes such as bed load and sediment transport, natural surface flows, and channel adjustment. This has negative effects on aquatic species, aquatic habitat, and downstream habitat. The ability to move up and down stream is

essential for aquatic species in order to complete their life cycles and maintain viable populations. Facilitating aquatic organism passage and improving stream habitat will increase accessible stream habitat for existing and potential populations of native aquatic species.

The American Conservation Experience crew and USFS staff completed removal of San Juan dams 1, 2, 3, 4, 5, 6, 7, 9, 10, and 11 in November 2018. With jackhammers and sledgehammers, dams were fully demolished or in some cases partially demolished to remove sections that were barriers to fish passage. Russell Barabe and Ken Sankary of CDFW assisted USFS with protection of arroyo chub below dam 1; this was done by using nets to partition the pool such that the fish were away from the immediate work area. The dam removal at these locations will be monitored to determine if any additional work is needed. In May of 2019, a walking (spider) excavator removed dams 13, 15, 23, and 25 from San Juan Creek. In 2020, remnants of dam 8 were removed from San Juan Creek by an ACE hand crew. Nine dams or dam remnants were removed from Trabuco and lower Holy Jim Creeks by a spider excavator (Trabuco Ck dams 7.1, 11, 11.1, 11.2, Holy Jim dams 9, 12, 13, 14). Twelve dams or dam remnants were removed from Holy Jim Creek by the Marine Corps (remaining dams between dam 18 and 37). This completes the dam removal project, with the OCTA funding contributing towards a total of 81 dams removed. The USFS will provide 2 more years of annual reporting of monitoring results.

With the dams removed, fish and other aquatic organisms will be able to move more freely through the areas that were previously blocked by the dams. Due to work done, considerable re-shaping and re-establishment of natural stream channels has already been achieved. Arroyo Chub have moved upstream from dam 1 to dam 12 areas; they were previously confined downstream of dam 1 at San Juan Creek.

4.2.12.2 Related Documents and References

Orange County Transportation Authority (OCTA). *Collection Agreement Between U.S. Forest Service and OCTA: OCTA Agreement No. C-7-1629, Attachment A.*

Orange County Transportation Authority (OCTA). *Trabuco Dam Removal Project – 2019 Progress Report Introduction and Project Description.* Agreement number 18-CO-11050200-009.

Orange County Transportation Authority (OCTA). *Trabuco Dam Removal Project – 2020 Progress Report Introduction and Project Description.* Agreement number 18-CO-11050200-009.

Chapter 5

Additional Conditions for Coverage

5.1 Introduction

As part of the Conservation Analysis (Chapter 6) in the M2 NCCP/HCP, there were two Covered Species, arroyo chub and many-stemmed dudleya, noted for additional conditions for coverage above and beyond the acquisition of the seven OCTA Preserves and funding of restoration projects.

5.1.1 Arroyo Chub

The conservation actions included in the M2 NCCP/HCP provided a positive but marginal benefit for conservation of arroyo chub. To provide for a level of conservation required for coverage of arroyo chub under the NCCPA, OCTA will implement a future restoration project focused on improving habitat conditions for arroyo chub.

OCTA has initiated the USFS Dam Removal restoration project to provide conservation for arroyo chub required under the M2 NCCP/HCP (see Section 4.2.12, *USFS Dam Removal*). The following actions have been taken to achieve these conditions for arroyo chub:

- In 2017, the Environmental Oversight Committee (EOC) and Wildlife Agencies approved moving forward with the USFS Dam Removal project, and OCTA has contracted with USFS to remove 14 dams.
- The restoration project design has been approved.
- Restoration activities were initiated in November 2018 completed in 2020. A total of 81 dams were removed as part of the overall Trabuco District Dam Removal Project, with OCTA funding contributions resulting in 14 dams removed.
- Monitoring will continue for two more years.

5.1.2 Many-stemmed Dudleya

To ensure that the M2 NCCP/HCP provides conservation and management for many-stemmed dudleya, OCTA will protect, enhance, and/or establish a major population (i.e., 500 individuals) of many-stemmed dudleya. This threshold can be accomplished through the protection, enhancement, and/or establishment of many-stemmed dudleya populations at multiple locations or at a single location. During baseline surveys of the Preserves, four occurrences with 60 individuals were identified on the Pacific Horizon (Aliso Canyon) Preserve. Ongoing Preserve management may improve habitat suitability (e.g., reduction of invasive species) that results in the expansion of the existing population on Pacific Horizon Preserve. If a minimum of 500 individuals are eventually identified on the Pacific Horizon Preserve within the 10 years from M2 NCCP/HCP adoption (by 2027), then this objective will be considered complete. If this objective cannot be met within the first 10 years as described, OCTA will select and oversee implementation of a restoration project designed to establish or expand a population of many-stemmed dudleya.

The following actions have been taken to achieve these conditions for many-stemmed dudleya:

- At the Pacific Horizon Preserve, OCTA directed GLA to conduct biological monitoring in 2019 to coincide with the blooming periods of the covered plant species, specifically many-stemmed dudleya. GLA detected approximately 80 additional dudleya individuals (GLA 2019). Bringing the total amount of individuals on this Preserve to 180 (GLA 2020).
- The Pacific Horizon Preserve ISMP was completed and approved by the Wildlife Agencies. The ISMP specifically identifies actions to protect and enhance disturbed habitat in the proximity of the many-stemmed dudleya population at the Pacific Horizon Preserve. This project was approved by the California Coastal Commission and city of Laguna Beach and County of Orange in 2019. Invasive species were removed, bike jumps were broken up and fencing and signage were installed to help deter the unauthorized activity on the decommissioned trail on this part of the Preserve in 2020. .

6.1 Public Outreach Overview

In 2006, Orange County voters approved the renewal of Measure M, effectively extending the half cent sales tax to provide funding for transportation projects and programs in the county. As part of the renewed Measure M (or Measure M2), a portion of the M2 freeway program revenues were set aside for the M2 EMP to provide funding for programmatic mitigation to offset impacts from the freeway projects in the 13 freeway segments covered by Measure M2. OCTA has been committed to transparency in how the M2 funds have been and are being used to implement the EMP. OCTA has conducted a variety of public outreach activities aimed at informing and engaging the public on the overall EMP as well as Preserve-specific issues and events.

- Hold Public Meetings – OCTA held public meetings during the preparation of the RMPs and will hold an annual public meeting to present this Annual Report. In addition, the regularly scheduled Environmental Oversight Committee meetings are open to the public and Preserve-specific issues are addressed at these meetings.
- Maintain Website – OCTA currently maintains the OC-Go (M2) Environment Mitigation Program (EMP) website that includes Preserve-specific information, copies of the RMPs for download, and information on Preserve hiking and riding tours: [http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-\(2011-2041\)/Freeway-Mitigation/Environmental-Mitigation-Program-Overview/](http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Environmental-Mitigation-Program-Overview/).
- Develop Outreach and Volunteer Programs – OCTA has been working to develop a volunteer program that addresses education and management needs. OCTA is encouraging trail user groups to participate in “self-monitoring and policing” programs.

6.1.1 EMP Public Outreach Events and Meetings

Table 6-1 includes a list of events, workshops, and public meetings that OCTA has had to address the actions of the EMP and solicit public input. Many events planned for 2020 were impacted due to stay at home orders and restrictions relating to the COVID-19 epidemic.

Table 6-1. EMP Public Outreach Events 2020

Date	Location	Stated Purpose
1/16/2020	OCTA	Introduce conservation values and the OCTA EMP to a select group of high school teens (OCTA Teen Council)
5/12/2020	University California Irvine (UCI)	UCI Environmental Law and Policy Presentation
8/11/2020	OCTA	EMP Update to the Taxpayer Oversight Committee

6.1.2 Preserve-Specific Public Outreach Events

Each Preserve RMP identifies and outlines the need for public outreach and education as critical components to ensuring successful management and public support of the Preserve. A public that is informed of the Preserve's biological values, goals, and activity restrictions is more likely to respect and follow Preserve guidelines. Table 6-2 includes a list of events, riding, and hiking tours held to address Preserve-specific issues.

Table 6-2. Preserve-Specific Public Outreach Events 2020

Date	Location	Stated Purpose
1/25/2020	Trabuco Rose Preserve	Wilderness Preserve Equestrian Tour to educate the public about property value and access
2/15/2020	Trabuco Rose Preserve	Wilderness Preserve Hiking Tour to educate the public about property value and access

6.1.3 Regional Coordination and Collaboration

The NCCP/HCP Administrator is responsible for coordinating with other regional management and monitoring programs to stay abreast of regional monitoring issues. Table 6-3 summarizes collaboration efforts, meetings, and activities undertaken by the OCTA staff (Lesley Hill and Dan Phu) during the timeframe of this Annual Report.

Table 6-3. Collaboration with Regional Management and Monitoring Programs 2020

Date	Group	Stated Purpose
1/23 and 11/19	County of Orange Area Safety Task Force (COAST)	A working group of (more than 35 organizations) decision makers and executives for fire departments, public utilities, transportation agencies, natural resource management agencies, landowners, non-profit groups, and other community members to jointly identify problems and propose solutions for wildfire prevention, and to work together to implement them.
1/23 and 11/19	Orange County Invasive Tree Pests Group	A group of scientists/ professionals that share information pertaining to invasive tree pests including the Gold Spotted Oak Borer (GSOB) and the Polyphagous Shot Hole Borer (PSHB).
4/15 and 10/13	Interagency Regional Working Group	This group includes landowners and private and public agencies throughout Southern California.

Date	Group	Stated Purpose
		The group began with a focus on wildlife connection concerns (mainly for mountain lion) and has evolved into a focus on natural resource issues that cross County boundaries through Southern California. Recent topics have included mountain lion connectivity updates, and opportunities for regional herpetofauna monitoring coordination.
5/20, 5/28, 12/2	Southern California Association of Governments (SCAG) – Working Groups (Natural Lands and So Cal Greenprint Advisory)	OCTA participated in the following working group meetings established and steered by SCAG.
1/8, 6/25, 8/20	Caltrans Advanced Mitigation Working Group	To share status and lessons learned from other regional transportation agencies in topics related to advanced mitigation and permitting
1/8/2020	Aliso Creek Watershed Project Collaboration Group	To identify and start to build agreement on goals for the Aliso Creek Watershed.

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7.1 Summary of Endowment Process

OCTA has the responsibility to ensure the Preserves are protected and meet the NCCP/HCP commitments. Because management of the Preserves is not a primary function within OCTA's business operations, this obligation will be, and is in the process of being, formally transferred to appropriate and qualified third-party organizations. Until OCTA selects long-term managers for each of the Preserves, it is performing this role in an interim period, which is defined as 5 to 7 years after the Preserves have been acquired. The interim period consists of the finalization of the NCCP/HCP, placement of protective measures on the Preserves, and establishment of the endowment. During this time, OCTA is responsible for performing routine land management and maintaining the biological value of the Preserves.

OCTA is currently transitioning from the interim period to the next phase, the intermediate period, which was initiated after the NCCP/HCP was finalized in June 2017. During the intermediate period, OCTA begins to shift the Preserve management duties to the entities chosen to manage the Preserves subject to the NCCP/HCP standards. The intermediate period also entails the recording of conservation easements and the establishment of the endowment. This phase is expected to last approximately 10 to 15 years according to recent financial recommendations made by the EOC Ad Hoc committee. M2 funds will be used to sustain the management activities during the intermediate period.

Pursuant to the objectives of the NCCP/HCP, OCTA's goal is to ultimately transfer the long-term property title and management of the Preserves to other qualified entities (public or private non-profit). Based on preliminary estimates of management and monitoring costs, OCTA established a target of a \$46.2 million endowment to fund the long-term management of the Preserves, which was authorized by the OCTA Board of Directors in October 2014. Staff collaborated with the EOC, the Finance and Administration Committee, the Board, and other mitigation land owners to develop a set of comprehensive land management strategies. This approach enabled OCTA to determine financial recommendations for the establishment of the endowment that are efficient and have the potential to maximize economies of scale, and the selection process for the endowment fund manager (EFM). The guiding principles, long-term funding strategy, and potential expenditure options list were approved by the Board in May 2015.

Throughout the endowment funding period, the EMP funds will have specified allocations. Approximately \$3 million will be deposited in the endowment on an annual basis for up to 10 to 12 years, during which OCTA must also pay for the interim land management from the existing Measure M revenue source. The existing Measure M revenues will also be used for other expenditures, such as habitat restoration projects. The annual deposits are estimated to earn approximately \$11.7 million in investment returns, net of fund management fees over the duration of the establishment period.

The long-term management cost is a significant factor that will impact the target endowment amount. Additionally, it is possible the long-term land manager may also manage the endowment that is tied to the Preserve, or the Preserve manager and the endowment manager may be separate entities. Therefore, the funding of the endowment consists of two phases:

1. The endowment funding phase, expected to be a 10- to 12-year period
2. After the endowment has been established, determination of whether the endowment is managed by a single or multiple entities

The EFM has several responsibilities:

- Manage the funds OCTA deposits in trust for the benefit of the Preserves.
- Accrue investment earnings over the establishment period.
- Work with OCTA to establish permanent endowment(s) to fund the management of the Preserves in perpetuity.
- Annually prepare and update a funding plan that describes annual deposits made by OCTA, historical and forecasted investment earnings, fees charged, target endowment value, and completion schedule.
- Provide quarterly and annual reports on the status of the endowment.
- Deliver updates periodically to OCTA and its designated committees.

In 2016, OCTA completed a selection process and contracted with the California Community Foundation (CCF), based in Los Angeles, California, to manage the endowment to fund the EMP.

7.2 Current Status of Endowment Funding

Pursuant to the responsibilities of the EFM, CCF releases a quarterly comprehensive report that includes the composition of the Endowment Pool and the performance and is reviewed for consistency with endowment objectives. It is then presented to the Board. Staff will continue to oversee and provide endowment updates to the Finance and Administration Committee and EOC on a regular basis. As of September 30, 2020, the endowment balance is \$16,046,435, and on par with baseline assumptions with respect to interest earnings. The number exceeded the projected balance of \$16,002,055 due to higher than expected investment earnings, and overall gains in the market.

The final endowment funding requirements will be based on a Property Analysis Report (PAR) or PAR-like analysis that will be completed by OCTA within 5 to 7 years. This analysis will itemize and define the long-term obligations at each Preserve using Preserve specific information developed for the Preserve RMPs. It is expected that additional years of interim habitat management will provide a database and sounder basis for estimating the cost of long-term management. The final endowment funding level will be based upon actual negotiated long-term management contracts for each individual Preserve. OCTA will coordinate with the Wildlife Agencies and obtain the Wildlife Agencies' review and approval of the PAR analysis and determination of the permanent endowment funding requirements.

8.1 NCCP/HCP Administrator

OCTA is responsible for implementing the M2 NCCP/HCP and staffing an NCCP/HCP Administrator position. The NCCP/HCP Administrator's role is to oversee and coordinate Plan implementation. The NCCP/HCP Administrator communicates regularly with Preserve Managers regarding the status of Preserve stewardship; the progress on conservation action implementation, monitoring, and management; and new or ongoing issues to be addressed. The NCCP/HCP Administrator is the primary point of contact for the Wildlife Agencies and for preparing the Annual Report demonstrating NCCP/HCP compliance.

OCTA has designated the following individual as the NCCP/HCP Administrator:

Lesley Hill
(714) 560-5759
lhill@octa.net

8.2 Minor Modifications to Plan, Permits, and Implementing Agreement

The Plan allows for minor modifications to the Plan, permits, and Implementing Agreement if the modifications are non-substantive and do not meet the threshold of a Minor and Major Amendment. The following actions are noted as minor modifications to the Plan that have occurred and were included in the First OCTA Annual Report (2018). Details for each of these modifications were provided and approved by the Wildlife Agencies. Minor modifications to the Plan to date have included the following:

- West Loma Wildlife Crossing Component
- United States Forest Service Dam Removal Project
- Eagle Ridge (Hayashi) Preserve Boundary Modification
- Chino Hills State Park and North Coal Canyon Restoration Project Modification

No new minor modifications were needed in 2020.

8.3 Minor or Major Amendments to the Plan

No Minor or Major Amendments to the Plan have been proposed during the timeframe of this Annual Report.

8.4 Changed Circumstances

No events meeting the criteria of a Changed Circumstance occurred during the timeframe of this Annual Report.

Chapter 9 References

- Audubon Starr Ranch. 2019. *Vegetation Monitoring on Three Orange County Transportation Authority Preserves: Hafen, O'Neill Oaks, and Saddlecreek South*. Operating Agreement 3-5-3711. July 2019.
- Bolsa Chica Conservancy. 2018. *Habitat Restoration Plan for Harriett Wieder Regional Park*. Bolsa Chica Conservancy with assistance from LSA Associates Inc., Huntington Beach, CA. December 2018.
- . 2019. *Harriett Wieder Regional Park Habitat Restoration Project Year 2 Annual Report 2019*. Huntington Beach, CA. 2019
- . 2019. *Harriett Wieder Regional Park Habitat Restoration Project Southern Tarplant Survey 2019*. Huntington Beach, CA. 2019
- BonTerra Consulting. 2013a. *Draft Biological Technical Report for the South County Properties, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Irvine, CA. Included as appendix to RMP. December.
- . 2013b. *Baseline Biological Surveys Technical Report for the Hayashi (Eagle Ridge) Property, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation in Orange County, California*. Irvine, CA. March.
- . 2015a. *Baseline Biological Surveys Technical Report for the Aliso Canyon (Pacific Horizon) Property, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation in Orange County, California*. October. Included as appendix to RMP.
- . 2015b. *Baseline Biological Surveys Technical Report for the MacPherson Property, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Irvine, CA. September.
- . 2015c. *Results of Special Status Plant Surveys for the Aliso Canyon (Pacific Horizon) Property, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation in Orange County, California*. October. Included as appendix to RMP.
- . 2015d. *Results of Jurisdictional Delineation Surveys for the Aliso Canyon (Pacific Horizon) Property, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation in Orange County, California*. October. Included as appendix to RMP.
- California State Parks. 2015. *Coastal Sage Scrub Restoration, North Coal Canyon, Chino Hills State Park*. Perris, CA. Revised August 13, 2015.
- City of Costa Mesa. 2010. *City of Costa Mesa Fairview Park Wetlands and Riparian Habitat Project Restoration Plan*. Costa Mesa, CA. Report dated November 3, 2010.
- City of San Juan Capistrano. 2011. *Restoration and Enhancement Plan: 2C Ranch/Trabuco Creek Restoration*. San Juan Capistrano, CA. Report dated April 15, 2011.
- Endemic Environmental Services. 2019. *Fairview Park Riparian Mitigation Wetlands Project: Annual Report 2019*. Costa Mesa, CA.

- Glenn Lukos Associates (GLA). 2020. *Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose, Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren’s View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.
- . 2021. *Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose, Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren’s View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. April.
- Griswald, M., Preston, K., and Bowler, P. 2010. *Measure M Cactus Scrub Restoration Plan for the University of California Irvine Ecological Preserve*. Irvine, CA. Report dated December 2, 2010.
- Irvine Ranch Conservancy. 2011a. *Restoration Plan Framework for Bee Flat Canyon Under the Renewed Measure M Freeway Mitigation and Resource Protection Program*. Irvine, CA. Report dated July 8, 2011.
- . 2017. *Habitat Mitigation and Monitoring Plan: Agua Chinon Subwatershed*. Agreement No. C-1-2384 between OCTA and IRC. Irvine, CA.
- . 2019. *Annual Status Report, January-December 2019: Renewed Measure M Freeway Mitigation and Resource Protection Program, Agua Chinon Riparian Corridor*. Agreement No. C-1-2384 between OCTA and IRC. Irvine, CA.
- . 2019. *Annual Status Report, January-December 2019: Renewed Measure M Freeway Mitigation and Resource Protection Program, Bee Flat Canyon*. Agreement No. C-1-2384 between OCTA and IRC. Irvine, CA.
- . 2018b. *Habitat Mitigation and Monitoring Plan: Lower Silverado Canyon Under the Renewed Measure M Freeway Mitigation and Resource Protection Program*. Irvine, CA. February 2018.
- . 2019. *Annual Status Report, January-December 2019: Renewed Measure M Freeway Mitigation and Resource Protection Program, Lower Silverado Canyon*. Agreement No. C-3-1774 between OCTA and IRC. Irvine, CA.
- . 2018b. *Habitat Mitigation and Monitoring Plan: West Loma Subwatershed Under the Renewed Measure M Freeway Mitigation and Resource Protection Program*. Irvine, CA. March 2018.
- . 2019. *Annual Status Report, January-December 2019: Renewed Measure M Freeway Mitigation and Resource Protection Program, West Loma Subwatershed*. Agreement No. C-3-1775 between OCTA and IRC. Irvine, CA.
- Laguna Canyon Foundation. 2011. *Restoration and Enhancement Plan: Big Bend Property*. Laguna Beach, CA. Report dated May 10, 2011.
- . 2015. *2014 Annual Status Report: Big Bend Habitat Restoration, 3.7 Acres*. Laguna Beach, CA. Report dated January 31, 2015.
- . 2017b. *Habitat Mitigation and Monitoring Plan: OCTA Measure M – Aliso Creek*. Aliso Viejo, CA. Report dated September 2017.
- . 2020. *Aliso Creek Habitat Mitigation and Monitoring Plan Annual Report for Year 5 (2019) of Project Implementation Aliso and Wood Canyons Wilderness Park*. Aliso Viejo, CA. Report dated February 1, 2020.

- Land IQ. 2017. 2017 Performance Monitoring Report Year 5 Measure M Cactus Scrub Restoration for the University of California Irvine Ecological Preserve. Prepared for the Natural Communities Coalition. June 2017.
- Natural Communities Coalition. 2019. *Measure M Cactus Scrub Restoration for the University of California Irvine 2019 Performance Monitoring Results Memorandum*. Irvine, CA. Memo dated October 31, 2019.
- RECON Environmental Services (RECON). 2021. *2020 Summary Letter for Maintenance Activities Performed on OCTA Preserves*. Prepared for OCTA. February.
- Sevrens, Gail K. 2018. Response to Request for Sign-off on the 2C Ranch/Trabuco Creek Restoration Project included in the Orange County Transportation Authority NCCP/HCP. Received by Lesley Hill, October 9, 2018. (Sign Off Letter)
- Orange County Transportation Authority (OCTA). 2015a. *Addendum to HMMP for Lower Silverado Canyon (Agreement no. C-3-1774)*. June 2015.
- . 2015b. *Addendum to HMMP for West Loma Subwatershed (Agreement no. C-3-1774)*. June 2015.
- . No Date. *Collection Agreement Between U.S. Forest Service and OCTA: OCTA Agreement No. C-7-1629, Attachment A*.

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Appendix A
Covered Freeway Improvement Projects
Habitat Tracking Ledger

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Table A-1. Covered Freeway Projects Habitat Impact Tracking Ledger^a

Project ID	Segment	Checklist Date	Total	Chaparral	Coniferous Forest	Grassland	Riparian	Scrub	Water	Wet Meadows/ Marsh	Woodland
Totals to Date:			9.242	--	--	6.460	0.957	1.705	0.12	--	--
Project C EA 0K0200	C1	5/30/18	0.722	--	--	--	0.707	0.015	--	--	--
Project B EA 0K6700	B	7/26/18	0.00	--	--	--	--	--	--	--	--
Project L EA 0K710K	L1	1/29/18	6.810	--	--	6.46	0.25	--	0.10	--	--
Project M EA 0K8700	M	6/7/18	0.00	--	--	--	--	--	--	--	--
Project D 0M9800	D	12/10/19	0.00	--	--	--	--	--	--	--	--
Project F 0J3400	F1	11/11/19	0.00	--	--	--	--	--	--	--	--
Project G 0M9700	G1a	3/12/19	0.02	--	--	--	--	--	0.02	--	--
Project I 0K9800	I	3/28/19	1.69	--	--	--	--	1.69	--	--	--

^a Values are in acres. Includes both permanent and temporary impacts.

Table A-2. Summary of Applicable Avoidance and Minimization Measures and Status of Restoration Activities for Temporary Impacts from Covered Freeway Projects

Project ID	Applicable Avoidance and Minimization Measures	Restoration for Temporary Impact Areas Status
Project C EA 0K0200	Sections 5.6.1, 5.6.2.1, 5.6.2.2, 5.6.2.3, 5.6.3, 5.6.4 and 5.6.5	As described in the NES, temporary impacts (staging, access, storage) will be contained outside of riparian/suitable habitat to the maximum extent practicable. All temporary impact areas adjacent to native habitats [i.e. coastal sage scrub, riparian (Oso Creek and Aliso Creek)] will be replanted with native plant species and approved by the Wildlife agencies. A plant establishment period of at least 3 years will be established. This will include the removal of litter and trash, weeding, water application, irrigation repair, replacement of plant material that dies, and other activities required to ensure the long-term survival of plant material to satisfy M2 HCP/NCCP obligations and permit conditions. Permittee shall restore all temporary impacts on site at a 1:1 ratio immediately following construction completion or, with written approval from CDFW, at the beginning of the next growing season.
Project B EA 0K6700	Sections 5.6.1, 5.6.2.1, 5.6.3, 5.6.4 and 5.6.5	As described in the NES, areas of natural habitat that are temporarily affected by construction activities will be restored to a natural condition. The restoration effort will emulate surrounding vegetation characteristics and/or return to previous conditions. Restoration plans will be prepared during final design and included in the Plans, Specifications, and Estimates (PS&E) package. The revegetation plan will be prepared consistent with the California Department of Transportation (Caltrans) landscape architecture guidelines and requirements. Restoration plans will be reviewed and approved by the Wildlife Agencies (the California Department of Fish and Wildlife [CDFW] and the United States Fish and Wildlife Service [USFWS]). A temporary restoration plan will be developed as part of the design and construction phase of the project.
Project L EA 0K710K	Sections 5.6.1, 5.6.2.1, 5.6.2.3 and 5.6.3.	As described in the NES, construction will be implemented to minimize temporary impacts (intended to benefit Roosting Bats NES Section 5.6.3). In addition, as stated in the NES areas of natural habitat that are temporarily affected by construction activities will be restored to a natural condition. The restoration effort will emulate surrounding vegetation characteristics and/or return to previous conditions. For freeway construction projects, revegetation plans will be part of the project design following Caltrans' landscape architecture guidelines and requirements. Restoration plans will be reviewed and approved by the Wildlife Agencies. A temporary restoration plan will be developed as part of the design and construction phase of the project.
Project M EA 0K8700	Sections 5.6.1, 5.6.2.1, 5.6.3 and 5.6.4.	No natural habitat is found within the project area. Thus, no restoration of temporary impacts is needed.

Project ID	Applicable Avoidance and Minimization Measures	Restoration for Temporary Impact Areas Status
Project I EA 0K9800	Sections 5.6.1, 5.6.2.1, 5.6.3 and 5.6.4.	As included in the NES areas of natural habitat that are temporarily affected by construction activities will be restored to a natural condition. The restoration effort will emulate surrounding vegetation characteristics and/or return to previous conditions. For freeway construction projects, revegetation plans will be part of the project design following Caltrans’ landscape architecture guidelines and requirements. Restoration plans will be reviewed and approved by the Wildlife Agencies. A temporary restoration plan will be developed as part of the design and construction phase of the project.
Project G EA 0M9700	Sections 5.6.1, 5.6.2.1, 5.6.3 and 5.6.4.	No natural habitat is found within the project area. Thus, no restoration of temporary impacts is needed.
Project F 0J3400	Not Applicable	No natural habitat is found within the project area. Thus, no restoration of temporary impacts is needed.

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Appendix B

Annual Schedule for Effectiveness Monitoring

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Table B-1. Annual Schedule for Effectiveness Monitoring on OCTA Preserves

Action	Frequency/ Schedule	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Adopt RMP							BL ST W	PE																						
Effectiveness Monitoring:																														
Rare Plants	3 to 5 years	<i>BE LT W</i>			<i>PS</i>							BE LP ST W		BE LP ST W								BE LP ST W					BE LP ST W			BE LP ST W
Reptiles	4 years	<i>BE LT W</i>			<i>PS</i>						BE LP ST W			BE LP ST W								BE LP ST W					BE LP ST W			BE LP ST W
Birds	4 years	<i>BE LT W</i>			<i>PS</i>		BL PT W				BL PS T W			BE LP ST W					BE LP ST W			BE LP ST W					BE LP ST W			BE LP ST W
Mammals ^a	4 years	<i>BE LT W</i>			<i>P</i>		<i>S</i>	P	E	BL ST W			P	E	BL ST W			P	E	BL ST W			P	E	BL ST W			P	E	BL ST W
Natural Communities Quantitative ^b	4 years					BL W	BL W	BL W	BL W	BL W				BE LP ST W					BE LP ST W			BE LP ST W				BE LP ST W				BE LP ST W

Action	Frequency/ Schedule	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Natural Communities Comprehensive	10 years	<i>BE</i> <i>LT</i> <i>W</i>			<i>PS</i>								<i>BE</i> <i>LP</i> <i>ST</i> <i>W</i>										<i>BE</i> <i>LP</i> <i>ST</i> <i>W</i>							

Red Italics = Baseline Survey

^a Mammal monitoring is completed with wildlife cameras and is an on-going monitoring activity. Every 4 years an analysis of the data is completed to interpret mammal monitoring data.

^b Methodologies to complete quantitative monitoring of natural communities are currently being reviewed with the other regional conservation entities and the Wildlife Agencies. A pilot program has been initiated at other OCTA Preserves. An agreed upon monitoring will be applied to the Preserves going forward once methodologies are finalized.

Key:

Letter ID	OCTA Preserve	Location
B	Bobcat Ridge (formerly Hafen)	Trabuco Canyon
E	Eagle Ridge (formerly Hayashi)	City of Brea
L	Live Oak Creek (formerly Saddle Creek South)	Trabuco Canyon
P	Pacific Horizon (formerly Aliso Canyon)	City of Laguna Beach
S	Silverado Chaparral (formerly MacPherson)	Silverado Canyon
T	Trabuco Rose (formerly Ferber Ranch)	Trabuco Canyon
W	Wren’s View (formerly O’Neill Oaks)	Trabuco Canyon

Appendix C
Biological Monitoring Report for OCTA M2 Preserves:
Trabuco Rose, Pacific Horizon, Bobcat Ridge,
Silverado Chaparral, Wren's View,
Live Oak Creek, and Eagle Ridge
March 2021

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FINAL

BIOLOGICAL MONITORING REPORT

FOR

**OCTA M2 PRESERVES:
TRABUCO ROSE, PACIFIC HORIZON, BOBCAT RIDGE, SILVERADO CHAPARRAL,
WREN'S VIEW, LIVE OAK CREEK, AND EAGLE RIDGE**



April 2021

Prepared for:

**Orange County Transportation Authority
600 South Main Street, 9th Floor
Orange, California 92868
Contact: Lesley L. Hill
Telephone: (714) 560-5759**

Prepared by:

**Glenn Lukos Associates
1940 E Deere Avenue, Suite 250
Santa Ana, California 92705
Contact: Lexi Kessans/David Moskovitz
Telephone: (949) 837-0404**

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2. Monitoring Photos
3. OCTA Covered Species Maps
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APPENDICES

- Appendix A Trabuco Rose Preserve USACE/SWRCB Annual Monitoring Form
- Appendix B Invasive Shot Hole Borer Monitoring – OCTA Preserves, Orange County, California, June 5, 2020
- Appendix C Pacific Horizon Preserve Weed Control Memo, August 26, 2020; and Photos Dated September 28-October 1, 2020
- Appendix D Third Qualitative Monitoring Associated with the Road Encroachment Area at OCTA’s Bobcat Ridge Preserve, Located in Trabuco Canyon, Orange County, California, June 11, 2020

**OCTA M2 PRESERVES:
TRABUCO ROSE, PACIFIC HORIZON, BOBCAT RIDGE,
SILVERADO CHAPARRAL, WREN'S VIEW,
LIVE OAK CREEK, AND EAGLE RIDGE
BIOLOGICAL MONITORING REPORT**

I. BACKGROUND

In 2006, Orange County voters approved the renewal of Measure M, effectively extending the half cent sales tax to provide funding for transportation projects and programs in the county. As part of the renewed Measure M (or Measure M2), a portion of the M2 freeway program revenues were set aside for the M2 Environmental Mitigation Program (EMP) to provide funding for programmatic mitigation to offset impacts from the 13 freeway projects covered by Measure M2. The Orange County Transportation Authority (OCTA) prepared the M2 Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP or Plan) as a mechanism to offset potential project-related effects on threatened and endangered species (Covered Species) and their habitats in a comprehensive manner. A key component of the Plan conservation strategy has included the identification and acquisition of habitat Preserves to offset habitat impacts.

OCTA has acquired seven properties as part of the M2 EMP; this report includes the following seven Preserves¹: Trabuco Rose (previously known as Ferber Ranch; purchased in 2011), Pacific Horizon (previously known as Aliso Canyon; purchased in 2015), Silverado Chaparral (previously known as MacPherson; purchased in 2013), Bobcat Ridge (previously known as Hafen; purchased in 2011), Wren's View (previously known as O'Neill Oaks; purchased in 2011), Live Oak Creek (previously known as Saddle Creek South; purchased in 2011), and Eagle Ridge (previously known as Hayashi; purchased in 2011). Currently the Preserves are being managed by OCTA, but a long-term Preserve Manager is anticipated to be in place within the next three to five years. The Preserve Manager is responsible for the implementation of management and monitoring tasks as outlined in each Preserve's Resource Management Plan (RMP) (OCTA 2017 – Trabuco Rose, Silverado Chaparral, Bobcat Ridge, Wren's View, and Live Oak Creek; OCTA 2018 – Pacific Horizon and Eagle Ridge). The purpose of this report is to document interim biological monitoring activities conducted by Glenn Lukos Associates (GLA) from January 1, 2020 through December 31, 2020 and provide management recommendations at the Preserves.

In addition, a total of 1.75 acres of waters of the U.S., of which 0.14 acre consists of wetlands, within Trabuco Rose Preserve is compensatory mitigation for the U.S. Army Corps of Engineers (USACE) and California State Water Resources Control Board (SWRCB) in the form of preservation. While monitoring and reporting for the entire Preserve is related to the USACE/SWRCB mitigation sites since these are surrounding buffer areas, a USACE/SWRCB Annual Monitoring Form is attached as Appendix A to provide the USACE/SWRCB with the information they require regarding tasks within the Trabuco Rose RMP that are specific to their mitigation areas.

¹ The OCTA Preserves were officially renamed through a public voting process in February 2018.

II. SITE INFORMATION

A. Responsible Parties for Biological Monitoring

Preserve Manager: Orange County Transportation Authority
600 South Main Street, 9th Floor
Orange, California 92868
Contact: Lesley L. Hill
Telephone: (714) 560-5759

Report Preparer: Glenn Lukos Associates
1940 E Deere Avenue, Suite 250
Santa Ana, California 92705
Contact: Lexi Kessans/David Moskovitz
Telephone: (949) 837-0404

B. Landscape Setting

Trabuco Rose Preserve

The 399-acre Trabuco Rose Preserve is located northwest of the City of Rancho Santa Margarita in Trabuco Canyon [Exhibit 1 – Location Map] and is accessed from Trabuco Oaks Road and Rose Canyon Road. Trabuco Oaks Road becomes Hickey Canyon Road near the OCTA property line. The Preserve is located immediately adjacent to the CDFW-managed Trabuco Canyon Reserve to the west and near other open space lands, including the Cleveland National Forest to the north, Trabuco Creek and O'Neill Regional Park to the south, and the Joplin Youth Center to the east, which is maintained predominately as open space.

The Preserve is located on the southwestern flank of the Santa Ana Mountains in the headwaters of Trabuco Creek and features rolling terrain with elevations ranging from 1,120–1,650 feet above mean sea level. The site consists of several north to northeast trending ridges that are bisected by similarly trending valleys. Slopes are moderate to steep, with local small cliffs. Hickey Creek drains the western side of the Preserve.

Pacific Horizon Preserve

The 150-acre Pacific Horizon Preserve is located east of Pacific Coast Highway in the City of Laguna Beach in Orange County. The northwestern edge of the property is adjacent to residential development along Barracuda Way and Loretta Drive, while the southeastern edge of the property is adjacent to The Ranch at Laguna Beach (The Ranch). The northern and eastern boundaries abut open space in Aliso and Wood Canyons Wilderness Park.

Topography on the property is hilly, with the main ridgeline running through the middle of the property and canyons draining steep slopes to either side. Elevations range from approximately 40 feet above mean sea level (msl) at the southeastern edge of the property to 840 feet above msl at the northwestern edge. Two unnamed blue-line streams occur in the northwestern portion of the property, with smaller drainage features present in the canyon bottoms.

Bobcat Ridge Preserve

The 48-acre Bobcat Ridge Preserve is located northwest of the City of Rancho Santa Margarita in Trabuco Canyon, immediately adjacent to the east side of Live Oak Canyon Road, north of its intersection with Shelter Canyon Road and is accessed from Live Oak Canyon Road, Shelter Canyon Road, and Hunky Dory Lane. Surrounding land uses include California Department of Fish and Wildlife's (CDFW's) Trabuco Canyon Reserve, Cleveland National Forest, O'Neill Regional Park, and areas of low density, rural residential development.

The Preserve is located on the southwestern flank of the Santa Ana Mountains and consists of predominantly rolling terrain with elevations ranging from 1,190 to 1,450 feet above mean sea level (msl). Two ephemeral drainages that flow in a westerly direction are located in the western half of this property. A larger ephemeral drainage is located along the eastern boundary of the property and appears on the USGS quadrangle as a blueline stream; several small ephemeral drainages flow into this drainage from within the property limits.

Silverado Chaparral Preserve

The 204-acre Silverado Chaparral Preserve is located in unincorporated Orange County, east of the cities of Orange and Irvine. Baker Canyon Road is to the north, Ladd Canyon Road is to the east, Silverado Canyon Road is to the south, and Black Star Canyon Road is to the west. The Preserve is accessed from Black Star Helo Pad Road and Hall Canyon Road in the northwest portion of the site. Both of these roads are dirt roads off of Baker Canyon Road. The property is within the Cleveland National Forest administrative boundary and Cleveland National Forest land holdings are to the north and east of the Preserve. The western edge of the Preserve is immediately adjacent to County of Orange open space managed by the Irvine Ranch Conservancy. Low density rural residential development occurs along Silverado Canyon Road south of the property, and a recreational vehicle (RV) park occurs to the north along Baker Canyon Road.

Topography on the Preserve is hilly, with the main ridgelines oriented in a northeast to southwest direction. Elevations range from approximately 1,135 to 1,678 feet above mean sea level (msl). No blueline streams occur on the Preserve, but multiple drainage features are present in the canyon bottoms, which flow into Santiago Creek.

Wren's View Preserve

The 119-acre Wren's View Preserve is located northwest of the City of Rancho Santa Margarita in Trabuco Canyon, and is accessed from Trabuco Oaks Drive, Live Oak Canyon Road, and Trabuco Canyon Road. Live Oak Canyon Road becomes Trabuco Canyon Road south of the Preserve's southern boundary. Surrounding land uses include the O'Neill Regional Park, miscellaneous agriculture, and areas of low density, rural and medium density residential development.

The Preserve is located on the southwestern flank of the Santa Ana Mountains and consists of predominantly rolling terrain with elevations ranging from 950 to 1,250 feet above mean sea level (msl). Three ephemeral drainages that flow in a westerly direction are located in the western half of the Preserve and several small, southeast--flowing ephemeral drainages occur along the southeastern boundary of the Preserve.

Live Oak Creek Preserve

The 84-acre Live Oak Creek Preserve is located northwest of the City of Rancho Santa Margarita in Trabuco Canyon, and is accessed from Live Oak Canyon Road approximately 0.3 mile from its intersection with El Toro Road/Santiago Canyon Road. Surrounding and nearby land uses include the Saddle Creek North Preserve, Cleveland National Forest, Live Oak Plaza Conservation Area, miscellaneous agricultural and commercial, St. Michael's Preparatory School, and areas of low density, rural residential development.

The Preserve is located on the southwestern flank of the Santa Ana Mountains and consists of predominantly rolling terrain with elevations ranging from 1,160 to 1,600 feet above mean sea level (msl). Two principal ephemeral drainages that flow in a westerly direction occur on the property: one adjacent to Live Oak Canyon Road and the other in the center of the property.

Eagle Ridge Preserve

The 301-acre Eagle Ridge Preserve is located within a large block of undeveloped land in northeastern Orange County. Specifically, the Preserve is located in the Chino Hills southeast of Carbon Canyon Road (State Route [SR] 142) and is accessed from Carbon Canyon Road off a private dirt road, Carbon Ridge Road. Chino Hills State Park borders the southeastern boundary of the property. Surrounding land uses are mostly open space with residential development along SR-142 to the southwest of the Preserve.

The Preserve lies along Carbon Canyon between the remainder of the Chino Hills to the southeast and the Puente Hills to the northwest. A ridgeline runs across the center of the property in a northeast-southwesterly direction with steep slopes down to Soquel Canyon and Carbon Canyon. Elevations on site range from approximately 650 to 1,260 feet above mean sea level (msl). A blueline stream in Soquel Canyon crosses the eastern corner of the property.

C. Covered Species and Sensitive Habitats

Trabuco Rose Preserve

Bonterra Consulting conducted biological baseline surveys for the Preserve in 2012 (Bonterra 2013). Covered Species observed on Trabuco Rose Preserve included coastal California gnatcatcher (*Polioptila californica californica*), coastal cactus wren (*Campylorhynchus brunneicapillus*), orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), bobcat (*Lynx rufus*), and intermediate mariposa lily (*Calochortus weedii* var. *intermedius*, IML). Ongoing biological monitoring has also documented nesting populations of coastal cactus wren and extensive use by mountain lion (*Puma concolor*). Additional Covered Species with the potential to occur but that have not been documented on the Preserve include many-stemmed dudleya (*Dudleya multicaulis*) and coast horned lizard (*Phrynosoma blainvillii*). The Preserve is almost entirely within U.S. Fish and Wildlife Service (USFWS) designated critical habitat for the coastal California gnatcatcher.

The Preserve was identified as a priority conservation area because of the diversity of habitat types found on the property and its value for wildlife movement due to its adjacency to other large blocks of protected lands, contributing to regional conservation, with the goal to enhance habitats that support Covered Species, including coastal sage scrub, cactus scrub, chaparral, grassland, riparian, wetlands, and woodland habitats.

Notably, Trabuco Rose Preserve supports large areas of high-quality native grasslands, a unique habitat that has been diminished in this region due to farming/grazing practices and development.

Pacific Horizon Preserve

Bonterra Consulting conducted biological baseline surveys for the Preserve in 2015 (Bonterra Psomas 2015). Covered Species observed on Pacific Horizon Preserve included California gnatcatcher, many-stemmed dudleya, and intermediate mariposa lily. Additional Covered Species with the potential to occur but that have not been documented on the Preserve include coast horned lizard, orange-throated whiptail, and bobcat. The Preserve is not located in an area proposed or designated as critical habitat. There is critical habitat for coastal California gnatcatcher to the south and southeast of the Preserve.

The Pacific Horizon Preserve satisfies many of the property acquisition criteria that was utilized to evaluate potential alignment with the OCTA EMP program including being identified as a Priority Conservation Area (PCA); supporting Covered Species and associated natural communities; contributing to regional biological connectivity; and containing a diversity of high quality habitat types, including chaparral, grassland, and coastal sage scrub.

Bobcat Ridge Preserve

Bonterra Consulting conducted biological baseline surveys for the Preserve in 2012 (Bonterra 2013). Covered Species observed on Bobcat Ridge Preserve included coastal cactus wren and intermediate mariposa lily. In 2019, GLA documented orange-throated whiptail during biological monitoring. Additional Covered Species with the potential to occur but that have not been documented on the Preserve include coastal California gnatcatcher, bobcat, mountain lion, and coast horned lizard. The Preserve is almost entirely within USFWS designated critical habitat for the coastal California gnatcatcher.

The Bobcat Ridge Preserve satisfies many of the property acquisition criteria that were utilized to evaluate potential alignment with the OCTA EMP program including being identified as a PCA; supporting Covered Species and associated natural communities; contributing to regional biological connectivity; and containing a diversity of high quality habitat types, including coastal sage scrub, ephemeral and intermittent streams supporting riparian woodland, wetlands, oak woodland, grassland, and cliff and rock.

Silverado Chaparral Preserve

Bonterra Consulting conducted biological baseline surveys for the Preserve in 2014 (Bonterra Psomas 2015). Covered Species observed on Silverado Chaparral Preserve included orange-throated whiptail, coast horned lizard, and intermediate mariposa lily. OCTA and Orange County Parks staff confirmed mountain lion tracks on the Preserve in 2016. GLA documented presence of bobcat during biological monitoring in 2019. Additional Covered Species with the potential to occur but that have not been documented on the Preserve include coastal California gnatcatcher and many-stemmed dudleya. While not a Covered Species, the Preserve is within USFWS designated critical habitat for the arroyo toad (*Anaxyrus californicus* [*Bufo microscaphus californicus*]).

The Silverado Chaparral Preserve satisfies many of the property acquisition criteria that was utilized to evaluate potential alignment with the OCTA EMP program including being identified as a PCA; supporting

Covered Species and associated natural communities; contributing to regional biological connectivity; and containing a diversity of high quality habitat types, including coastal sage scrub, chaparral, coast live oak woodland, riparian forest, and grassland.

Wren's View Preserve

Bonterra Consulting conducted biological baseline surveys for the Preserve in 2012 (Bonterra 2013). Covered Species observed on Wren's View Preserve included California gnatcatcher, orange-throated whiptail, mountain lion, and intermediate mariposa lily. Ongoing biological monitoring has also documented presence of bobcat, while also confirming use by mountain lion. Additional Covered Species with the potential to occur but that have not been documented on the Preserve include coast horned lizard. While not a Covered Species, the Preserve is within USFWS designated critical habitat for the arroyo toad.

The Wren's View Preserve satisfies many of the property acquisition criteria that were utilized to evaluate potential alignment with the OCTA EMP program including being identified as a PCA; supporting Covered Species and associated natural communities; contributing to regional biological connectivity; and containing a diversity of high quality habitat types, including coastal sage scrub, oak woodland, chaparral, cliff, and rock.

Live Oak Creek Preserve

Bonterra Consulting conducted biological baseline surveys for the Preserve in 2012 (Bonterra 2013). Covered Species observed on Live Oak Creek Preserve included coastal cactus wren and intermediate mariposa lily. In addition, adjacent neighbors documented presence of bobcat and mountain lion in 2018, which GLA confirmed in 2019. Additional Covered Species with the potential to occur but that have not been documented on the Preserve include coastal California gnatcatcher, orange-throated whiptail, and coast horned lizard. The Preserve is within USFWS designated critical habitat for the coastal California gnatcatcher.

The Live Oak Creek Preserve satisfies many of the property acquisition criteria that were utilized to evaluate potential alignment with the OCTA EMP program including being identified as a PCA; supporting Covered Species and associated natural communities; contributing to regional biological connectivity; and containing a diversity of high quality habitat types, including chaparral, coastal sage scrub, riparian woodland, oak woodland, and grassland.

Eagle Ridge Preserve

Bonterra Consulting conducted biological baseline surveys for the Preserve in 2012 (Bonterra 2013). Bonterra did not detect any Covered Species during baseline surveys; however, several species were noted by Bonterra as having a potential to occur, including western pond turtle (*Emys marmorata*). The RMP noted the potential for pond turtles to migrate up Soquel Canyon from Carbon Canyon; however, the potential for occurrence within the actual Preserve boundary may be low due to limited hydrology and potentially other habitat factors, compounded by disturbance due to cattle. However, the site should be further investigated to determine if there are opportunities to create habitat for the pond turtle, based on the hydrology and topography of the creek. GLA noted bobcat at the Preserve in 2019 through wildlife camera detections. Additional Covered Species with the potential to occur include intermediate mariposa lily, southern tarplant (*Centromadia parryi* ssp. *australis*), least Bell's vireo (*Vireo bellii pusillus*), many-stemmed dudleya, coast

horned lizard, orange-throated whiptail, and coastal California gnatcatcher, though many of these species have a limited potential for occurrence. The local community has also documented recent use by mountain lion. The Preserve is not located in an area proposed or designated as critical habitat. There is critical habitat for coastal California gnatcatcher to the southwest of the Preserve.

The Preserve was identified as a priority conservation area because of the diversity of habitat types found on the property and its value for contributing to regional biological connectivity, with the goal to enhance habitats that support Covered Species, including oak woodland, chaparral, grassland, and riparian.

III. MONITORING ACTIVITIES

Monitoring activities focus on the overall condition of the Preserves and threats and stressors to the Preserves' wildlife and habitat. This includes mapping and recording invasive plant and wildlife species, unauthorized trail cutting, encroachments by adjacent property owners, areas of erosion and/or sedimentation, and monitoring trail conditions. Monitors also review the Preserve for maintenance needs including examining fence lines and gates, checking for missing or damaged signage, reporting fallen trees, and documenting trash and illegal dumping, as necessary. Incidental detections of OCTA M2 Covered Species and/or sensitive species are documented and reported to the CNDDDB. Exhibit 2 provides monitoring photographs, Exhibit 3 provides special status species mapping including OCTA Covered Species, Exhibit 4 provides locations of monitoring photographs and wildlife camera stations, as applicable, Exhibit 5 provides trail mapping and maintenance/encroachment information, and Exhibit 6 shows trees at Wren's View that were treated for goldspotted oak borer (*Agrilus auroguttatus*; GSOB).

A. Summary of Biological Monitoring Surveys

This report documents survey visits conducted by GLA biologists from January 1 through December 31, 2020, which were overseen by David Moskovitz, Lead GLA Biological Monitor. For any species detected incidentally, its location was recorded through Global Positioning System (GPS), as well as noting whether it was a new occurrence/location, or a likely confirmation of a previously noted occurrence. Note that due to COVID-19 stay at home orders and some funding (contractual) limitations in 2020, GLA site visits were limited. The Preserves were monitored during this time for illegal activities by OCTA's private security team.

Table 1 provides a summary list of survey dates, personnel, tasks completed, covered/sensitive species observed, action items, and recommendations to OCTA. The staff key for Table 1 is provided below:

GLA Staff Key

DS = David Smith
JA = Jeff Ahrens
JF = Jason Fitzgibbon
JS = Jillian Stephens
SA = Sheri Asgari
SC = Stephanie Cashin
TM = Trina Ming

OCTA Staff Key

LH = Lesley Hill

Table 1. Summary of Survey Visits to the M2 Preserves

Date of Visit	Purpose of Visit	GLA/OCTA Staff	Tasks Completed	Covered/Sensitive Species Observed	GLA Notes/Actions	Notes/Recommendations to OCTA
Trabuco Rose Preserve						
5/1/20	USACE/SWRCB Preservation Monitoring	JF, SC	Monitored USACE/SWRCB preservation areas.	n/a	Documented in USACE/SWRCB monitoring memo (Appendix A).	Documented in USACE/SWRCB monitoring memo (Appendix A).
12/22/20	Biological Monitoring	JF, SC	Checked for erosion and encroachment/signage fencing issues.	Cactus wren, mountain lion	Mountain lion prints observed near photo station 2, several cactus wrens detected throughout site. Large erosional "gully" still present.	n/a
Pacific Horizon Preserve						
2/25/20	Restoration Kick-Off	LH, SA	Discussed implementation of Disturbed Lands Restoration Plan.	n/a	Large encroachment was noted, presumably by Southern California Edison (SCE); also, the mapped Pampas grass within the Trail Disturbance Area was cut and treated with herbicide by an unknown entity as evidenced by blue dye. Cut portions of the grass were left in the area.	GPS-map encroachment; remove the cut Pampas grass laying on existing native vegetation; place woody native cuttings within the trail area to be closed and restored to break down and visually obscure trail.
3/4/20	Map Encroachment	LH, JS	Mapped SCE encroachment.	n/a	Provided map of encroachment to OCTA.	n/a
12/22/20	Biological Monitoring	JS, TM	Checked for encroachment; noted general conditions including signage and fencing; reviewed decommissioned trails for public compliance; reviewed SCE cut trails.	Northern harrier	Signage defects were noted; decommissioned trail usage and damaged fence was noted; newly created foot trail off decommissioned trail was mapped.	Repair damaged fence; replace missing signs; block access to new foot trail off decommissioned trail; install further measures to prevent decommissioned trail use.

Date of Visit	Purpose of Visit	GLA/OCTA Staff	Tasks Completed	Covered/Sensitive Species Observed	GLA Notes/Actions	Notes/Recommendations to OCTA
Bobcat Ridge Preserve						
5/26/20	Biological Monitoring	SC, TM	Monitored encroachment; checked wildlife cameras.	IML	Refer to encroachment memo. Western edge of encroachment area weed whipped in OCTA property damaging establishing native seedlings. Western wildlife camera covered and taped with trash bag. Potential fire ant hill.	Continue to monitor encroachment.
12/23/20	Biological Monitoring	SC, TM	Monitored for encroachment/signage issues.	n/a	Removal of one OCTA sign from pole. Two other signs were loose; one at the base and the other on the pole.	Continue to monitor encroachment. Maintain signage.
Silverado Chaparral Preserve						
12/22/20	Biological Monitoring	JA, DS	Monitored for encroachment/signage/fencing issues.	n/a	Evidence of bike usage throughout all major trails. Fencing along Sign Areas A, B, and C was cut. Sign B stakes had been pulled out and the sign was tossed on the ground. Monitors hand-tightened sign back on. Erosion from bikers was heaviest in this area. Sign C stakes had been pulled out and sign was missing. No evidence of burn areas on site and no new trails observed. On western boundary, a large oak had toppled over along an unauthorized trail previously documented by GLA monitors. The tree blocks bike access to the nearby OC parks boundary but may be a potential safety issue. Some evidence of dog and hiker tracks in dried mud areas along main trails.	Continue to monitor for encroachment and fix fencing/signage.
Wren's View Preserve						
12/23/20	Biological Monitoring	SC, TM	Monitored for encroachment/signage/fencing issues.	n/a	Graffiti on cactus, oak tree, and OCTA sign observed. Fencing pulled back allowing access onto site. White	Repair fencing/remove trash.

Date of Visit	Purpose of Visit	GLA/OCTA Staff	Tasks Completed	Covered/Sensitive Species Observed	GLA Notes/Actions	Notes/Recommendations to OCTA
					hardware store bag with Quikrete observed. Bike tire tracks noted on the unauthorized trail.	
Live Oak Creek Preserve						
12/23/20	Biological Monitoring	SC, TM	Monitored for encroachment/signage/fencing issues.	n/a	The decommissioned foot trails have filled in with non-native grasses and the maintained foot trails for preserve management have filled in with native species making distinguishing either trails difficult.	Maintain foot trails for preserve management.
Eagle Ridge Preserve						
12/23/2020	Biological Monitoring	JA, DS	Monitored for encroachment/signage/fencing issues.	n/a	At least three cows observed in lower section towards eastern boundary and two observed west of the ridge trail at far southwest area facing the trailer park. Joanne Friend requested that OCTA staff call her to discuss the cattle situation on OCTA/State Park land as she has six remaining cattle on the land. OCTA's lock to the Carbon Canyon gate (ridge) was missing. In addition, the Preserve access road leading to the OCTA eastern ridge gate is overgrown with vegetation.	Replace lock on the Carbon Canyon gate. Maintain access road leading to OCTA eastern ridge gate.

B. Monitoring Results

Trabuco Rose Preserve

a. Trabuco Rose - Plants and Wildlife

i. Trabuco Rose - Covered Wildlife Species

A total of two visits were conducted in 2020, one in May to focus on monitoring Corps/SWRCB preservation areas, and one in December to monitor for encroachments, maintenance needs, and erosion issues. GLA biologists did not detect the gnatcatcher within the property but did confirm the cactus wren in some of the areas of previous detections [Exhibit 3 – OCTA Covered Species Map]. GLA did not detect the orangethroat whiptail or coast horned lizard during monitoring visits, although just one biological monitoring visit was performed in December 2020 when reptiles would generally not be active. However, the whiptail is expected to occur throughout the Preserve since it has been detected multiple times during past monitoring visits. Although not previously detected at the Preserve, the horned lizard also has the potential to occur.

1. Recommendations

Implement effectiveness monitoring in 2021 and continue to map incidental detections through ongoing biological monitoring, or otherwise note the absence of detections in areas where species were previously detected, in order to detect potential trends in population growth or decline. GLA will conduct focused surveys for the gnatcatcher and cactus wren, and visual encounter surveys for coast horned lizard and orangethroat whiptail.

It should be noted that an invasive lizard (Sonoran whiptail, *Aspedoscelis sonorae*) has been detected within Orange County that looks very similar to the orangethroat whiptail. Although the Sonoran whiptail has not yet been observed near any of the OCTA Preserves, the occurrence of the Sonoran whiptail regionally raises concerns that the species could inhabit one or more of the OCTA Preserves. In addition, due to the similarity in physical characteristics between the two species, misidentification is possible. GLA biologists are familiar with the physical features to distinguish the orangethroat whiptail from the Sonoran whiptail and will attempt to confirm the identification using binoculars when whiptails are observed during visual surveys and general monitoring. However, absolute confirmation of species may not be possible without handling the individuals, which would require pitfall trapping to capture individuals. If during the 2021 monitoring GLA biologists determine that identification through visual survey alone is unreliable, then GLA might recommend pitfall trapping for future monitoring years if whiptail species confirmation becomes a priority.

ii. Trabuco Rose - Covered Plant Species

As noted above, GLA site visits in the spring months to detect OCTA M2 Covered Species were limited. As a result, there were no new detections of Covered Plant Species. Previous locations of the mariposa lily are depicted on Exhibit 3 – OCTA Covered Species Map. Table 2 below tracks new intermediate mariposa lily detections. As noted above, no new locations were documented in 2020. The table will continue to be updated annually in future annual monitoring reports.

Table 2. Trabuco Rose - Intermediate Mariposa Lily Ledger

	Locations	Population
Baseline Surveys	20	69
Previous Monitoring	42	208
2016-2018 GLA Monitoring	43	148
2019 GLA Monitoring	0	0
2020 GLA Monitoring	0	0
Total in GIS through 2020	105	425

1. Recommendations

Implement effectiveness monitoring in 2021 in order to detect potential trends in intermediate mariposa lily population growth or decline and to potentially detect many-stemmed dudleya. The RMP indicates that focused surveys for Covered Plants are to be conducted every three to five years depending on precipitation. Based on below-normal rainfall to date for the 2020/2021 season, GLA recommends postponing Preserve-wide focused plant surveys until at least the following season, but to perform surveys/monitoring of select plant populations in 2021 to obtain count data for general effectiveness monitoring.

Although no impacts are expected as discussed in the 2019 Annual Monitoring Report, monitoring should continue to include areas of documented mariposa lily and suitable habitat along access roads where maintenance occurs, to confirm that the maintenance activities are not adversely affecting mariposa lily populations.

iii. Trabuco Rose - Non-Covered Sensitive Wildlife Species

GLA did not detect non-covered sensitive wildlife species while performing biological monitoring.

1. Recommendations

GLA has no recommendations pertaining to the non-covered sensitive wildlife species, other than that the detection of non-covered sensitive species will be documented during ongoing biological monitoring, and the locations of species will be added to the GIS database as is applicable based on the species detected.

iv. Trabuco Rose - Non-Covered Sensitive Plant Species

GLA did not map any new locations (or confirm known locations) of non-covered sensitive plant species while performing biological monitoring in 2020.

1. Recommendations

GLA has no recommendations pertaining to the non-covered sensitive plant species, other than that the detection of non-covered sensitive species will be documented during ongoing biological monitoring, and the locations of species will be added to the GIS database as applicable based on the species detected.

v. Trabuco Rose - Wildlife Cameras

Wildlife cameras were installed on the Preserve in September 2013. GLA biologists continued to operate and monitor wildlife cameras at various stations throughout the Preserve until October 2019. Through coordination with OCTA, GLA removed the wildlife cameras on an interim basis due to the level of effort and costs associated with maintenance, checking the cameras, and managing the data combined with the lack of new data being collected. However, over the years, cameras detected a range of wildlife on a routine basis including mountain lion, bobcat, mule deer, coyote, and gray fox. Cameras also detected numerous trespassers, including hikers and people on mountain bikes. Each of these incidences were documented and OCTA was notified.

1. Recommendations

Inspect the perimeter fencing annually, per the RMP. Since the wildlife cameras continue to provide useful data for wildlife use, especially for mountain lions, as well as human use, at least some cameras should be re-installed and remain on the property as long as there is a budget to cover such monitoring.

vi. Trabuco Rose - Invasive Plant Species

Implementation of the Invasive Species Management Plan (ISMP) is ongoing. OCTA's maintenance contractor, RECON, conducted initial treatment of the Priority 1 invasive species and some of the Priority 2 invasive species in fall 2018. RECON conducted follow-up treatment in spring 2019 and primarily retreated artichoke thistle/cardoon (*Cynara cardunculus*). Additional follow-up retreatments of artichoke thistle/cardoon were conducted in January and February 2020. No retreatment of pampas grass (*Cortaderia selloana*) or salt cedar (*Tamarix* spp.) was necessary in 2020.

1. Recommendations

Continue to implement the ISMP, including monitoring areas that have been treated.

vii. Trabuco Rose - Invasive Animal Species

GLA did not observe any animal species within the Preserve that would be classified as invasive.

1. Recommendations

The property has the potential to support the brown-headed cowbird, which is a nest parasite. GLA will note the presence of the brown-headed cowbird, as detected, and will provide future recommendations to address the cowbird, if applicable. As noted above, an invasive lizard (Sonoran whiptail) with similar characteristics to the orangethroat whiptail has been detected in Orange County. GLA biologists are familiar with the physical features to distinguish the orangethroat whiptail from the Sonoran whiptail and will attempt to confirm the identification using binoculars when whiptails are observed during visual surveys and general monitoring.

b. Trabuco Rose Human Environment

i. Trabuco Rose - Land Use

OCTA informed GLA regarding motorized bike use on the Preserve in May 2020 and indicated that vegetation had been cut to create a new trail along Rose Canyon Creek.

1. Recommendations

The Preserve will continue to be monitored to document unauthorized access and activities, including by OCTA's private security company, the Orange County Sheriff Department's mounted unit, and GLA's monitoring team. As part of GLA's efforts, the biological monitors will periodically check the perimeter fencing for signs of encroachment, as well as any evidence of habitat disturbance within the Preserve due to human activity.

The RMP describes that compliance with the RMP restrictions on public access is partly dependent on the self-monitoring behavior of the public, including those individuals that are authorized to access properties located north of the Preserve through the main gate. The public education and outreach program identified in the RMP is in part intended to communicate the importance of self-monitoring in reinforcing the value and purpose of the Preserve. GLA recommends that the public use restrictions be reinforced as frequently as necessary during the various public outreach events. Additional methods should be continued as identified in the RMP, including the encouragement of two-way communication with adjacent residents to collect and disseminate Preserve information.

The RMP notes that through regular patrols by the Preserve Manager and staff, enforcement of public access guidelines falls into two categories of offenses: minor and major infractions. Enforcement of minor infractions such as hiking on closed trails and bringing dogs into the Preserve would consist of discussing the infraction with the offending party and a warning process. Major infractions may require coordination between the Preserve Manager and law enforcement.

ii. Trabuco Rose - Adjacent Land Use

GLA did not observe any (new) unauthorized activities in the Preserve as a result of adjacent land uses, including vegetation encroachments, excessive irrigation runoff from adjacent property owners, or other types of encroachment. RECON completed fuel modification work around the neighboring houses within the appropriate limits in May and June 2020.

1. Recommendations

GLA will continue to monitor adjacent properties for signs of unauthorized access/encroachment. As noted above, public education should be continued through public outreach events as described in the RMP.

iii. Trabuco Rose - Site/Trail Use

The Preserve contains numerous existing roads and trails that historically supported multiple uses. The main system of dirt roads continues to be maintained for vehicle access, including for emergency access, general OCTA management use, and in some instances for public access where an easement is granted. Some smaller trails are being maintained for public access or Preserve management, while the remainder of the trails are designated for passive restoration. RECON performed interior fire road maintenance and repaired fence lines, as needed.

A total of 13 trails or trail segments were initially identified in the Preserve RMP for “passive restoration”, all of which were assessed in 2018 and 2019. As of the 2019 monitoring, one trail had fully grown in, most trails were passively restoring with natives, and hand-weeding was recommended for a few. Passive trail restoration monitoring will continue in 2021.

As noted above, OCTA informed GLA of motorized bikes on the Preserve in May 2020 and that vegetation had been cut to create a new trail along Rose Canyon Creek.

Public outreach events were not held due to COVID-19.

1. Recommendations

GLA will continue to monitor the site to document unauthorized trail use and will assist with public outreach events, as applicable. GLA recommends the continued annual monitoring of “passive restoration” trails to qualitatively note the condition of the trails, to document the gradual extent of recovery over time, and to recommend active restoration, as applicable.

c. Trabuco Rose - General Maintenance

i. Trabuco Rose - Fencing/Gates

Some areas of fencing were fixed/tightened by RECON in January and May 2020. To further deter trespassing, RECON also installed additional t-posts on both sides of the Hickey Spur gate and both sides of the other lower gate along Rose Canyon Road in June 2020.

1. Recommendations

Repair fence line and gates as needed. GLA will continue to monitor for fencing, signage, and gate repair needs.

ii. Trabuco Rose - Trash/Dumping

No issues with trash or dumping were observed.

1. Recommendations

None.

iii. Trabuco Rose - Erosion/Sedimentation

The large area of stream erosion adjacent to the access road east of the main gate (near the secondary gate) is still present. OCTA continues to monitor this area and is securing regulatory permits to repair/stabilize the area. GLA observed typical erosion in access roads throughout the Preserve, as well as some vegetation growing in the access roads.

1. Recommendations

Repair/control erosion and remove vegetation from access roads as needed. GLA will continue to monitor the site for erosion effects and will report any changes to OCTA.

iv. Trabuco Rose - Trees

Some maintenance was performed by RECON to remove branches and a pine tree that were blocking fire/access roads in January 2020.

Due to the 2017, 2018, and 2019 on-site identification of invasive shot hole borer (*Euwallacea fornicatus*; ISHB) by Dudek, ISHB monitoring and evaluation surveys were conducted in 2020 to evaluate levels of ISHB infestation within the Preserve. Dudek arborists evaluated a total 134 riparian trees within the Trabuco Rose Preserve. Of the 134 trees evaluated, a total of eight trees continued to exhibit signs and symptoms of ISHB, of which seven were determined to have low infestation rates and one had moderate infestation rate (same results as 2018 and 2019; no newly infested trees were observed and the infestation rates stayed the same). No new pests and/or disease were observed on the Trabuco Rose Preserve.

Based on the results of the 2020 surveys, ISHB is considered active within the Trabuco Rose Preserve. However, based on the findings of the 2019 and 2020 ISHB surveys, ISHB continues to be in the early stages of infestation. Furthermore,

with the exception of three interior trees found on the Trabuco Rose Preserve, the majority of ISHB signs and symptoms continue to be found on the periphery of the western boundary. The observation of ISHB along the site's western boundary along Trabuco Canyon is believed to be due to high infestation levels observed throughout O'Neill Regional Park and ISHB's active spread throughout the region. Alternatively, the observation of ISHB sign within the interior of the Preserve continues to be considered an outlier from the observed population along the edge of the property. However, based on the ISHB's potential for spread, it is within the ISHB's zone of influence/impact for the area.

The report containing detailed information of this study dated June 5, 2020 is attached as Appendix B.

1. Recommendations

Continue to perform as-needed maintenance to clear fallen branches/trees from fire/access roads.

The observation of ISHB signs and symptoms within the interior of Trabuco Rose Preserve is significant due to the risk presented to the adjacent California sycamore tree population. However, all eight of the trees exhibited low to moderate signs of ISHB. Furthermore, observed levels of ISHB within the Preserve were consistent with the 2018 and 2019 surveys, and no new occurrences of ISHB were observed. As such, the following treatment options are recommended:

- ISHB Treatment – As with many insect infestations, it is at the early stages that the outbreak/infestation can be controlled. In an effort to maintain and limit the spread of ISHB throughout the remaining areas of the Preserve, it is recommended that the eight trees observed to have low to moderate signs and symptoms of ISHB be treated by means of a trunk spray with Bifenthrin, Bacillus subtilis, and Penra-Bark or similar. The above recommended pesticide and fungicide treatments should be conducted by a reputable licensed company that specializes in such and has a Pest Control Advisor and Applicator on staff.
- Monitoring – It is recommended that OCTA maintain an active ISHB monitoring and treatment program that focuses on the mapped riparian tree species in Appendix B. Specifically, it is recommended that this program focus on high-priority areas located throughout the Preserve. Areas that should be considered for monitoring include but are not limited to high-use recreation areas, native oak woodlands, and riparian areas that do not contain ISHB, and those areas identified in Appendix B. The frequency of ISHB monitoring within the selected areas should be conducted on a biweekly (i.e., every other week) basis during peak flight season (November through March). Active and frequent

monitoring would allow OCTA land managers to quickly identify ISHB and to remove infested material before ISHB spreads into uninfested areas. Routine monitoring of the site will play an important role in managing ISHB within the Preserve.

Pacific Horizon Preserve

a. Pacific Horizon - Plants and Wildlife

i. Pacific Horizon - Covered Wildlife Species

As directed by OCTA, GLA conducted one site visit focusing on biological monitoring in 2020. No OCTA M2 Covered Species were detected during monitoring. Previous detections of Covered Species are depicted on Exhibit 3 – OCTA Covered Species Map.

1. Recommendations

Implement effectiveness monitoring in 2021 and continue to map incidental detections through ongoing biological monitoring, or otherwise note the absence of detections in areas where species were previously detected, in order to detect potential trends in population growth or decline. GLA will conduct focused surveys for the gnatcatcher and cactus wren, and visual encounter surveys for coast horned lizard and orangethroat whiptail. GLA biologists will attempt to identify the orangethroat whiptail from the Sonoran whiptail as described above.

ii. Pacific Horizon - Covered Plant Species

As noted above, GLA conducted one site visit focusing on biological monitoring in 2020. GLA did not confirm previous locations or detect new locations of many-stemmed dudleya or intermediate mariposa lily at the property. Previous locations of the many-stemmed dudleya and mariposa lily are depicted on Exhibit 3 – OCTA Covered Species Map.

1. Recommendations

Implement effectiveness monitoring in 2021 in order to detect potential trends in many-stemmed dudleya and intermediate mariposa lily growth or decline. Based on below-normal rainfall to date for the 2020/2021 season, GLA recommends postponing Preserve-wide focused plant surveys until at least the following season, but to perform surveys/monitoring of select plant populations in 2021 to obtain count data for general effectiveness monitoring.

iii. Pacific Horizon - Non-Covered Sensitive Wildlife Species

GLA did not detect non-covered sensitive wildlife species while performing biological monitoring.

1. Recommendations

GLA has no recommendations pertaining to non-covered sensitive wildlife species, other than that the detection of non-covered sensitive species will be documented during ongoing biological monitoring, and the locations of species will be added to the GIS database as is applicable based on the species detected.

iv. Pacific Horizon - Non-Covered Sensitive Plant Species

GLA did not map any new locations of non-covered sensitive plant species while performing biological monitoring in 2020. GLA also did not confirm non-covered sensitive plants in previously-known locations, although the biologists did not specifically survey previously-mapped locations as this was not the focus of biomonitoring efforts in 2020. Previous locations of mapped non-covered sensitive plant species, i.e., western crownbeard (*Verbesina dissita*), are depicted on Exhibit 3.

1. Recommendations

GLA has no recommendations pertaining to the non-covered sensitive plant species, other than that the detection of non-covered sensitive species will be documented during ongoing biological monitoring, and the locations of species will be added to the GIS database as is applicable based on the species detected.

v. Pacific Horizon - Wildlife Cameras

There are currently no wildlife cameras at Pacific Horizon Preserve. In the previous annual monitoring report, GLA recommended the use of wildlife cameras for tracking wildlife use and abundance throughout the Preserve and for noting unauthorized access as a secondary benefit. OCTA, GLA, California Coastal Commission (CCC), and County Parks representatives met at the Preserve on March 4, 2019 to review proposed wildlife camera locations. Installation of wildlife cameras at the Preserve requires a coastal development permit (CDP) from the CCC, which was issued on February 5, 2020. Cameras have been purchased for installation.

1. Recommendations

Install wildlife cameras on the Preserve pursuant to the CDP.

vi. Pacific Horizon - Invasive Plant Species

The Disturbed Lands Restoration Plan (DLRP), which is consistent with the ISMP and RMP and addresses trail decommissioning and implementation of the ISMP, was approved by the CCC in 2020. The first phase of the DLRP focuses on removing Priority 1 plants consistent with the ISMP and planting disturbed areas. In October 2020, restoration activities began with seed head removal from the pampas

grass and spraying the remaining foliage with glyphosate-based herbicide in the northern area of the Preserve. OCTA is coordinating removal of hottentot fig (*Carpobrotus edulis*) located on County of Orange property bordering the Preserve; however, OCTA plans to move forward with treating the hottentot fig on OCTA property by spraying in place.

1. Recommendations

Continue to implement the ISMP and DLRP based on priorities outlined in the plans. This includes specifically targeting artichoke thistle and Pampas grass in January – March 2021.

vii. Pacific Horizon - Invasive Animal Species

GLA did not observe any animal species within the Preserve that would be classified as invasive.

1. Recommendations

The property has the potential to support the brown-headed cowbird, which is a nest parasite. GLA will note the presence of the brown-headed cowbird, as detected, and will provide future recommendations to address the cowbird, if applicable. As noted above, GLA biologists will attempt to identify the orangethroat whiptail from the Sonoran whiptail as described above.

b. Pacific Horizon - Human Environment

i. Pacific Horizon - Land Use

Mountain biking and hiking are ongoing at the Pacific Horizon Preserve, which are authorized activities; however, usage is occurring on unauthorized trails and trail modifications have occurred. In 2018, GLA assisted OCTA with obtaining a CCC waiver to repair unauthorized trail modifications for mountain bike use to return the areas to pre-existing topographical contours, and also to erect signage along the trails to indicate property ownership. As previously reported, this work was conducted in late 2018 by OCTA's maintenance contractor, RECON. However, trail modifications for mountain bike use are ongoing and as a result, OCTA requested to extend the authorization to repair trail modifications for an additional five years. That request was authorized via issuance of the CDP and approval of the DLRP on February 5, 2020 and also included decommissioning of a duplicative trail segment which is a threat to many-stemmed dudleya and restoring other disturbed areas in the vicinity of the trail which support intermediate mariposa lily and coastal sage scrub habitats. The duplicative trail segment was decommissioned in October 2020 by placing barbless wire fencing along the opening, installing three habitat restoration signs, and two wildlife camera posts. GLA will be placing cameras on the posts in 2021, which may also provide information regarding unauthorized activities. Also, a portion of the lower (southern) trail was decommissioned using hand tools to break up the soil, and branches and other debris were added to the path to deter pedestrians and bikers. Bike jumps were also removed in this area by removing berms and returning areas to their original grade with hand tools.

Restoration activities are anticipated to occur in February 2021 beginning with cactus cuttings and placement and spray treatment of iceplant.

A GLA biologist and Lesley Hill met onsite on February 25, 2020 to discuss commencement of the DLRP. They noted a large encroachment through native vegetation leading to an electrical pole, which turned out to be a trail cutting by Southern California Edison (SCE). After coordinating with OCTA, SCE retained AECOM to conduct weed removal within the encroachment. Weeding was conducted by AECOM and the SCE contractor the week of September 28, 2020. A memorandum documenting the weed areas and removal methodology is attached as Appendix C, along with photos taken during weed removal. GLA biologists reviewed the area on December 22, 2020 and found no additional damage or recent cutting, but also no natural infill in the cut areas. Also, no weeds were noted, but this is likely due to minimal rain.

During the February 25, 2020 site visit, GLA and OCTA also noted that the mapped Pampas grass within the trail disturbance area had been cut and treated with herbicide, as evidenced by blue dye, by an unknown entity. Cut portions of the Pampas grass were left in the area and were laying on native vegetation.

GLA biologists also found a newly cut foot trail through native vegetation that spurs off the decommissioned trail at the eastern portion of the Preserve, which appears to be routinely utilized.

GLA did not observe any evidence of encroachment into Pacific Horizon Preserve due to activities such as fuel modification, landscaping, etc.

1. Recommendations

Continue to implement the DLRP and monitor the Preserve to document unauthorized access and activities. Monitor the SCE encroachment to ensure restoration success. Emergence of annual weeds may occur following seasonal rains. Remove the cut Pampas grass laying on native vegetation and place woody native cuttings within the trail area to be closed and restored to break down and visually obscure trail. This approach is also recommended for the new spur trail at the eastern portion of the Preserve, using the cut native vegetation that's laying around the trail and on top of native scrub. As part of GLA's efforts, the biological monitors will periodically check any evidence of habitat disturbance within the Preserve due to human activity.

The RMP for the Preserve describes methods to support additional compliance with the RMP restrictions and enforcement actions as detailed above.

ii. Pacific Horizon - Adjacent Land Use

Lands adjacent to the Preserve consist of residential development to the west, a resort and golf course to the south, with the remaining lands consisting of open

space. GLA did not observe any unauthorized activities in the Preserve a result of adjacent land uses, including vegetation encroachments, excessive irrigation runoff from adjacent property owners, or other types of encroachment.

1. Recommendations

GLA will continue to monitor adjacent properties for signs of encroachment/irrigation runoff. As noted above, public education should be continued through public outreach as described in the RMP.

iii. Pacific Horizon - Site/Trail Use

The Aliso and Wood Canyons' Moulton Meadows Linkage Trail (north of the Preserve) extends south through the Pacific Horizon Preserve, and then crosses onto City-owned lands to the south. The trail can also be accessed from trails that originate at the eastern edge of Moulton Meadows Park. These trails are currently used by hikers and mountain bikers and some are included on Orange County Parks' trail maps. Some are also depicted in the trail network of the Laguna Beach General Plan Open Space/Conservation Element as "trails on private property." Exhibit 5 [Trails Map] depicts the location and type of each trail use. Per the RMP and DLRP, two access points associated with one pedestrian access to a single side trail that splits from the Linkage Trail north of the Preserve boundary were decommissioned in October 2020. Additional smooth wire fencing and signage were installed to deter entry from the decommissioned access points. In December 2020, GLA monitors found that the decommissioned access points and associated trail are still being heavily utilized. The new smooth wire fence had been cut and additional damage had been done to the to the access area used by mountain bikers.

GLA monitors also found a new foot trail that had been cut off the eastern decommissioned trail, totaling approximately 725 linear feet.

As noted above, hiking and mountain biking on ongoing on the trails, which are authorized activities on the open trails.

Public outreach events were not held due to COVID-19.

1. Recommendations

Continue to repair trail modifications/damage and fencing damage caused by mountain bikers. Implement the trail restoration component of the DLRP and monitor the Preserve to document unauthorized access and activities. Emergence of annual weeds may occur following seasonal rains. Remove the cut Pampas grass laying on native vegetation and place woody native cuttings within the trail area to be closed and restored to break down and visually obscure trail. This approach is also recommended for the new spur trail at the eastern portion of the Preserve, using the cut native vegetation that's laying around the trail and on top of native scrub. GLA will continue

to monitor the site to document unauthorized trail use and will assist with public outreach events, as applicable.

c. Pacific Horizon - General Maintenance

i. Pacific Horizon - Fencing/Gates/Signage

The pre-existing barbed-wire fencing located along the northern edge of the Preserve that demarcates the boundary between Pacific Horizon Preserve and County of Orange property was replaced with three-strand smooth wire; however, GLA found that the smooth wire had been cut in several areas. No other fencing issues were noted. Three “Restoration in Progress – Do Not Enter” signs were installed in the restoration areas, one of which needs to be re-staked. There are no gates on the Preserve.

1. Recommendations

Repair the three-strand smooth wire along the northern boundary of the Preserve. Re-stake the restoration sign.

ii. Pacific Horizon - Trash/Dumping

No issues with trash or dumping were observed.

1. Recommendations

None.

iii. Pacific Horizon - Erosion/Sedimentation

GLA noted varying degrees of trail erosion on public access trails throughout the Preserve, including the more steeply sloping trails in the northern portion of the Preserve. The westernmost decommissioned trail area is still being heavily utilized and as a result has ongoing, active erosion.

1. Recommendations

Repair/control erosion as needed. GLA will continue to monitor the site for erosion effects and will report any changes to OCTA.

iv. Pacific Horizon - Trees

The only trees onsite are non-native species, Canary Island pine and eucalyptus.

1. Recommendations

Remove as prioritized in the ISMP and/or as directed by the GLA team’s arborist and in coordination with OCTA.

Bobcat Ridge Preserve

a. Bobcat Ridge - Plants and Wildlife

i. Bobcat Ridge - Covered Wildlife Species

GLA conducted two sites visit in 2020, which occurred on May 26 and December 23. No OCTA M2 Covered Wildlife Species were detected during monitoring. Previous detections of Covered Wildlife Species are depicted on Exhibit 3 – OCTA Covered Species Map.

1. Recommendations

Implement effectiveness monitoring in 2021 and continue to map incidental detections through ongoing biological monitoring, or otherwise note the absence of detections in areas where species were previously detected, in order to detect potential trends in population growth or decline. GLA will conduct focused surveys for the gnatcatcher and cactus wren, and visual encounter surveys for coast horned lizard and orangethroat whiptail. GLA biologists will attempt to identify the orangethroat whiptail from the Sonoran whiptail as described above.

ii. Bobcat Ridge - Covered Plant Species

GLA conducted one biological monitoring visit in the spring to coincide with the blooming period of intermediate mariposa lily, which has been previously detected onsite. GLA detected previous locations of intermediate mariposa lily but did not detect new locations. Previous locations of the mariposa lily are depicted on Exhibit 3 – OCTA Covered Species Map.

1. Recommendations

Implement effectiveness monitoring in 2021 in order to detect potential trends in intermediate mariposa lily population growth or decline. The monitoring of known populations of intermediate mariposa lily should include the area of disturbance along the southern boundary to determine the potential extent of impact due to the disturbance. Based on below-normal rainfall to date for the 2020/2021 season, GLA recommends postponing Preserve-wide focused plant surveys until at least the following season, but to perform surveys/monitoring of select plant populations in 2021 to obtain count data for general effectiveness monitoring.

iii. Bobcat Ridge - Non-Covered Sensitive Wildlife Species

GLA did not detect non-covered sensitive wildlife species at Bobcat Ridge Preserve while performing biological monitoring in 2020.

1. Recommendations

GLA has no recommendations pertaining to the non-covered sensitive wildlife species, other than that the detection of non-covered sensitive species will be documented during ongoing biological monitoring, and the

locations of species will be added to the GIS database as is applicable based on the species detected.

iv. Bobcat Ridge - Non-Covered Sensitive Plant Species

GLA did not document any new non-covered sensitive plant species in 2020.

1. Recommendations

GLA has no recommendations pertaining to the non-covered sensitive plant species, other than that the detection of non-covered sensitive species will be documented during ongoing biological monitoring, and the locations of species will be added to the GIS database as is applicable based on the species detected.

v. Bobcat Ridge - Wildlife Cameras

GLA established two wildlife camera stations (A and B) on the Preserve in July 2019. Both are located in the southern portion of the site near the unauthorized road clearing/grading, which is further described under "Adjacent Land Use" below. This location is ideal for wildlife access as well as potentially monitoring unauthorized activities. A trash bag had been placed and taped over Camera B when monitors checked in May. Otherwise, the cameras only captured moving vegetation and an image of a man walking through the Preserve prior to running out of memory space. Wildlife cameras have previously detected deer and fox.

1. Recommendations

GLA recommends the continued use of wildlife cameras at the Preserve for tracking wildlife use, as well as for the secondary benefit of noting unauthorized activities. GLA will adjust the cameras or recommend vegetation trimming in 2021 to capture additional data.

vi. Bobcat Ridge - Invasive Plant Species

GLA prepared an ISMP, which was approved by the Wildlife Agencies in 2019. In addition, GLA biologists detected and removed a clump of an invasive plant (stink net, *Oncosiphon piluliferum*) located adjacent to the Preserve boundary.

1. Recommendations

Implement ISMP based on priorities outlined in the plan and continue to monitor for stink net.

vii. Bobcat Ridge - Invasive Animal Species

GLA did not observe any animal species within the Preserve that would be classified as invasive.

1. Recommendations

The property has the potential to support the brown-headed cowbird, which is a nest parasite. GLA will note the presence of the brown-headed cowbird, as detected, and will provide future recommendations to address the

cowbird, if applicable. GLA biologists will attempt to identify the orangethroat whiptail from the Sonoran whiptail as described above.

b. Bobcat Ridge - Human Environment

i. Bobcat Ridge - Land Use

Public access is not authorized at the Bobcat Ridge Preserve. GLA did not observe any new trail cuts; however, as noted above, a trash bag had been placed and taped over Camera B. In addition, the neighbor adjacent to the southern boundary of the Preserve weed whipped the western edge of the previously documented encroachment area in OCTA property damaging establishing native seedlings, which is further described below under “Adjacent Land Use”.

1. Recommendations

The site will continue to be monitored to document unauthorized access and activities, including by OCTA’s private security company and GLA’s monitoring team. As part of GLA’s efforts, the biological monitors will periodically check any evidence of habitat disturbance within the Preserve due to human activity. Wildlife cameras placed strategically at the Preserve may also provide the secondary benefit of documenting unauthorized activities.

The RMP for the Preserve describes additional methods to support compliance with the RMP restrictions and enforcement actions as detailed above.

ii. Bobcat Ridge - Adjacent Land Use

GLA continues to monitor the disturbance at the southern boundary of the Preserve. As previously documented, the adjacent resident had cleared and graded a dirt road to provide access to an additional part of his property, which OCTA became aware of in January 2017. The approximately 0.135-acre (617 linear feet) area is mapped as California sagebrush-California buckwheat scrub and scrub oak chaparral. Three individual intermediate mariposa lily points and one intermediate mariposa lily point mapped as a population of three were located in the disturbance footprint. OCTA coordinated with the resident concerning the property boundary location and to communicate the sensitivity of the Preserve’s resources in 2017. Additionally, CDFW and OCTA reported the incident to the County of Orange, as CDFW lands were also impacted. Although the County contacted the property owner on May 23, 2017 to request that the impacted areas be restored, GLA has not observed any active restoration on multiple visits since that date. OCTA and CDFW have contacted the County multiple times to obtain an update of the required restoration efforts by the adjacent property owner; however, OCTA and CDFW have not received any additional information from the County. Additionally, on November 21, 2017, GLA biological monitors noted that the area of road disturbance appeared to have been recently weed whipped running approximately the length of the property at the bottom of the canyon. It appeared that this may have happened by mistake during fuel modification activities associated with the slope.

On December 18, 2018, GLA conducted a focused qualitative monitoring visit and established photo location points along the road encroachment area. The road encroachment area exhibited a high percentage of bare ground at approximately 85-percent cover; however, recruitment of native young shrubs and seedlings at the central portion of the road suggested there is ample seed input from the surrounding habitat for successful habitat re-establishment. Since 2017-2018 was a below average rainfall year, habitat re-establishment was expected to be successful.

GLA continued to monitor the disturbance area in 2019 and conducted a focused qualitative monitoring on May 2, 2019. The area exhibited significant growth of native and non-native vegetation since the 2018 monitoring event as a result of significant rainfall events in the winter of 2018/2019. Given that there was noted growth in native vegetation within the western and central portions since the 2018 monitoring event along with continuing natural recruitment, passive habitat reestablishment was expected to succeed assuming there was no future disturbance. On June 10, 2019, GLA biologists reviewed the encroachment area and it appeared that someone had recently driven on the disturbance area, likely with an off-road vehicle. Plants were depressed and broken from tires. GLA installed a camera in a security box along the disturbance area on July 1, 2019. GLA biologists reviewed the encroachment area again on November 4, 2019 and it appeared that no further disturbance had taken place and that the area had likely rebounded to the condition in Spring 2019.

GLA conducted a third focused qualitative monitoring on May 26, 2020 (results attached as Appendix D). New impacts to native vegetation were observed within approximately 0.04 acre (175 linear feet) or approximately 30-percent of the Encroachment Area during the third quantitative monitoring site visit. As such, these results are described as two categories: Re-disturbed Area and Previously Disturbed Area.

Within the Re-disturbed Area, young shrubs of deerweed (*Acmispon glaber*) and California buckwheat (*Eriogonum fasciculatum*) and non-native species red brome (*Bromus madritensis* ssp. *rubens*) and crete weed (*Hedypnois cretica*) appeared to be weed whipped to less than an inch above the ground. As a result, the Re-disturbed Area remains largely bare. The third quantitative monitoring indicates that this area consists of approximately 70-percent bare ground, approximately 29-percent native species coverage, and approximately 1-percent non-native species coverage. Signs of passive restoration were noted with emergence of seedlings of deerweed and California buckwheat that were impacted prior to the third quantitative monitoring. The Previously Disturbed Area has reestablished native vegetative cover and diversity since the original unauthorized disturbance detected in 2017. Passive restoration successfully reduced non-native coverage and revegetated the area through naturally recruited seedlings and the expansion of existing shrubs. Total native vegetative cover is approximately 89-percent, while non-native species contribute approximately 5-percent and 6-percent remains bare ground.

OCTA will elevate or try to coordinate with other County staff regarding this enforcement issue. As previously stated, the County had required the homeowner to restore multiple areas on and adjacent to the Preserve, which to date, has not occurred.

No other vegetation encroachments or adjacency issues related to habitat management such as landscape encroachment or excessive irrigation were observed.

1. Recommendations

GLA will continue to monitor the Re-disturbed and Previously Disturbed Areas in the winter and spring months when vegetation is actively growing to determine native and nonnative species development and provide timely site recommendations. No other recommendations for the Previously Disturbed Area are necessary. Within the Re-disturbed Area, GLA recommends the installation of additional fencing or staking to clearly demarcate the property boundary and prevent future disturbance. Due to the evidence of natural recruitment, successful habitat development is expected to occur provided that there is no future disturbance within the Re-disturbed Area, although active restoration would expedite habitat recovery. These activities may include weeding of the Re-disturbed Area in winter/spring 2021, and the installation of coast prickly pear (*Opuntia littoralis*) pads and/or hand seeding of black sage, California buckwheat, and California sagebrush during the winter months, if there is enough rain to seed. GLA plans to survey for potentially affected intermediate mariposa lily during spring 2021 effectiveness monitoring.

GLA will continue to monitor other adjacent properties for signs of unauthorized access/encroachment. Continue to use a camera for noting unauthorized activities. As noted above, public education should be continued through public outreach and education as described in the RMP for the Preserve, including the use of two-way communication with adjacent residents to collect and disseminate Preserve information.

iii. Bobcat Ridge - Site/Trail Use

The Preserve contains two dirt trails in the eastern portion of the property [Exhibit 5 - Trails Map]. One of the trails jogs back and forth between OCTA-owned property and property owned by State of California (CDFW). The other trail is found along the ridge line of the Preserve and provides good vantages of the site. As such, this is the main trail for providing access for management and monitoring purposes. A wildlife camera detected one person walking through the Preserve. No mountain bike activity was documented.

1. Recommendations

None.

c. Bobcat Ridge - General Maintenance

i. Bobcat Ridge - Fencing/Gates/Signage

GLA did not observe any fence maintenance issues. One OCTA Preserve had been removed from the pole and the other two signs were loose.

1. Recommendations

Repair the signage. At this time fencing is not recommended for the Bobcat Ridge Preserve. GLA may map fencing and gates along Live Oak Canyon Road as directed by OCTA for inclusion in the GIS database.

ii. Bobcat Ridge - Trash/Dumping

No issues with trash or dumping were observed.

1. Recommendations

None.

iii. Bobcat Ridge - Erosion/Sedimentation

No erosion/sedimentation issues were documented.

1. Recommendations

None.

iv. Bobcat Ridge - Trees

The team arborist, Dudek, conducted invasive shot hole borer (ISHB; *Euwallacea* sp.) surveys in June and July 2017. No sign and/or symptom of ISHB was observed. Dudek conducted emergent pest trapping in July 2019 and a visual evaluation on May 21, 2020 to re-evaluate for the presence of ISHB and found no sign and/or symptom of ISHB during either survey. The report containing detailed information of this study dated June 5, 2020 is attached as Appendix E.

1. Recommendations

Continue to monitor the site for signs and/or symptoms of ISHB following recommendations in Appendix B.

Silverado Chaparral Preserve

a. Silverado Chaparral - Plants and Wildlife

i. Silverado Chaparral - Covered Wildlife Species

GLA conducted one site visit on December 22, 2020. No OCTA M2 Covered Wildlife Species were detected during monitoring. Previous detections of Covered Wildlife Species are depicted on Exhibit 3.

1. Recommendations

Implement effectiveness monitoring in 2021 and continue to map incidental detections through ongoing biological monitoring, or otherwise note the absence of detections in areas where species were previously detected, in order to detect potential trends in population growth or decline. GLA will conduct focused surveys for the gnatcatcher and cactus wren, and visual encounter surveys for coast horned lizard and orangethroat whiptail. GLA biologists will attempt to identify the orangethroat whiptail from the Sonoran whiptail as described above.

ii. Silverado Chaparral - Covered Plant Species

As noted above, GLA conducted one site visit on December 22, 2020. As a result, GLA did not detect any many-stemmed dudleya and did not confirm previous locations or detect new locations of intermediate mariposa lily at the property. Previous locations of the mariposa lily are depicted on Exhibit 3 – OCTA Covered Species Map.

1. Recommendations

Implement effectiveness monitoring in 2021 in order to detect potential trends in intermediate mariposa lily population growth or decline and to potentially detect many-stemmed dudleya. Based on below-normal rainfall to date for the 2020/2021 season, GLA recommends postponing Preserve-wide focused plant surveys until at least the following season, but to perform surveys/monitoring of select plant populations in 2021 to obtain count data for general effectiveness monitoring.

iii. Silverado Chaparral - Non-Covered Sensitive Wildlife Species

GLA did not detect non-covered sensitive wildlife species while performing biological monitoring in 2020.

1. Recommendations

GLA has no recommendations pertaining to non-covered sensitive wildlife species, other than that the detection of non-covered sensitive species will be documented during ongoing biological monitoring, and the locations of species will be added to the GIS database as is applicable based on the species detected.

iv. Silverado Chaparral - Non-Covered Sensitive Plant Species

GLA did not document any new non-covered sensitive plant species in 2020.

1. Recommendations

GLA has no recommendations pertaining to non-covered sensitive plant species, other than that the detection of non-covered sensitive species will be documented during ongoing biological monitoring, and the locations of species will be added to the GIS database as is applicable based on the species detected.

v. Silverado Chaparral - Wildlife Cameras

Two cameras were installed in May 2019. Camera A was documented as stolen by GLA biologists on June 20, 2019. Through coordination with OCTA, GLA removed the remaining wildlife camera on an interim basis in September 2019 due to the theft risk as well as reducing the effort through the winter months to save funding for spring monitoring. While the cameras were installed, deer and bobcat were detected. In addition, the cameras detected unauthorized people on the Preserve including mountain bikers, hikers, and dogs.

1. Recommendations

GLA recommends re-installing cameras for tracking wildlife use and to capture images of unauthorized access throughout the Preserve. Note that GLA recommends increased security for the cameras such as cemented poles and boxes.

vi. Silverado Chaparral - Invasive Plant Species

GLA prepared an ISMP, which was approved by the Wildlife Agencies in 2019.

1. Recommendations

Implement ISMP based on priorities outlined in the plan.

vii. Silverado Chaparral - Invasive Animal Species

GLA did not observe any animal species within the Preserve that would be classified as invasive.

1. Recommendations

The property has the potential to support the brown-headed cowbird, which is a nest parasite. GLA will note the presence of the brown-headed cowbird, as detected, and will provide future recommendations to address the cowbird, if applicable. GLA biologists will attempt to identify the orangethroat whiptail from the Sonoran whiptail as described above.

b. Silverado Chaparral - Human Environment

i. Silverado Chaparral - Land Use

Public access is not currently authorized at the Silverado Chaparral Preserve. During the December 2020 monitoring visit, GLA noted that mountain biking

continues to be an ongoing issue. The fencing installed in 2019 at Sign Areas A, B, and C appeared to have been cut by mountain bikers as potentially evidenced by bike tracks in the areas (Exhibit 5). Sign B had been removed from the fence line and thrown on the ground and Sign C was missing. Some evidence of trespassing (dog and hiker's tracks) was also observed.

1. Recommendations

Repair the fencing and signage damage. The site will continue to be monitored to document unauthorized access and activities, including by OCTA's private security company and GLA's monitoring team. As part of GLA's efforts, the biological monitors will periodically check any evidence of habitat disturbance within the Preserve due to human activity. Continue to coordinate with the County of Orange and staff at Irvine Ranch Conservancy as-needed regarding mountain biking disturbance.

The RMP for the Preserve describes additional methods to support compliance with the RMP restrictions and enforcement actions as detailed above.

ii. Silverado Chaparral - Adjacent Land Use

No vegetation encroachments, excessive irrigation runoff from adjacent property owners, or other adjacency issues were observed.

1. Recommendations

None.

iii. Silverado Chaparral - Site/Trail Use

The Preserve is bisected by one main vehicular access road, Black Star Helo Pad Road, which is an unpaved utility road utilized by Southern California Edison in order to service utility lines that run along the western property boundary of the Silverado Chaparral Preserve. There are two smaller unpaved private access roads that enter Silverado Chaparral from the northern portion of the Preserve off of Baker Canyon Road. Hall Canyon Road and an unnamed road traverse south onto the Silverado Chaparral Preserve. In addition, a series of dirt trails traverse the Preserve and travel predominantly from east to west. The Preserve RMP identifies three categories of trails/roads, including trails/roads for recreational use, trails/roads maintained for Preserve management, and trails to be decommissioned. Exhibit 5 [Trails Map] depicts the location and type of each trail use.

As noted above, GLA documented mountain bike usage throughout all major trails and observed heavy erosion in some areas due to the unauthorized activity. In June 2020, RECON removed vegetation on fire roads and shored up loose rocks in select areas that are regularly used by the security patrol personnel.

1. Recommendations

GLA will continue to monitor the site to document unauthorized trail use and fire/access road maintenance/repair needs.

c. Silverado Chaparral - General Maintenance

i. Silverado Chaparral - Fencing/Gates/Signage

In September 2020, RECON installed new barbed wire and OCTA Preserve signs along a trail in the western portion of the Preserve that had been impacted/widened by mountain bikers and installed more barbed wire at the southernmost location of the Preserve to deter unauthorized access. GLA noted that fencing at Sign Areas A, B, and C was cut by mountain bikers and needs repair (Exhibit 5). Sign B had been removed from the fence line and thrown on the ground. GLA monitors hand-tightened the sign back onto the fence. Sign C was missing. GLA did not observe any maintenance issues with gates.

1. Recommendations

Repair the cut fence lines and replace Sign C. Continue to monitor the fence lines to make sure they are intact and not cut for mountain biking use. Continue to monitor for sign replacement needs and any gate issues.

ii. Silverado Chaparral - Trash/Dumping

No issues with trash or dumping were observed.

1. Recommendations

None.

iii. Silverado Chaparral - Erosion/Sedimentation

Mountain biking has caused moderate to heavy erosion, especially in Area B (Exhibit 5).

1. Recommendations

The fencing and signage in this area should be repaired to keep bikers out. GLA will continue to monitor these areas and will recommend additional management strategies, as needed.

iv. Silverado Chaparral - Trees

The team arborist, Dudek, conducted ISHB surveys in June and July 2017. No sign and/or symptom of ISHB was observed. Since the onsite trees primarily consist of coast live oak, the arborist determined that monitoring was not necessary in 2020.

1. Recommendations

None.

Wren's View Preserve

a. Wren's View - Plants and Wildlife

i. Wren's View - Covered Wildlife Species

As directed by OCTA, GLA conducted one site visit focusing in 2020, which occurred on December 23. No OCTA M2 Covered Wildlife Species were detected during monitoring. Previous detections of Covered Wildlife Species are depicted on Exhibit 3 – OCTA Covered Species Map.

1. Recommendations

Implement effectiveness monitoring in 2021 and continue to map incidental detections through ongoing biological monitoring, or otherwise note the absence of detections in areas where species were previously detected, in order to detect potential trends in population growth or decline. GLA will conduct focused surveys for the gnatcatcher and cactus wren, and visual encounter surveys for coast horned lizard and orangethroat whiptail. GLA biologists will attempt to identify the orangethroat whiptail from the Sonoran whiptail as described above.

ii. Wren's View - Covered Plant Species

As noted above, one site visit occurred on December 23, 2020. As a result, GLA did not confirm previous locations or detect new locations of intermediate mariposa lily at the property. Previous locations of the mariposa lily are depicted on Exhibit 3 – OCTA Covered Species Map.

Previous monitoring visits have noted disturbance to no more than ten intermediate mariposa lilies as a result of maintenance of the main road going up to the gate. In one instance, the intermediate mariposa lily was growing out of the road itself off to the side. In other instances, the intermediate mariposa lily was mixed in with vegetation growing on the immediately adjacent berm that was encroaching into the road. In all instances it appeared that the intermediate mariposa lily was cut from mechanical trimming of the vegetation. Note that for those that are growing in the road or at the very edge, it would be difficult to avoid completely to keep the road clear for access. The disturbance was not the result of overzealous trimming.

1. Recommendations

If maintenance is necessary when intermediate mariposa lily is present, schedule biological monitors to flag the plants so that individuals can be seen more easily for avoidance and consider biological monitoring during work activities, especially for areas where intermediate mariposa lily is located within the road or adjacent. Implement effectiveness monitoring in 2021 in order to detect potential trends in intermediate mariposa lily population growth or decline. Based on below-normal rainfall to date for the 2020/2021 season, GLA recommends postponing Preserve-wide focused plant surveys until at least the following season, but to perform

surveys/monitoring of select plant populations in 2021 to obtain count data for general effectiveness monitoring.

iii. Wren's View - Non-Covered Sensitive Wildlife Species

GLA did not detect non-covered sensitive wildlife species while performing biological monitoring in 2020.

1. Recommendations

GLA has no recommendations pertaining to non-covered sensitive wildlife species, other than that the detection of non-covered sensitive species will be documented during ongoing biological monitoring, and the locations of species will be added to the GIS database as is applicable based on the species detected.

iv. Wren's View - Non-Covered Sensitive Plant Species

GLA did not document any new non-covered sensitive plant species in 2020.

1. Recommendations

GLA has no recommendations pertaining to non-covered sensitive plant species, other than that the detection of non-covered sensitive species will be documented during ongoing biological monitoring, and the locations of species will be added to the GIS database as is applicable based on the species detected.

v. Wren's View - Wildlife Cameras

Three wildlife cameras were installed on the Preserve in 2018. Through coordination with OCTA, GLA removed the wildlife cameras in October 2019 on an interim basis due to the level of effort and costs associated with maintenance, checking the cameras, and managing the data combined with the lack of new data being collected. While the cameras were installed, mountain lion, bobcat, deer, coyote, and gray fox were detected. In addition, the cameras detected unauthorized people on the Preserve, including hikers and mountain bikers.

1. Recommendations

Since the wildlife cameras are not providing new data, discontinue the use through 2021 unless an issue arises that warrants the usage of the cameras on the property, to direct funding resources toward other monitoring activities.

vi. Wren's View - Invasive Plant Species

GLA prepared an ISMP, which was approved by the Wildlife Agencies in 2019.

1. Recommendations

Implement ISMP based on priorities outlined in the plan.

vii. Wren's View - Invasive Animal Species

GLA did not observe any animal species within the Preserve that would be classified as invasive.

1. Recommendations

The property has the potential to support the brown-headed cowbird, which is a nest parasite. GLA will note the presence of the brown-headed cowbird, as detected, and will provide future recommendations to address the cowbird, if applicable. GLA biologists will attempt to identify the orangethroat whiptail from the Sonoran whiptail as described above.

b. Wren's View - Human Environment

i. Wren's View - Land Use

OCTA-sponsored docent hikes are allowed on the Preserve; however, open public access is not allowed. GLA did not observe any new trail cuts; however, bike tracks were noted on the unauthorized trail [Exhibit 5 – Trails/Maintenance Map]; graffiti was noted on cactus, an oak tree, and a restoration sign; and an OCTA Preserve sign was missing. In addition, the RMP notes that trespassing through the property has been a common daytime and nighttime occurrence, in part due to the location of the former homesite to the northeast of the Preserve, and in 2018, trespassing was documented by the OCTA private security company and warnings were issued.

1. Recommendations

The site will continue to be monitored to document unauthorized access and activities, including by OCTA's private security company and GLA's monitoring team. As part of GLA's efforts, the biological monitors will periodically check any evidence of habitat disturbance within the Preserve due to human activity.

The RMP for the Preserve describes additional methods to support compliance with the RMP restrictions and enforcement actions as detailed above.

ii. Wren's View - Adjacent Land Use

No vegetation encroachments, excessive irrigation runoff from adjacent property owners, or other adjacency issues were observed.

1. Recommendations

GLA will continue to monitor adjacent properties for signs of unauthorized access/encroachment. As noted above, public education should be continued through public outreach events as described in the RMP for the Preserve.

iii. Wren's View - Site/Trail Use

The Preserve is bisected by one main unpaved vehicular access road (Trabuco Ridge Drive) that comes off of Trabuco Canyon Road and continues north off the

Preserve onto private property to the north. There is an additional portion of this internal road that veers off of the main road and curves west towards an adjacent private property near Live Oak Canyon Road. There is one additional trail that comes in from the northern adjacent private property and connects down to Trabuco Ridge Road. This unmaintained trail is quite possibly a historic roadbed, but due to lack of maintenance over the years is currently inaccessible with a vehicle. Exhibit 5 [Trails/Maintenance Map] depicts the location and type of each trail use. As noted above, bike tracks were noted on the unauthorized trail. No other unauthorized trail use was documented.

GLA assisted with a public outreach event at the Preserve held by OCTA on February 15, 2020.

1. Recommendations

GLA will continue to monitor the site to document any unauthorized trail use and will assist with any public outreach events, as applicable.

c. Wren's View - General Maintenance

i. Wren's View - Fencing/Gates/Signage

In regard to fencing, GLA again noted the downed internal chain link fence along a road within the Preserve, a few areas where barbed-wire fencing was damaged along that road, and the same fallen tree on an interior barbed-wire fence as 2019, and provided all locations to OCTA [Exhibit 5 – Trails/Maintenance Map]. In addition, as noted, an OCTA sign was missing and a restoration sign had been marked with graffiti. No issues with gates were observed.

1. Recommendations

Repair or remove the downed internal chain link fence to avoid wildlife entanglement. Remove the previously discussed and mapped internal barbed-wire fencing that does not appear to have a present function and that could pose a risk to wildlife. Continue to coordinate with Transportation Corridor Agencies (TCA) as they are the landowner of the parcel to the west, to determine appropriate fencing needs and improvements to promote wildlife movement between the two properties. In addition, as previously noted, there is a segment of pre-existing chain link fencing along the southern border of the Preserve which could be replaced with smooth wire fencing to facilitate wildlife movement. Replace the missing and graffiti-marked signs.

ii. Wren's View - Trash/Dumping

A hardware store bag with Quikrete was observed. No other issues with trash or dumping were observed.

1. Recommendations

Remove trash and continue to monitor for trash/dumping.

iii. Wren's View - Erosion/Sedimentation

No issues with erosion were noted; however, the access road to the main gate has been known to be an ongoing issue.

1. Recommendations

Repair/control erosion as needed. GLA will continue to monitor the site for erosion effects and will report any changes to OCTA.

iv. Wren's View - Trees

Due to the 2017, 2018, and 2019 on-site identification of ISHB by Dudek, ISHB monitoring and evaluation surveys were conducted in 2020 to evaluate levels of ISHB infestation within the Preserve. Dudek arborists evaluated a total 27 riparian trees within the Wren's View Preserve. Of the 27 trees evaluated, a total of 12 trees exhibited signs and symptoms of ISHB, of which seven were determined to have low infestation rates and five had moderate infestation rates (same results as 2018 and 2019; no newly infested trees were observed. As discussed below, GSOB was positively identified on Wren's View Preserve in 2019 and reconfirmed in 2020. No other new pests and/or disease were observed on the Preserve.

Based on the results of the 2020 surveys, ISHB is considered active within the Wren's View Preserve. However, based on the findings of the 2019 and 2020 ISHB survey, ISHB continues to be in the early stages of infestation. Furthermore, with the exception of two interior trees found on the Wren's View Preserve, the majority of ISHB signs and symptoms continue to be found on the periphery of the western boundary. The observation of ISHB along the site's western boundary along Trabuco Canyon is believed to be due to high infestation levels observed throughout O'Neill Regional Park and ISHB's active spread throughout the region. Alternatively, the observation of ISHB within the interior of the Preserve continues to be considered an outlier from the observed population along the edge of the property. However, based on the ISHB's potential for spread, it is within the ISHB's zone of influence/impact for the area.

Dudek arborists conducted a site visit in June 2019 to confirm the presence of GSOB within a coast live oak tree found to be exhibiting symptoms (D-shaped holes) of GSOB. The samples were confirmed to be GSOB by Kevin Turner (Southern California Invasive Pest Coordinator, Retired) at the University of California Division of Agriculture and Natural Resources. The tree was recommended for removal, which occurred in July 2019. Dudek also conducted GSOB extent and presence/absence surveys of the Wren's View Preserve in 2019 and again in 2020. The 2020 findings were the same as the 2019 findings. In total, Dudek mapped and evaluated 690 coast live oak trees within the Preserve. Of the 690 mapped and evaluated trees, nine were found to exhibit signs of GSOB. Levels of potential GSOB within the nine trees ranged from low (five trees) to moderate (four trees). No trees were found to have high occurrences of GSOB exit holes. The nine trees are comprised of two trees in fair health, three trees in poor health, and four dead trees. The trees exhibiting signs of GSOB are located along Live Oak Canyon Road and along a site access road within the Preserve (Appendix B, Attachment 3).

Overall, 1.3% of the trees inventoried on site were found to exhibit signs of GSOB. The remaining 681 trees were found to exhibit no sign of GSOB. This does not mean that these trees do not have GSOB, it only means that they did not exhibit sign of GSOB at the time of the inventory.

The observation of GSOB within the Wren's View Preserve is considered a threat to Trabuco Canyon's oak tree resources. The total extent of GSOB within the canyon is unknown. However, based on the 2019 and 2020 surveys conducted within the Preserve, the infestation is suspected to be at the early stages and, as such, may be controllable. To manage the observed GSOB outbreak within Wren's View, OCTA has partnered with OCFA. OCFA received funding under the CalFire Fire Prevention Grant Program, to treat infested trees located on both County- and privately-owned properties with a contact insecticide to prevent the spread of resident beetles to neighboring trees and re-infestation of current host trees. In addition, trees lacking pest exit holes, but within approximately 100 meters of trees with exit holes, are treated preventatively with a barrier spray. These trees may either be infested from eggs laid during the previous flight season or may be uninfested but vulnerable due to their proximity to infested trees.

Treatment of infested trees would eliminate pests and slow the spread rate, enhancing the survival rate of existing tree populations. A decrease in tree mortality would ultimately reduce the wildfire risks to habitable structures by reducing potential fuel within parks and adjacent to roads, homes, and HOAs. The treatment involves the spraying of insecticide, using up to two large diesel trucks with attached pressurized rigs, on beetle infested trees. All infested trees are treated with a barrier insecticide to prevent the spread of resident beetles to neighboring trees and re-infestation of current host trees. Contact insecticides kill adult beetles when ingested at emergence and kill eggs laid on the bark surface. These sprays would not control larvae feeding in the tree but are effective at killing adult beetles as they directly contact the insecticide on the bark surface. It is moderately to very toxic to humans and nontoxic to wild bird species, but it is toxic to bees and beneficial insects and would not be applied to flowers when bees are active. Carbaryl is non-toxic to plant species. Furthermore, carbaryl is toxic to aquatic and estuarine invertebrates and would not be applied to water or wetted areas. Treatment of infested trees include oak trees, sycamores, and other infected trees (outside of water areas). Treatment will reduce tree mortality and fire risk, will improve the quality of oak woodland and riparian habitat and natural communities, and will benefit species that occur within those habitats.

One dead oak tree infected with GSOB was removed and chipped by OCFA following the required chipping protocol. The remaining OCTA oak trees with signs of GSOB and oak trees within the 100-meter buffer area, totaling 248 trees, were treated as described above by OCFA the week of May 15, 2020 and as depicted on Exhibit 6.

1. Recommendations

The observation of ISHB signs and symptoms within the interior of Wren's View Preserve is significant due to the risk presented to the adjacent California sycamore tree population. However, all 12 trees exhibited low to moderate signs of ISHB. Furthermore, observed levels of ISHB within the Preserve were consistent with the 2018 and 2019 surveys, and no new occurrences of ISHB were observed. As such, the following treatment options are recommended:

- ISHB Treatment – As with many insect infestations, it is at the early stages that the outbreak/infestation can be controlled. In an effort to maintain and limit the spread of ISHB throughout the remaining areas of the Preserve, it is recommended that the 12 trees observed to have low to moderate signs and symptoms of ISHB be treated by means of a trunk spray with Bifenthrin, Bacillus subtilis, and Pentra-Bark or similar. The above recommended pesticide and fungicide treatments should be conducted by a reputable licensed company that specializes in such and has a Pest Control Advisor and Applicator on staff.
- Monitoring – Dudek recommends that OCTA maintain an active ISHB monitoring and treatment program that focuses on the identified and mapped riparian tree species in Appendix B. Specifically, it is recommended that this program focus on high-priority areas located throughout the Preserve. Areas that should be considered for monitoring include but are not limited to high-use recreation areas, native oak woodlands, and riparian areas that do not contain ISHB, and those areas identified in Appendix B. The frequency of ISHB monitoring within the selected areas should be conducted on a biweekly (i.e., every other week) basis during peak flight season (November through March). Active and frequent monitoring would allow OCTA land managers to quickly identify ISHB and to remove infested material before ISHB spreads into uninfested areas. Routine monitoring of the site will play an important role in managing ISHB within the Preserve.

The confirmation of GSOB infected trees will require retreatment of the same trees (infested trees as well as those within the 100-meter buffer area). It is recommended to conduct this treatment in 2021. Chemical treatments will help to minimize the spread of GSOB and reduce current populations. The Trabuco Canyon area GSOB infestations and treatments are being overseen and implemented by OCFA who is partnering with multiple landowners as well as the California Department of Food and Agriculture. Through this coordination, all adjacent landowners and land managers are coordinating closely to ensure that all known GSOB areas are known and treated. In addition, OCTA is a member of the Emerging

Tree Pests of Orange County Task Force in which data and recommendations are shared with multiple land managers throughout Orange County on a quarterly basis. Similar to ISHB, it will be important to monitor the spread and/or containment of GSOB within Wren's View. As such, it is recommended that OCTA continue annual monitoring of the site for the presence/absence and spread of GSOB on site. It is recommended that the annual surveys occur during peak emergence/flight season for GSOB. This will allow surveyors to assess trees that exhibit newly emerged GSOB and recommend the appropriate treatment if needed.

Live Oak Creek Preserve

a. Live Oak Creek - Plants and Wildlife

i. Live Oak Creek - Covered Wildlife Species

GLA conducted one site visit in 2020, which occurred on December 23. No OCTA M2 Covered Species were detected during monitoring. Previous detections of Covered Species are depicted on Exhibit 3 – OCTA Covered Species Map.

1. Recommendations

Implement effectiveness monitoring in 2021 and continue to map incidental detections through ongoing biological monitoring, or otherwise note the absence of detections in areas where species were previously detected, in order to detect potential trends in population growth or decline. GLA will conduct focused surveys for the gnatcatcher and cactus wren, and visual encounter surveys for coast horned lizard and orangethroat whiptail. GLA biologists will attempt to identify the orangethroat whiptail from the Sonoran whiptail as described above.

ii. Live Oak Creek - Covered Plant Species

One site visit occurred on December 23, 2020. GLA did not confirm previous locations or detect new locations of intermediate mariposa lily at the property. Previous locations of the mariposa lily are depicted on Exhibit 3 – OCTA Covered Species Map.

1. Recommendations

Implement effectiveness monitoring in 2021 in order to detect potential trends in intermediate mariposa lily population growth or decline. Based on below-normal rainfall to date for the 2020/2021 season, GLA recommends postponing Preserve-wide focused plant surveys until at least the following season, but to perform surveys/monitoring of select plant populations in 2021 to obtain count data for general effectiveness monitoring.

iii. Live Oak Creek - Non-Covered Sensitive Wildlife Species

GLA did not detect non-covered sensitive wildlife species while performing biological monitoring in 2020.

1. Recommendations

GLA has no recommendations pertaining to non-covered sensitive wildlife species, other than that the detection of non-covered sensitive species will be documented during ongoing biological monitoring, and the locations of species will be added to the GIS database as is applicable based on the species detected.

iv. Live Oak Creek - Non-Covered Sensitive Plant Species

GLA did not detect non-covered sensitive plant species while performing biological monitoring in 2020.

1. Recommendations

GLA has no recommendations pertaining to non-covered sensitive plant species, other than that the detection of non-covered sensitive species will be documented during ongoing biological monitoring, and the locations of species will be added to the GIS database as is applicable based on the species detected.

v. Live Oak Creek - Wildlife Cameras

Two wildlife cameras were installed on the Preserve in 2018. Through coordination with OCTA, GLA removed the wildlife cameras in November 2019 on an interim basis due to the level of effort and costs associated with maintenance, checking the cameras, and managing the data combined with the lack of new data being collected. While the cameras were installed, deer, coyote, bobcat, and gray fox were detected. In addition, the cameras detected unauthorized people on the Preserve.

1. Recommendations

Since the wildlife cameras are not providing new data, discontinue the use through 2021 unless an issue arises that warrants the usage of the cameras on the property, to use funding resources toward other monitoring activities.

vi. Live Oak Creek - Invasive Plant Species

GLA prepared an ISMP, which was approved by the Wildlife Agencies in 2019. In addition, GLA biologists detected and removed a clump of an invasive plant (stink net) in 2019.

1. Recommendations

Implement ISMP based on priorities outlined in the plan and continue to monitor for stink net.

vii. Live Oak Creek - Invasive Animal Species

GLA did not observe any animal species within the Preserve that would be classified as invasive.

1. Recommendations

The property has the potential to support the brown-headed cowbird, which is a nest parasite. GLA will note the presence of the brown-headed cowbird, as detected, and will provide future recommendations to address the cowbird, if applicable. GLA biologists will attempt to identify the orangethroat whiptail from the Sonoran whiptail as described above.

b. Live Oak Creek - Human Environment

i. Live Oak Creek - Land Use

Public access is not currently authorized at the Live Oak Creek Preserve. GLA did not observe any new trail cuts. Wildlife cameras have historically documented occasional unauthorized access.

1. Recommendations

The site will continue to be monitored to document unauthorized access and activities, including by OCTA's private security company and GLA's monitoring team. As part of GLA's efforts, the biological monitors will periodically check any evidence of habitat disturbance within the Preserve due to human activity.

The RMP for the Preserve describes additional methods to support compliance with the RMP restrictions and enforcement actions as detailed above.

ii. Live Oak Creek - Adjacent Land Use

No vegetation encroachments, excessive irrigation runoff from adjacent property owners, or other adjacency issues were observed. RECON completed fuel modification work around the neighboring houses within the appropriate limits in May 2020.

1. Recommendations

None.

iii. Live Oak Creek - Site/Trail Use

The Preserve contains one main dirt access road that enters the Preserve off of Live Oak Canyon Road. A series of small dirt trails also exists on the Preserve. The December 23, 2020 monitoring indicated that the decommissioned foot trails have filled in with non-native grasses and the maintained foot trails for Preserve management have filled in with native species making distinguishing either trail difficult. Exhibit 5 [Trails/Maintenance Map] depicts the location and type of each trail use. As noted above, wildlife cameras have previously unauthorized access on the Preserve.

1. Recommendations

Maintain the Preserve management foot trails. GLA will continue to monitor the site to document unauthorized trail use.

c. Live Oak Creek - General Maintenance

i. Live Oak Creek - Fencing/Signage/Gates

No issues with fencing, signage and gates were observed. The Preserve RMP refers to a section of chain link fencing that demarcates the boundary between the Preserve and an adjoining property (19071 Live Oak Canyon Road). The RMP states that a portion of the fence that crosses a drainage feature may be altering the natural function of the waterway. In 2018, GLA reviewed this area of fencing with OCTA, as well as internal fencing recommended for removal, and provided the GPS location to OCTA. The RMP recommends to further coordinate with the adjoining landowner to identify alternate solutions that would not affect the functions of the waterway while maintaining a barrier with the adjoining property.

1. Recommendations

Continue monitoring for fencing, signage, and gate repair needs. GLA recommends ongoing coordination with the landowner at 19071 Live Oak Canyon Road regarding the section of fencing identified in the RMP. GLA also recommends the removal of the internal fencing mapped by GLA.

ii. Live Oak Creek - Trash/Dumping

No issues with trash or dumping were observed.

1. Recommendations

None.

iii. Live Oak Creek - Erosion/Sedimentation

No erosion/sedimentation was observed requiring action.

1. Recommendations

None.

iv. Live Oak Creek - Trees

The team arborist, Dudek, conducted invasive shot hole borer (ISHB; *Euwallacea* sp.) surveys in June and July 2017. No sign and/or symptom of ISHB was observed. Dudek conducted emergent pest trapping in July 2019 and a visual evaluation on May 21, 2020 to re-evaluate for the presence of ISHB and found no sign and/or symptom of ISHB during either survey. The report containing detailed information of this study dated June 5, 2020 is attached as Appendix E.

1. Recommendations

Continue to monitor the site for signs and/or symptoms of ISHB following recommendations in Appendix B.

Eagle Ridge Preserve

a. Eagle Ridge - Plants and Wildlife

i. Eagle Ridge - Covered Wildlife Species

GLA was only able to conduct one site visit in 2020, which occurred on December 23. As a result, no OCTA M2 Covered Wildlife Species were detected during biological monitoring.

1. Recommendations

Implement effectiveness monitoring in 2021 and continue to map incidental detections through ongoing biological monitoring, or otherwise note the absence of detections in areas where species were previously detected, in order to detect potential trends in population growth or decline. GLA will conduct focused surveys for least Bell's vireo and visual encounter surveys for coast horned lizard and orangethroat whiptail. GLA biologists will attempt to identify the orangethroat whiptail from the Sonoran whiptail as described above. GLA will also re-assess whether there are opportunities to create habitat for the pond turtle after the cattle are removed from the site.

ii. Eagle Ridge - Covered Plant Species

GLA conducted one site visit on December 23, 2020. As a result, no Covered Plant Species were detected at the property.

1. Recommendations

Implement effectiveness monitoring in 2021 in order to potentially detect many-stemmed dudleya, intermediate mariposa lily, and southern tarplant. Based on below-normal rainfall to date for the 2020/2021 season, GLA recommends postponing Preserve-wide focused plant surveys until at least the following season.

iii. Eagle Ridge - Non-Covered Sensitive Wildlife Species

GLA did not detect non-covered sensitive wildlife species while performing biological monitoring.

1. Recommendations

GLA has no recommendations pertaining to non-covered sensitive wildlife species, other than that the detection of non-covered sensitive species will be documented during ongoing biological monitoring, and the locations of species will be added to the GIS database as is applicable based on the species detected.

iv. Eagle Ridge - Non-Covered Sensitive Plant Species

GLA did not detect non-covered sensitive plant species while performing biological monitoring.

1. Recommendations

GLA has no recommendations pertaining to non-covered sensitive plant species, other than that the detection of non-covered sensitive species will be documented during ongoing biological monitoring, and the locations of species will be added to the GIS database as is applicable based on the species detected.

v. Eagle Ridge - Wildlife Cameras

Three wildlife cameras were installed on the Preserve in 2018. Through coordination with OCTA, GLA removed the wildlife cameras in October 2019 on an interim basis due to the level of effort and costs associated with maintenance, checking the cameras, and managing the data combined with the lack of new data being collected. While the cameras were installed, deer, coyote, and bobcat were detected. In addition, the cameras regularly detected feral cattle using the property, as well as occasional occurrences of trespassing (mountain biking and hiking).

1. Recommendations

Since the wildlife cameras are not providing new data, discontinue the use through 2021 unless an issue arises that warrants the usage of the cameras on the property, to use funding resources toward other monitoring activities.

vi. Eagle - Invasive Plant Species

GLA prepared an ISMP, which was approved by the Wildlife Agencies in 2019.

1. Recommendations

Implement ISMP based on priorities outlined in the plan, after removal of the cattle.

vii. Eagle Ridge - Invasive Animal Species

GLA did not observe any animal species within the Preserve that would be classified as invasive.

1. Recommendations

The property has the potential to support the brown-headed cowbird, which is a nest parasite. GLA will note the presence of the brown-headed cowbird, as detected, and will provide future recommendations to address the cowbird, if applicable. GLA biologists will attempt to identify the orangethroat whiptail from the Sonoran whiptail as described above.

b. Eagle Ridge - Human Environment

i. Eagle Ridge - Land Use

Public access is not currently authorized at the Eagle Ridge Preserve. GLA did not observe any new trail cuts. Wildlife cameras have historically documented multiple occurrences of unauthorized access, including mountain biking, hiking including with dogs, and horseback riding. In addition, cattle are heavily using the property, and have been detected by GLA biologists in the field, as well as by the wildlife

cameras. GLA biologists observed five cows during the monitoring on December 23, 2020. Additionally, the biologists encountered Joanne Friend, who let them into the Carbon Canyon gate (ridge) (OCTA's lock was not present), and who requested OCTA staff to call her to discuss the cattle situation on OCTA/Chino Hills State Park land as she has six remaining cows on the land.

1. Recommendations

The site will continue to be monitored to document unauthorized access and activities by GLA's monitoring team. As part of GLA's efforts, the biological monitors will periodically check any evidence of habitat disturbance within the Preserve due to human activity. As applicable, wildlife camera photos will also be reviewed for this purpose.

The RMP for the Preserve describes additional methods to support compliance with the RMP restrictions and enforcement actions as detailed above.

The cattle should be removed from the property as soon as possible, since the cows are heavily degrading portions of the site through grazing, trampling, and manure. OCTA has been working with Chino Hills State Park to identify where the cattle are accessing the Preserve and how to safely remove them. OCTA should call Joanne Friend to discuss removing her six cattle from the Preserve.

ii. Eagle Ridge - Adjacent Land Use

No vegetation encroachments, excessive irrigation runoff from adjacent property owners, or other adjacency issues were observed.

1. Recommendations

None.

iii. Eagle Ridge - Site/Trail Use

The western portion of the Preserve contains a primary ridge road that is accessible from Carbon Canyon Road, as well as a trail in the bottom of the main canyon in the middle of the Preserve. Multiple historical occurrences of unauthorized use have been documented through the wildlife cameras, including mountain biking, hiking, and equestrian use.

1. Recommendations

GLA will continue to monitor the site to document unauthorized use.

c. Eagle Ridge - General Maintenance

i. Eagle Ridge - Fencing/Signage/Gates

GLA noted during the December 23, 2020 biological monitoring visit that OCTA's lock to the Carbon Canyon gate (ridge) was missing.

1. Recommendations

Replace OCTA's lock at the Carbon Canyon gate (ridge). GLA will continue to monitor the site to document fencing, signage, and gate issues.

ii. Eagle Ridge - Trash/Dumping

No issues with trash or dumping were observed.

1. Recommendations

None.

iii. Eagle Ridge - Erosion/Sedimentation

No issues with erosion or sedimentation were noted on the Preserve.

1. Recommendations

None.

iv. Eagle Ridge - Trees

No issues with trees were observed.

1. Recommendations

None.

C. GIS Data

Included in this report submittal to OCTA is the comprehensive GIS dataset for the Preserves, which contains all biological monitoring data collected to date for the Preserves by any contractor, updated as appropriate.

D. CNDDDB Submittals

GLA will submit CNDDDB records for sensitive species detected during biological monitoring, including new detections of covered species.

IV. MANAGEMENT RECOMMENDATIONS

A summary of management recommendations for the ongoing management of resources at the M2 Preserves is provided below. General summaries of management recommendations applicable to all Preserves are included first, with management recommendations specific to each Preserve following. Adaptive management strategies related to public access and wildlife activity (i.e. covered animals), covered plants and vegetation management, and trails revegetation and/or decommissioning have been included to improve future management actions.

A. Covered Species

For covered plant species, implement effectiveness monitoring in 2021. The RMP indicates that focused surveys for Covered Plants are to be conducted every three to five years depending on precipitation. Based on below-normal rainfall to date for the 2020/2021 season, GLA recommends postponing Preserve-wide focused plant surveys until at least the following season, but to perform surveys/monitoring of select plant populations in 2021 to obtain count data for general effectiveness monitoring and collecting trend data related to rainfall. Incidental detections will be obtained through ongoing biological monitoring, including the mapping of species in new locations, or confirming presence in locations of previous detections. Monitoring should include areas of documented mariposa lily and suitable habitat along access roads where maintenance occurs, to confirm that the maintenance activities are not adversely affecting mariposa lily populations.

For covered animal species, implement effectiveness monitoring in 2021. Focused surveys will be performed for the coastal California gnatcatcher and cactus wren following protocols identified in the Preserve RMPs, supplemented by incidental detections obtained during general biological monitoring. However, incidental detections for the covered reptiles (orangethroat whiptail and coast horned lizard) and mammals (bobcat and mountain lion) are unpredictable, and oftentimes rare. Focused visual encounter surveys will be performed in 2021 for reptiles, with the focus on orangethroat whiptail and coast horned lizard. The reptile surveys are intended to follow a time-constrained methodology identified in the Preserve RMPs, although GLA will implement a modified methodology better suited for the Preserves that will be reviewed by USFWS and CDFW. As noted above, an invasive lizard (Sonoran whiptail) has been detected within Orange County that looks very similar to the orangethroat whiptail. Although the Sonoran whiptail has not yet been observed near any of the OCTA Preserves, GLA biologists will attempt to identify the orangethroat whiptail from the Sonoran whiptail as described above.

Monitoring of the mammals are best achieved through the ongoing use of wildlife cameras (as discussed below), supplemented by the detection of tracks and/or scat during general monitoring. As applicable, analyze data in order to detect potential trends in population growth or decline. Non-covered sensitive species detected during general monitoring should be added to the GIS database as is applicable based on the species detected.

B. Wildlife Cameras

Wildlife cameras are a valuable tool in tracking wildlife use and abundance throughout the Preserves, as well to provide a potential secondary benefit of documenting unauthorized human uses. Wildlife cameras were generally not used in 2020 due to contract limitations, but are intended to be re-installed at select Preserves for 2021 monitoring. Specific recommendations for each Preserve in regard to wildlife cameras are provided below. Where cameras are present, as part of adaptive management strategies, photographs should be reviewed regularly to determine whether cameras should be moved to provide better or additional data.

C. Unauthorized Access

The Preserves will continue to be monitored to document unauthorized access and activities, including by OCTA's private security company, the Orange County Sheriff Department's mounted unit, and GLA's monitoring team. Where present, perimeter fencing will be checked periodically. As part of adaptive management strategies, the frequency of this monitoring will be adjusted as needed based on information collected during other monitoring visits, such as presence of trash, new trails, or vegetation encroachments.

Also, as part of adaptive management strategies, signage, fencing, placement of cactus, or other means may be recommended in areas where unauthorized access is occurring to help deter the public from entering the Preserve or sensitive areas (if public access is allowed).

Since the Pacific Horizon Preserve is open for public access, there are challenges for monitoring authorized from unauthorized activities. The public education and outreach program for Trabuco Rose, Pacific Horizon, and Wren's View Preserves are in part intended to communicate the importance of self-monitoring in reinforcing the value and purpose of the Preserve. The docent program was not active in 2020 due to the COVID-19 pandemic. GLA recommends that the public use restrictions be reinforced as frequently as necessary during the various public outreach events at those three properties. The RMP for the Preserve describes additional methods to support compliance with the RMP restrictions and enforcement actions as detailed above.

D. General Maintenance

Maintenance should be performed as needed and as applicable to fencing, gates, and roads/trails at each of the Preserves, including checking for slacked wire that may pose an entanglement threat to wildlife. Remnant barbed wire fencing should be removed, as recommended. GLA will identify future maintenance concerns as part of ongoing monitoring. As part of adaptive management strategies, GLA recommends conducting Preserve monitoring visits after heavy rainfall events to inspect for erosion and sedimentation.

Trail/road erosion should be repaired and/or controlled, as needed. GLA will continue to monitor the Preserves for erosion effects and will report any issues to OCTA.

Trees within the Preserves should continue to be monitored for signs of infestation. GLA will continue to coordinate with OCTA regarding GSOB and ISHB and will consult with GLA's team arborist as needed for recommendations to monitor trees within the Preserves, and to track/control any documented infestations.

Trabuco Rose Preserve

As stated above, GLA recommends postponing Preserve-wide focused plant surveys due to below-normal rainfall.

The cactus wren was detected at the Preserve during past baseline studies/monitoring and was also detected incidentally in one location during the single biological monitoring visit in 2020 coinciding with a prior detection. Suitable cactus scrub should be inspected during ongoing monitoring to check for the presence of cactus wren. The coastal California gnatcatcher was not detected at the Preserve in 2020, although the gnatcatcher was detected during previous biological monitoring and during baseline surveys. Focused surveys will be performed for the coastal California gnatcatcher and cactus wren in 2021 following protocols identified in the Preserve RMP.

Focused visual encounter surveys will be performed in 2021 for reptiles, with the focus on orangethroat whiptail and coast horned lizard.

Mountain lion and bobcat usage at the Preserve has been well-documented via wildlife cameras, as well as tracks, scat, and direct observation. Since the wildlife cameras continue to provide useful data for wildlife

use, especially for mountain lions, at least some cameras should be re-installed and remain on the property as long as there is a budget to cover such monitoring.

Implementation of the ISMP is ongoing. RECON conducted initial treatment of the Priority 1 invasive species and some of the Priority 2 invasive species in fall 2018. RECON conducted follow-up treatment in spring 2019 and primarily retreated artichoke thistle/cardoon. Additional follow-up retreatments of artichoke thistle/cardoon were conducted in January and February 2020. No retreatment of pampas grass or salt cedar was necessary in 2020. Continue to implement the ISMP, including monitoring areas that have been treated.

GLA did not observe any trespassers in 2020; however, trespassing has been well-documented by GLA, OCTA's private security company, and wildlife cameras in the past. The site will continue to be monitored to document unauthorized access and activities, including by OCTA's private security company and GLA's monitoring team. Since the wildlife cameras continue to provide useful data for human use, at least some cameras should be re-installed and remain on the property as long as there is a budget to cover such monitoring.

GLA will continue to monitor the decommissioned trails until they have passively revegetated. GLA will continue to monitor the site for erosion effects and will report any changes to OCTA. GLA did not identify any maintenance needs related to existing fencing, signage, or gates, but will continue to monitor for any issues.

The observation of ISHB signs and symptoms within the interior of Trabuco Rose Preserve is significant due to the risk presented to the adjacent California sycamore tree population. However, all eight of the trees exhibited low to moderate signs of ISHB. Furthermore, observed levels of ISHB within the Preserve were consistent with the 2018 and 2019 surveys, and no new occurrences of ISHB were observed. Chemical treatment and ongoing monitoring are recommended as detailed above and as previously provided to OCTA.

Pacific Horizon Preserve

As previously stated, GLA recommends postponing Preserve-wide focused plant surveys due to below-normal rainfall. Additionally, GLA recommends the continued monitoring of the dudleya population relative to potential mountain bike activity for potential disturbance.

The cactus wren has not been previously observed at the Preserve; however, the Preserve contains some limited suitable habitat for the species. Ongoing monitoring should inspect cactus scrub each season to note any detections of cactus wren. Although the site contains limited habitat for the coastal California gnatcatcher, a gnatcatcher has been detected in multiple years near the western boundary. A gnatcatcher was also detected in 2019 in the northern portion of the property. These areas should be inspected annually to note any incidental gnatcatcher detections. Focused surveys will be performed for the coastal California gnatcatcher and cactus wren in 2021 following protocols identified in the Preserve RMP.

Focused visual encounter surveys will be performed in 2021 for reptiles, with the focus on orangethroat whiptail and coast horned lizard.

The Preserve is likely utilized by bobcats, though none have been incidentally detected at the site during baselines studies or subsequent monitoring. However, the Preserve is not expected to be utilized by mountain lions due to its location. Wildlife cameras will assist in the detection of any bobcats at the Preserve.

Invasive species are present on the Preserve. Pampas grass was treated in October 2020. GLA recommends that OCTA continue to implement the approved ISMP and DLRP based on priorities outlined in the plans.

Monitoring visits have confirmed that public access is occurring at the Pacific Horizon Preserve. To better understand the level of access GLA has recommended the placement of cameras. The cameras will also help document wildlife species and movement on the site.

Due to the public-use trail in the northern portion of the Preserve, the monitoring of authorized from unauthorized uses along the trail is challenging. As discussed above, two existing trail access points at the northern boundary were decommissioned in 2020. However, the fencing to block access has been cut and the decommissioned trail area is still being heavily utilized. As part of adaptive management strategies GLA recommends implementing the restoration component of the DLRP by placing cactus cuttings as soon as possible to further deter access. Additionally, trail modifications for unauthorized mountain bike use should be repaired along with damaged fencing in this area.

GLA also documented a newly cut spur trail off the decommissioned trail in the east totaling approximately 725 linear feet. As part of adaptive management strategies, the cut native vegetation that's laying around the trail and on top of native scrub should be placed within the trail area to break down and visually obscure trail.

As part of adaptive management strategies, trails should be inspected for erosion after large storm events. GLA will continue to note future maintenance needs during ongoing monitoring.

The southern Preserve boundary with The Ranch will be monitored for unauthorized activities, including maintenance crews associated with the golf course.

There are currently no recommendations regarding trees at Pacific Horizon Preserve.

Bobcat Ridge Preserve

As previously stated, GLA recommends postponing Preserve-wide focused plant surveys due to below-normal rainfall. As part of adaptive management strategies, the monitoring of known populations of intermediate mariposa lily should include additional focus on the area of disturbance along the southern boundary to determine the potential extent of impact due to the disturbance.

The cactus wren was detected at the Preserve during past baseline studies/monitoring and was also detected during biological monitoring in 2020. GLA biologists detected a pair of cactus wren during a monitoring visit and heard cactus wren on a separate visit. The coastal California gnatcatcher has not been previously detected at the Preserve, although the site does contain suitable habitat for the gnatcatcher. Focused surveys will be performed for the coastal California gnatcatcher and cactus wren in 2021 following protocols identified in the Preserve RMP.

Focused visual encounter surveys will be performed in 2021 for reptiles, with the focus on orangethroat whiptail and coast horned lizard.

The Preserve is likely utilized by bobcat and mountain lion, although neither have been detected during baseline surveys/monitoring. Wildlife cameras were installed in July 2019 to assist in the detection of both species at the Preserve. A trash bag had been placed and taped over Camera B when monitors checked in May 2020. Otherwise, the cameras only captured moving vegetation and an image of a man walking through the Preserve prior to running out of memory space. As part of adaptive management strategies, GLA will adjust the cameras and/or recommend vegetation trimming in 2021 to capture additional data.

Invasive species are present on the Preserve. GLA recommends that OCTA implement the approved ISMP based on priorities outlined in the plan and to continue to monitor for stink net, which has been previously detected and removed adjacent to the Preserve boundary.

As noted above, two wildlife cameras were installed in 2019. Deer and fox were identified in 2019 on the cameras. GLA recommends the continued use for tracking wildlife use, as well as for the secondary benefit of noting unauthorized activities.

Public access is prohibited at the Bobcat Ridge Preserve. The Preserve has one north-south trail for access along the main ridge traversing the middle of the Preserve, with rural residential areas located to the north and south. The presence of private property on both the north and south establishes a definite need to monitor unauthorized access and activities within the Preserve. Monitoring is particularly critical along the southern boundary where the adjacent landowner created access during or before January 2017 and re-disturbed in November 2017, May or June 2019, and again prior to the annual monitoring on May 26, 2020, resulting in ongoing habitat disturbance within the Preserve. As part of adaptive management strategies, GLA will continue to monitor the Re-disturbed and Previously Disturbed Areas as detailed above. The RMP also notes an unauthorized trail adjacent to the Preserve that was documented in 2014. The Preserve will continue to be monitored for unauthorized activities, including utilizing the wildlife cameras for this purpose.

GLA did not identify any maintenance needs related to existing fencing. One OCTA Preserve sign had been removed from the pole and the other two signs were loose; GLA recommended replacement/maintenance to OCTA.

No sign and/or symptom of ISHB was observed during surveys in 2020. However, ongoing monitoring is recommended since it is at the early stages that any outbreak/infestation can be controlled.

Silverado Chaparral Preserve

As previously stated, GLA recommends postponing Preserve-wide focused plant surveys due to below-normal rainfall.

The cactus wren is not expected to occur at the Preserve due to the general lack of suitable habitat. A small amount of cactus scrub was noted in the southwestern portion of the site during the last monitoring cycle, and future monitoring should include that area at least annually to inspect for cactus wren. The coastal California gnatcatcher has not been previously detected at the Preserve although there is a low potential for

occurrence. Focused surveys will be performed for the coastal California gnatcatcher and cactus wren in 2021 following protocols identified in the Preserve RMP.

The coast horned lizard has been detected at the Preserve in multiple locations during the last monitoring cycle, and during previous baseline work. GLA mapped potential invasive ant species that could represent a threat to coast horned lizards, as well as other native harvester ant colonies. Eradication of invasive ant species would be achieved through chemical treatment, if it were determined that extent of invasive ants warranted treatment. However, the site would need to be studied to know the full extent of invasive ant colonies to determine the efficacy of treatment. The orangethroat whiptail was not detected during the last monitoring cycle but was detected in the past at one location. Focused visual encounter surveys will be performed in 2021 for reptiles, with the focus on orangethroat whiptail and coast horned lizard.

GLA previously detected bobcat at the Preserve via wildlife cameras. The Preserve is likely utilized by mountain lion and was detected via tracks during past visits by OCTA and OC Parks staff. Future wildlife cameras use at the Preserve will assist in the detection of both species at the Preserve.

Invasive species are present on the Preserve. GLA recommends that OCTA implement the approved ISMP based on priorities outlined in the plan.

As noted above, two wildlife cameras were installed in 2019. Wildlife cameras detected deer and bobcat. Cameras also detected unauthorized people and dogs on the Preserve. One camera was stolen approximately one month after installation. Through coordination with OCTA, GLA removed the remaining wildlife camera on an interim basis in September 2019 due to the theft risk as well as reducing the effort through the winter months to save funding for spring monitoring. The Preserve is large in size with multiple trails extending through both ridgelines and canyons, providing considerable opportunity for camera use; however, as noted above, posts are necessary to secure the cameras. As such, GLA recommends re-installing wildlife cameras for tracking wildlife use with increased security for the cameras such as cemented poles and boxes.

Open public access is not currently authorized at the Silverado Chaparral Preserve. As part of GLA's efforts, the biological monitors periodically check for any evidence of habitat disturbance within the Preserve due to human activity. GLA documented mountain biking usage on all major trails. As noted above, wildlife cameras previously detected unauthorized mountain bikers, people, and dogs on the Preserve. Additional fencing with signage was installed to block access to newly cut trails and demarcate property boundaries; however, fencing in three new areas was cut. The site will continue to be monitored to document unauthorized access and activities, including by OCTA's private security company and GLA's monitoring team. In addition, the fence lines will be repaired and signage replaced, as necessary. As part of adaptive management, GLA will recommend future fencing/signage needs to address mountain bike use.

Due to the unauthorized trail use, revegetation assessment of trails has not been conducted. For the trails to revegetate, the unauthorized use will need to cease. As part of adaptive management strategies, GLA will continue to assist OCTA with OC Parks and Irvine Ranch Conservancy coordination to deter unauthorized access and restore the mountain biking disturbed areas. GLA will continue to monitor the trail use and any vegetation changes on the trails (or new trails) within the Preserve.

Due the relative remoteness of the Silverado Chaparral Preserve and the observation of unauthorized activities related to mountain bike use, ongoing monitoring is critical. Public outreach is recommended to

educate the public regarding allowable and unauthorized uses. OCTA and Irvine Ranch Conservancy have begun discussions to plan guided tours that would occur on the OCTA Preserve.

No issues with trees were observed. There are currently no recommendations regarding trees at Silverado Chaparral Preserve.

Wren's View Preserve

As previously stated, GLA recommends postponing Preserve-wide focused plant surveys due to below-normal rainfall. As part of adaptive management strategies, if road maintenance is necessary when intermediate mariposa lily is present, schedule biological monitors to flag the plants so that individuals can be seen more easily for avoidance and consider biological monitoring during work activities, especially for areas where intermediate mariposa lily is located within the road or adjacent.

Ongoing monitoring of the Preserve will continue to include general inspections for the cactus wren and the coastal California gnatcatcher. The locations where cactus wrens were detected during the last monitoring cycle should be reviewed at least annually to determine current status, and additional cactus scrub with the potential for the cactus wren should also be monitored. Although the gnatcatcher was not observed during the previous monitoring cycle, areas of suitable coastal sage scrub should be inspected at least annually during the peak breeding season (April to June) and any incidental detections should be noted. Focused surveys will be performed for the coastal California gnatcatcher and cactus wren in 2021 following protocols identified in the Preserve RMP.

The orangethroat whiptail was detected at the Preserve in multiple locations during previous monitoring visits and during the baseline work. Although the coast horned lizard has not been previously detected at the Preserve, the site has the potential to support the species. Focused visual encounter surveys will be performed in 2021 for reptiles, with the focus on orangethroat whiptail and coast horned lizard.

Bobcat scat and mountain lion tracks have been documented at the Preserve. Three wildlife cameras were installed at the Preserve in 2018 and discontinued in October 2019. While the cameras were installed, mountain lion and bobcat were identified on the wildlife cameras, as were coyote, fox, and deer; however, no new data is being obtained. Since the wildlife cameras are not providing new data, discontinue the use through 2021 to use funding resources toward other monitoring activities. As part of adaptive management strategies, the cameras may be reinstalled should an issue arise that warrants the usage of the cameras on the property.

The Wren's View Preserve has the potential for ongoing unauthorized public access and some minor evidence of unauthorized public access was detected during biological monitoring (trash, graffiti, and a missing sign). No habitat disturbance was observed. The site will continue to be monitored to document unauthorized access and activities, including by OCTA's private security company and GLA's monitoring team. As part of GLA's efforts, the biological monitors will periodically check any evidence of habitat disturbance within the Preserve due to human activity. As noted above, since the wildlife cameras are not providing new data, discontinue the use through 2021 to use funding resources toward other monitoring activities. As part of adaptive management strategies, the cameras may be reinstalled should an issue arise that warrants the usage of the cameras on the property. Future monitoring will continue to include perimeter fencing where encroachment potential exists. In general, the site will continue to be monitored for trespassing through the property.

Repair, remove, or replace, as appropriate, the fencing as described above. Through collaboration with TCA, the western edge of the property should continue to be assessed for potential fencing modifications to support wildlife movement. GLA will continue to note future maintenance needs during ongoing monitoring.

No issues with erosion were noted; however, the access road to the main gate has been known to be an ongoing issue. As part of adaptive management strategies, trails should be inspected for erosion after large storm events. GLA will continue to note future maintenance needs during ongoing monitoring.

The observation of ISHB signs and symptoms within the interior of Wren's View Preserve is significant due to the risk presented to the adjacent California sycamore tree population. However, observed levels of ISHB within the Preserve were consistent with the 2018 and 2019 surveys, and no new occurrences of ISHB were observed. Chemical treatment and ongoing monitoring are recommended as detailed above and previously provided to OCTA.

The observation of GSOB within the Wren's View Preserve is considered a threat to the canyon's oak tree resources. It is recommended that OCTA follow the protocol to manage the GSOB outbreak, as detailed above. In addition to treating and managing the outbreak in Wren's View, it is recommended that OCTA work with adjacent landowners, as feasible, to identify and manage GSOB.

Live Oak Creek Preserve

As previously stated, GLA recommends postponing Preserve-wide focused plant surveys due to below-normal rainfall.

Ongoing monitoring of the Preserve will continue to include general inspections for the cactus wren and the coastal California gnatcatcher. Cactus wrens were not detected during the 2020 monitoring cycle, although monitoring visits were limited in 2020 due to contractual limitations. The locations where cactus wrens were previously detected should be reviewed at least annually to determine current status, and additional cactus scrub with the potential for the cactus wren should also be monitored. Although the gnatcatcher was not observed during the previous monitoring cycle, areas of suitable coastal sage scrub should be inspected at least annually during the peak breeding season (April to June) and any incidental detections should be noted. Focused surveys will be performed for the coastal California gnatcatcher and cactus wren in 2021 following protocols identified in the Preserve RMP.

Focused visual encounter surveys will be performed in 2021 for reptiles, with the focus on orangethroat whiptail and coast horned lizard.

Wildlife cameras were installed at the Preserve in 2018 and discontinued in November 2019. While the cameras were installed, deer, coyote, bobcat, and gray fox were detected; however, no new data is being obtained. Since the wildlife cameras are not providing new data, discontinue the use through 2021 to use funding resources toward other monitoring activities. As part of adaptive management strategies, the cameras may be reinstalled should an issue arise that warrants the usage of the cameras on the property.

Invasive species are present on the Preserve as outlined in the ISMP. GLA recommends that OCTA implement the approved ISMP based on priorities outlined in the plan and to continue to monitor for stink net, which was detected in 2019.

As noted above, new data is not being obtained with the cameras and the use will be discontinued through 2021 unless a need arises.

No specific issues were identified at the Preserve requiring future maintenance. GLA recommends coordination with the landowner at 19071 Live Oak Canyon Road regarding the section of fencing that crosses a drainage, identified in the RMP. GLA also recommends the removal of the internal fencing mapped by GLA. GLA will note future maintenance needs during ongoing monitoring.

No sign and/or symptom of ISHB was observed during surveys in 2020. However, ongoing monitoring is recommended since it is at the early stages that any outbreak/infestation can be controlled.

Eagle Ridge Preserve

As previously stated, GLA recommends postponing Preserve-wide focused plant surveys due to below-normal rainfall.

Focused surveys will be performed for the least Bell's vireo in 2021 following protocols identified in the Preserve RMP. The Preserve is generally not expected to support the cactus wren or the coastal California gnatcatcher due to a lack of habitat, particularly the cactus wren due to the lack of cactus scrub. As such, focused surveys will not be conducted for these species. However, the Preserve should still be generally reviewed annually for the gnatcatcher during ongoing monitoring.

Focused visual encounter surveys will be performed in 2021 for reptiles, with the focus on orangethroat whiptail and coast horned lizard.

The site should be further investigated to determine if there are opportunities to create habitat for the pond turtle, based on the hydrology and topography of the creek; however, the cattle needs to be removed prior to any restoration efforts taking place.

GLA established three wildlife camera stations in 2018 and discontinued in 2019. While the cameras were installed, deer, coyote, and bobcat were detected; however, no new data is being obtained. Since the wildlife cameras are not providing new data, discontinue the use through 2021 to use funding resources toward other monitoring activities. As part of adaptive management strategies, the cameras may be reinstalled should an issue arise that warrants the usage of the cameras on the property.

Invasive species are present on the Preserve. GLA recommends that OCTA implement the approved ISMP based on priorities outlined in the plan once the cattle are removed from the property.

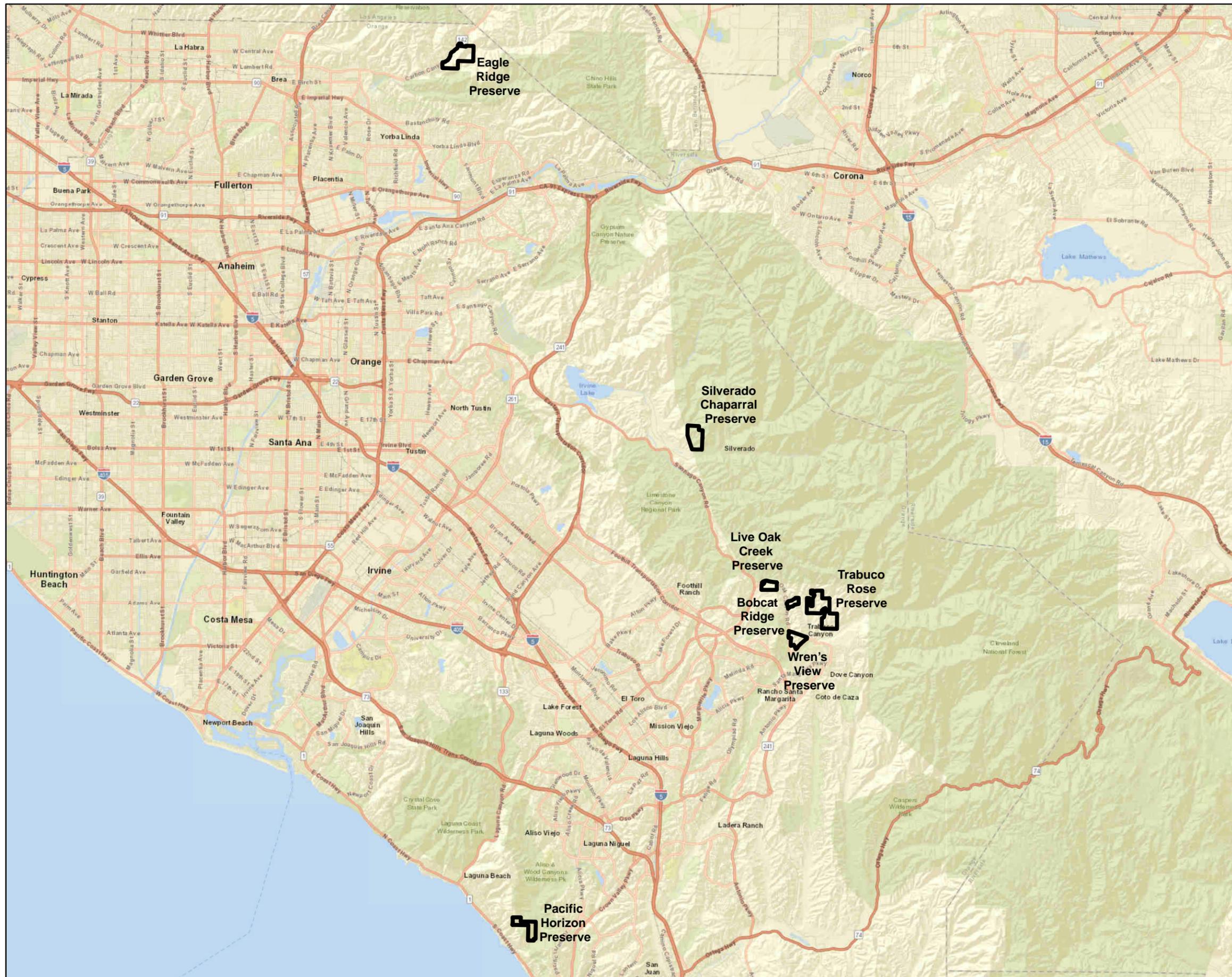
Wildlife cameras have previously documented multiple occurrences of unauthorized mountain biking, hiking, and equestrian use. In addition, cattle are currently on the Preserve causing on-going impacts. The cattle should be removed from the property as soon as possible, since the cows are heavily degrading portions of the site through grazing, trampling, and manure. The Preserve will continue to be monitored for unauthorized

activities. As part of GLA's efforts, the biological monitors will periodically check any evidence of habitat disturbance within the Preserve due to human activity. Since the wildlife cameras are not providing new data, discontinue the use through 2021 to use funding resources toward other monitoring activities. As part of adaptive management strategies, the cameras may be reinstalled should an issue arise that warrants the usage of the cameras on the property.

OCTA should replace their lock to the Carbon Canyon gate, which is missing. GLA will note future maintenance needs during ongoing monitoring.

No issues with trees were observed. There are currently no recommendations regarding trees at Eagle Ridge Preserve.

P:\Clients\1184GENERAL\1184-2MONI\AnnualReports\Annual Report-M2Preserves-2020



 OCTA Preserve Boundaries



1 inch = 3 miles

OCTA PRESERVES
Location Map

GLENN LUKOS ASSOCIATES



Exhibit 1



Photograph 1: View from Permanent Photo Station #1. Photo taken January 6, 2021.



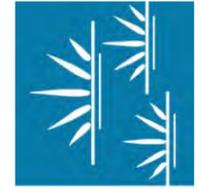
Photograph 2: View from Permanent Photo Station #1. Photo taken September 26, 2013.



Photograph 3: View from Permanent Photo Station #2. Photo taken January 6, 2021.



Photograph 4: View from Permanent Photo Station #2. Photo taken September 26, 2013.



GLENN LUKOS ASSOCIATES

Exhibit 2A1

TRABUCO ROSE PRESERVE
Monitoring Photos



Photograph 5: View from Permanent Photo Station #3. Photo taken January 6, 2021.



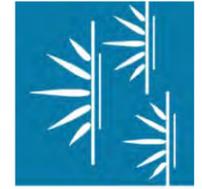
Photograph 6: View from Permanent Photo Station #3. Photo taken September 26, 2013.



Photograph 7: View from Permanent Photo Station #4. Photo taken January 6, 2021.



Photograph 8: View from Permanent Photo Station #4. Photo taken September 26, 2013.



GLENN LUKOS ASSOCIATES

Exhibit 2A2



TRABUCO ROSE PRESERVE

Monitoring Photos



Photograph 9: View from Permanent Photo Station #5. Photo taken January 6, 2021.



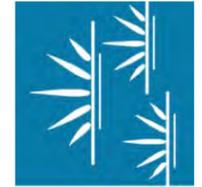
Photograph 10: View from Permanent Photo Station #5. Photo taken September 26, 2013.



Photograph 11: View of large area of stream erosion adjacent to the access road east of the main gate (near the secondary gate). Photo taken December 22, 2020.



Photograph 12: View of road in need of maintenance – vegetation removal and filling in erosional areas. Photo taken December 22, 2020.



GLENN LUKOS ASSOCIATES

Exhibit 2A3

TRABUCO ROSE PRESERVE

Monitoring Photos



Photograph 1: View of newly installed wire fence with OCTA sign. Photo taken December 22, 2020.



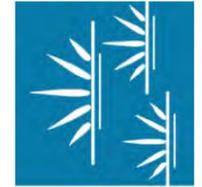
Photograph 2: View of newly installed wire fence that needs repaired. Photo taken December 22, 2020.



Photograph 3: View of decommissioned trail/mountain bike disturbance area that has additional disturbance. Photo taken December 22, 2020.



Photograph 4: View of missing OCTA Preserve sign. Photo taken December 22, 2020.

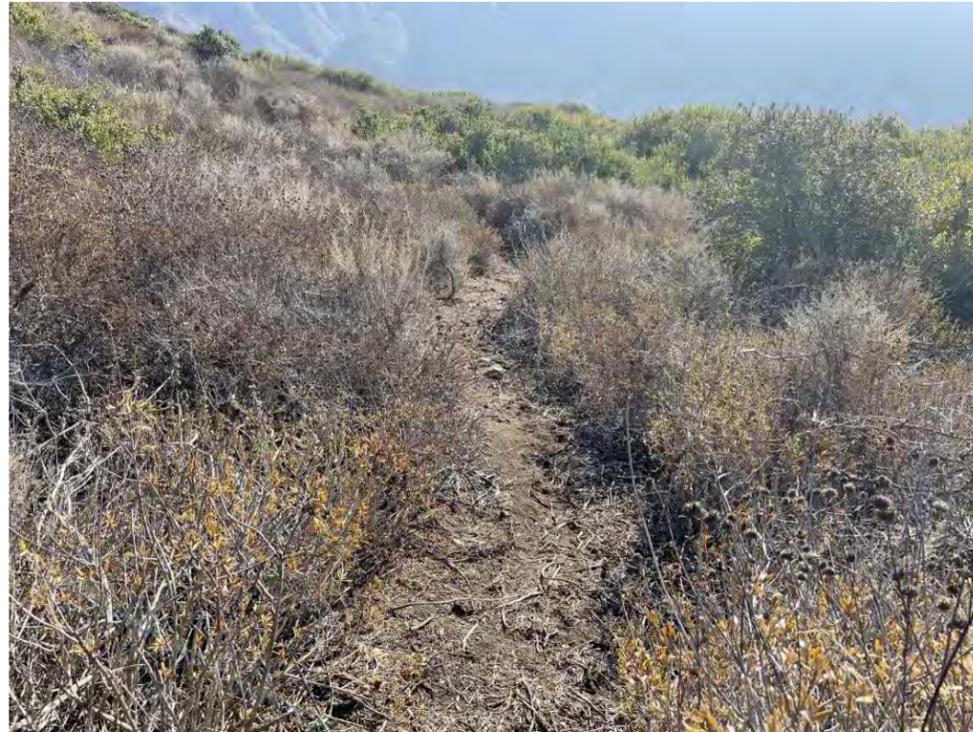


GLENN LUKOS ASSOCIATES

Exhibit 2B1

PACIFIC HORIZON PRESERVE

Monitoring Photos



Photograph 5: View of newly cut foot trail through native habitat. Photo taken December 22, 2020.



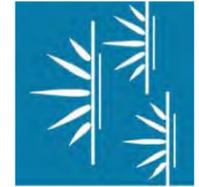
Photograph 6: View of artichoke field that has been treated with herbicide. Photo taken December 22, 2020.



Photograph 7: View of trail cutting through native habitat by Southern California Edison leading up to an electrical pole. Photo taken February 25, 2020.



Photograph 8: View of cut and herbicide-treated Pampas grass laying on native vegetation. Photo taken February 25, 2020.



GLENN LUKOS ASSOCIATES

Exhibit 2B2

PACIFIC HORIZON PRESERVE

Monitoring Photos



Photograph 1: Overview of Preserve facing west. Photo taken December 23, 2020.



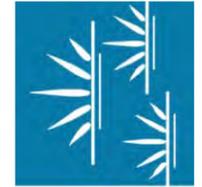
Photograph 2: View of erosion associated with disturbance area. Photo taken December 23, 2020.



Photograph 3: View of fallen or removed signed. Photo taken December 23, 2020.



Photograph 4: View of disturbance area facing west. Photo taken December 23, 2020.



GLENN LUKOS ASSOCIATES

Exhibit 2C





Photograph 1: Overview of Preserve facing south. Photo taken December 22, 2020.



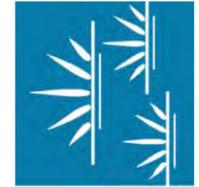
Photograph 2: Overview of Preserve facing southwest. Photo taken December 22, 2020.



Photograph 3: View of fallen oak tree across a previously documented unauthorized trail. Photo taken December 22, 2020.



Photograph 4: Evidence of mountain biking was present throughout the Preserve. Photo taken December 22, 2020.



GLENN LUKOS ASSOCIATES

Exhibit 2D1





Photograph 5: View of cut fencing and intact OCTA Preserve sign at "Area A". Mountain bike tracks were observed through this area. Photo taken December 22, 2020.



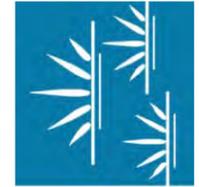
Photograph 6: View of cut fencing and removed OCTA Preserve sign at "Area B". Mountain bike tracks and heavy erosion due to mountain biking were observed throughout this area. Photo taken December 22, 2020.



Photograph 7: View of cut fencing at "Area B". Mountain bike tracks and heavy erosion due to mountain biking were observed throughout this area. Photo taken December 22, 2020.



Photograph 8: View of cut fencing at "Area C". Photo taken December 22, 2020.



GLENN LUKOS ASSOCIATES

Exhibit 2D2

**SILVERADO CHAPARRAL
PRESERVE**
Monitoring Photos



Photograph 1: View of previously documented downed oak tree on interior fence. Photo taken December 23, 2020.



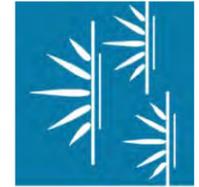
Photograph 2: View of graffiti on oak tree. Photo taken December 23, 2020.



Photograph 3: View of previously documented downed interior chain link fence. Photo taken December 23, 2020.



Photograph 4: View of previously documented downed interior chain link fence with greater damage. Photo taken December 23, 2020.



GLENN LUKOS ASSOCIATES

Exhibit 2E

WRENS VIEW PRESERVE

Monitoring Photos



Photograph 1: View taken at the southern edge of the Preserve boundary facing north. Photo taken December 23, 2020.



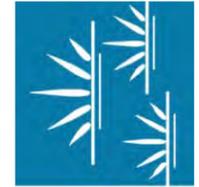
Photograph 2: View taken along the access dirt road on the southeastern section of the site. Photo taken December 23, 2020.



Photograph 3: View taken along the dirt access road of the Coast Live Oak Woodland habitat along the western portion of the preserve. Photo taken December 23, 2020.



Photograph 4: View taken of the dirt access road along the southeastern section of the site. Photo taken December 23, 2020.



GLENN LUKOS ASSOCIATES

Exhibit 2F

LIVE OAK CREEK PRESERVE

Monitoring Photos



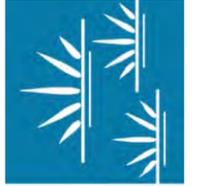
Photograph 1: View of Preserve in an upper area where cattle visit. Photo taken December 23, 2020.



Photograph 2: View of two cows in the southern portion of the Preserve. Photo taken December 23, 2020.



Photograph 3: View of Preserve from the gate at the western boundary. Photo taken December 23, 2020.

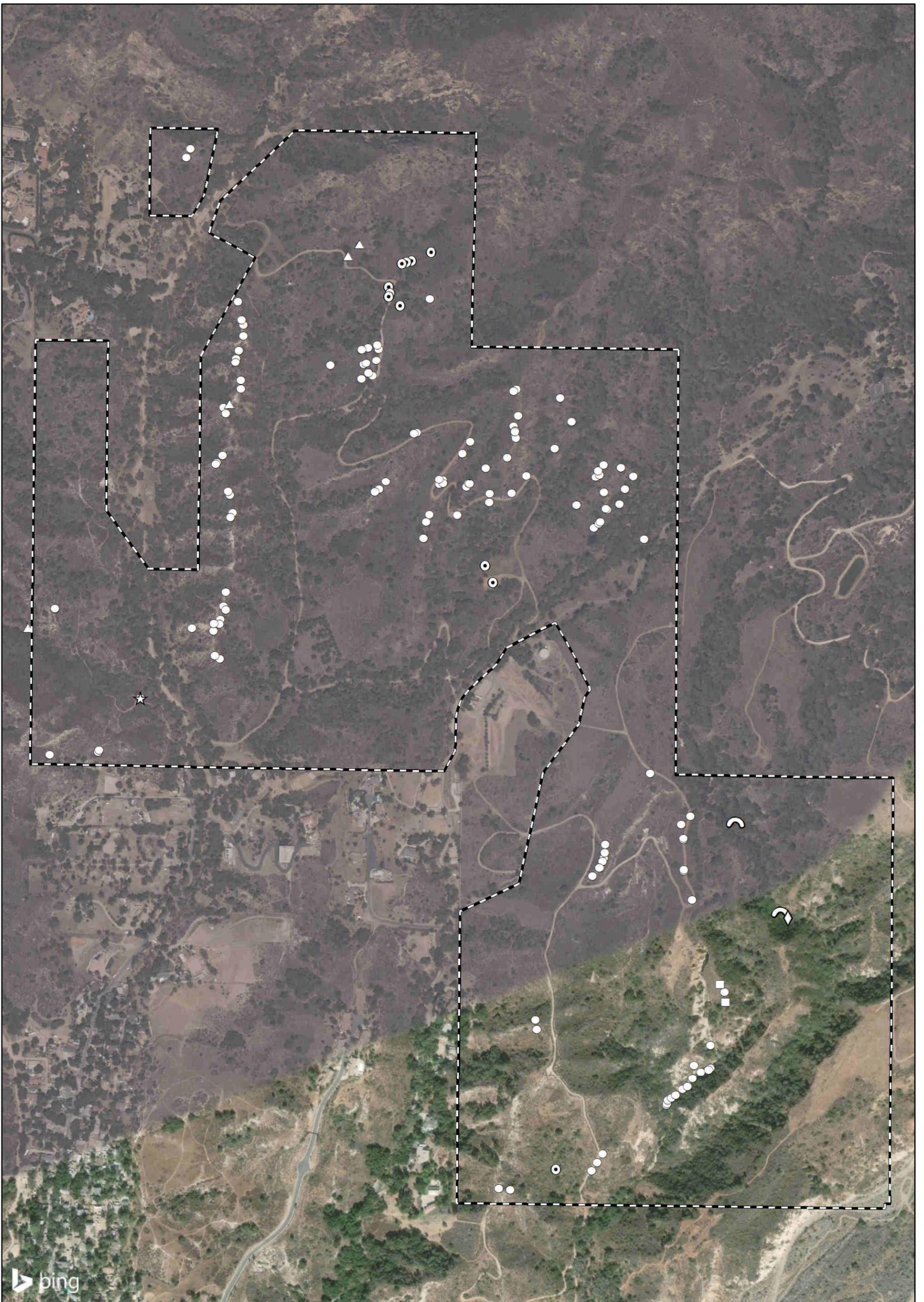


GLENN LUKOS ASSOCIATES

Exhibit 2G

EAGLE RIDGE PRESERVE

Monitoring Photos



Trabuco Rose Preserve Boundary

Previous Surveys/Monitoring

Covered Species

Intermediate Mariposa Lily

Non-Covered Sensitive Species

Catalina Mariposa Lily

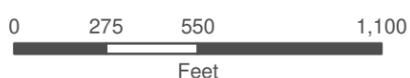
Chaparral Nolina

Cooper's Rein Orchid

Coulter's Matilija Poppy

Fish's Milkwort

Humboldt Lily



1 inch = 550 feet

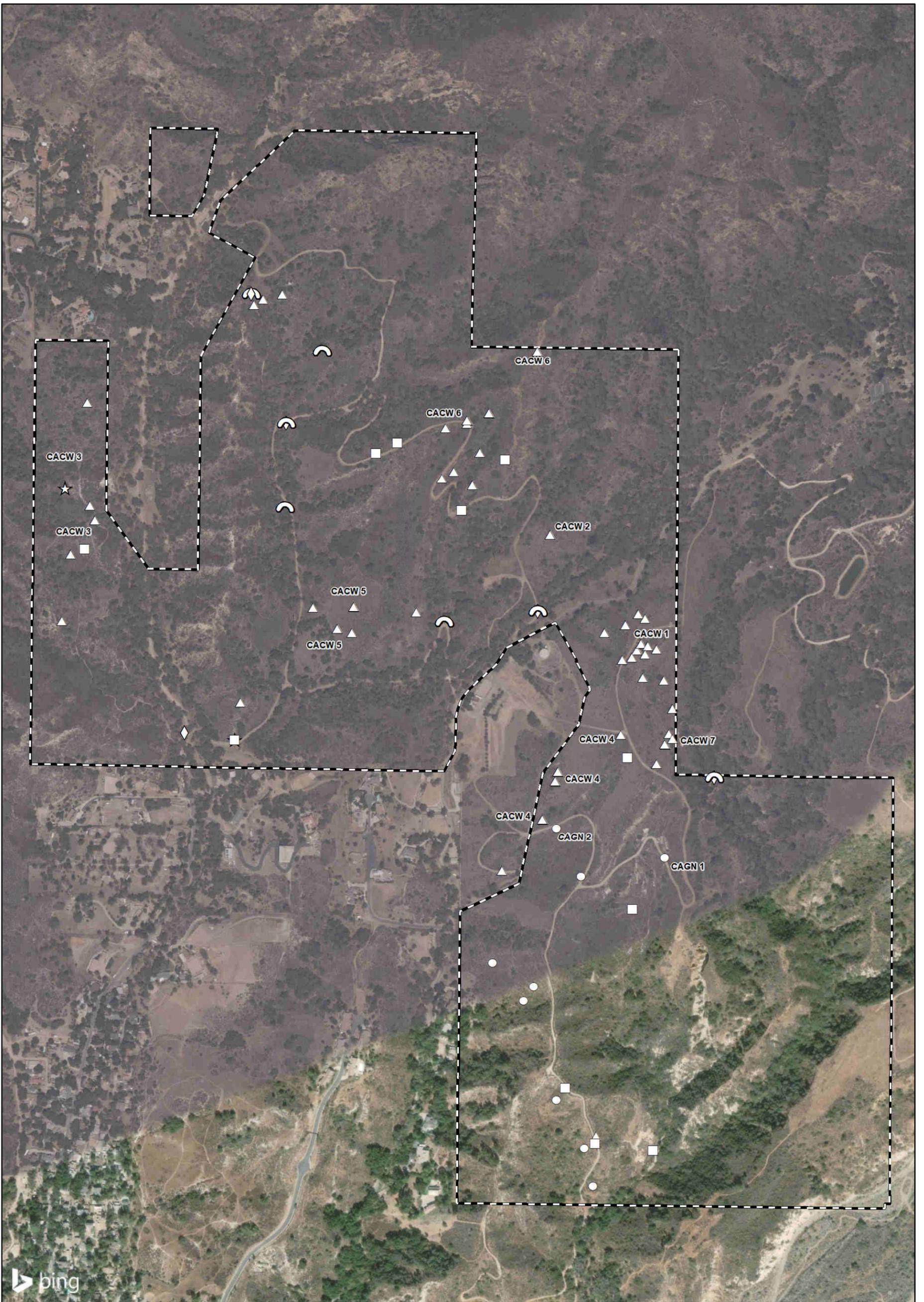
TRABUCO ROSE PRESERVE

OCTA Covered/Sensitive Plant Species Map

GLENN LUKOS ASSOCIATES

Exhibit 3A

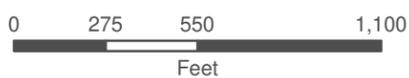




Trabuco Rose Preserve Boundary

Previous Monitoring Periods

- California Gnatcatcher
- Cactus Wren
- Bobcat
- Mountain Lion
- Orangethroat Whiptail
- San Diego Desert Woodrat (Non-covered)



1 inch = 550 feet

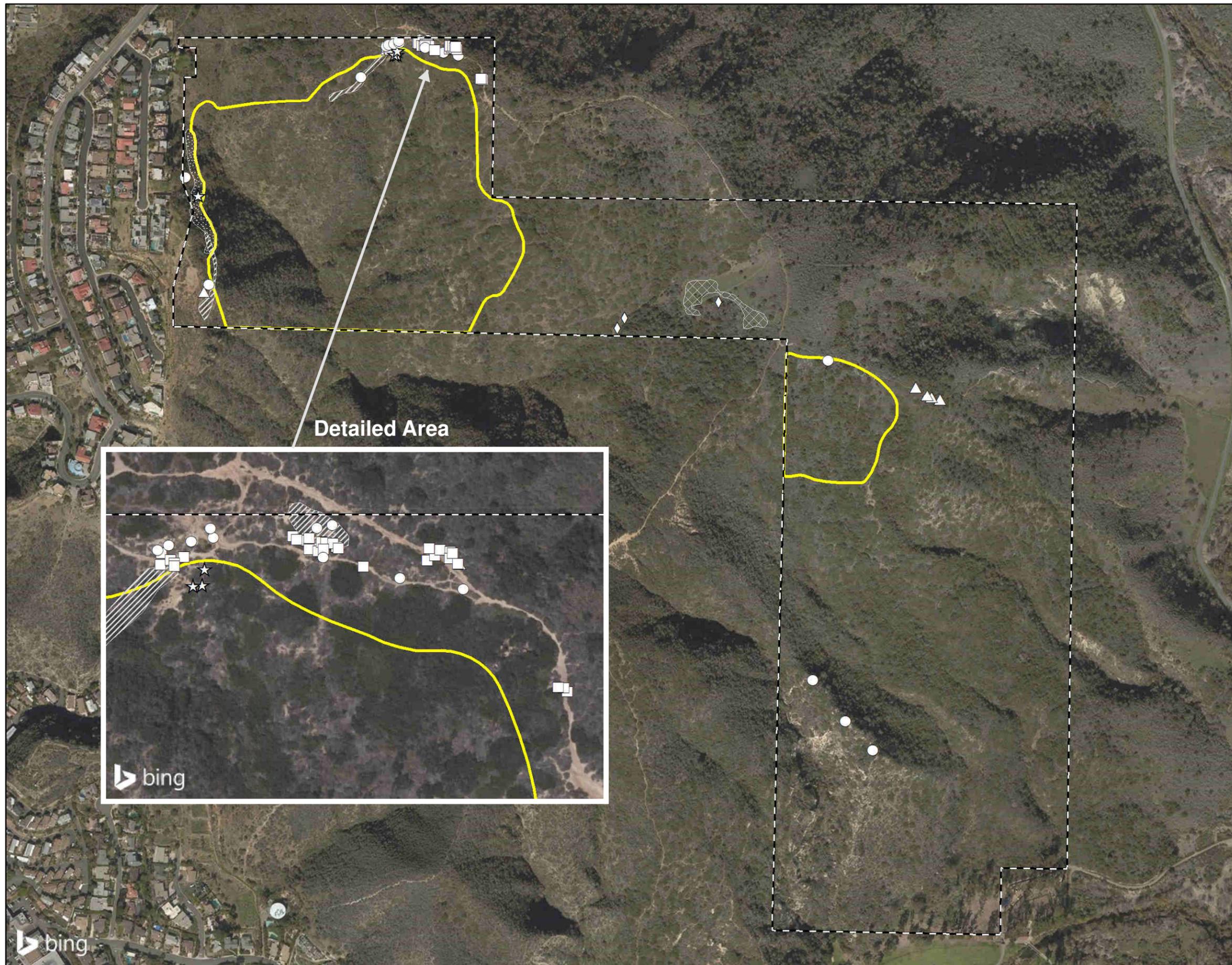
TRABUCO ROSE PRESERVE

OCTA Covered/Sensitive Animal Species Map

GLENN LUKOS ASSOCIATES



Exhibit 3B



Pacific Horizon Preserve Boundary

Previous Monitoring Periods

Covered Species

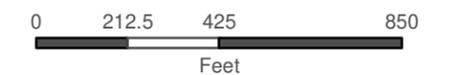
- Intermediate Mariposa Lily
- Intermediate Mariposa Lily
- Many-stemmed Dudleya

Non-Covered Sensitive Species

- Catalina Mariposa Lily
- Crownbeard
- Catalina Mariposa Lily
- Crownbeard
- Western Dichondra

Approximate Extent of Crownbeard of Various Densities

Detailed Area



1 inch = 425 feet

PACIFIC HORIZON PRESERVE

OCTA Covered/Sensitive Plant Species Map

GLENN LUKOS ASSOCIATES



Exhibit 3C

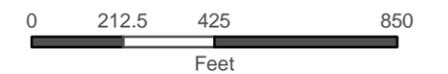


 Pacific Horizon Preserve Boundary

Previous Monitoring Periods

Covered Species

 California Gnatcatcher



1 inch = 425 feet

PACIFIC HORIZON PRESERVE

OCTA Covered/Sensitive Animal Species Map

GLENN LUKOS ASSOCIATES



Exhibit 3D



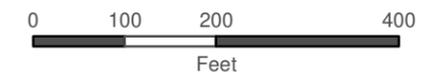


 Bobcat Ridge Preserve Boundary

Previous Monitoring Periods

Covered Species

 Intermediate Mariposa Lily



1 inch = 200 feet

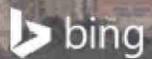
BOBCAT RIDGE PRESERVE

OCTA Covered/Sensitive Plant Species Map

GLENN LUKOS ASSOCIATES



Exhibit 3E



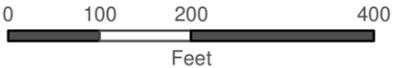


 Bobcat Ridge Preserve Boundary

Previous Monitoring Periods

Covered Species

-  Cactus Wren
-  Orangethroat Whiptail



1 inch = 200 feet

BOBCAT RIDGE PRESERVE
 OCTA Covered/Sensitive Animal Species Map

GLENN LUKOS ASSOCIATES 
 Exhibit 3F



Baker Canyon Road

Silverado Chaparral Preserve Boundary

Previous Monitoring Periods

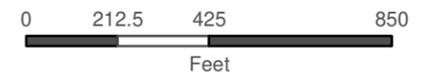
Covered Species

Intermediate Mariposa Lily

Non-Covered Sensitive Species

Chaparral Nolina

Paniculate Tarplant



1 inch = 425 feet

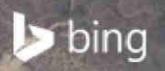
SILVERADO CHAPARRAL PRESERVE

OCTA Covered/Sensitive Plant Species Map

GLENN LUKOS ASSOCIATES



Exhibit 3G





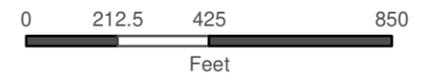
Baker Canyon Road

 Silverado Chaparral Preserve Boundary

Previous Monitoring Periods

Covered Species

-  Coast Horned Lizard
-  Orangethroat Whiptail
-  Bobcat



1 inch = 425 feet

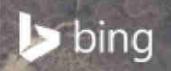
SILVERADO CHAPARRAL PRESERVE

OCTA Covered/Sensitive Animals Species Map

GLENN LUKOS ASSOCIATES



Exhibit 3H



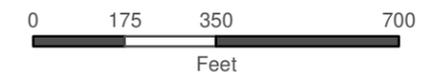


 Wren's View Preserve Boundary

Previous Monitoring Periods

Covered Species

 Intermediate Mariposa Lily



1 inch = 350 feet

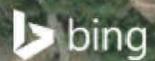
WREN'S VIEW PRESERVE

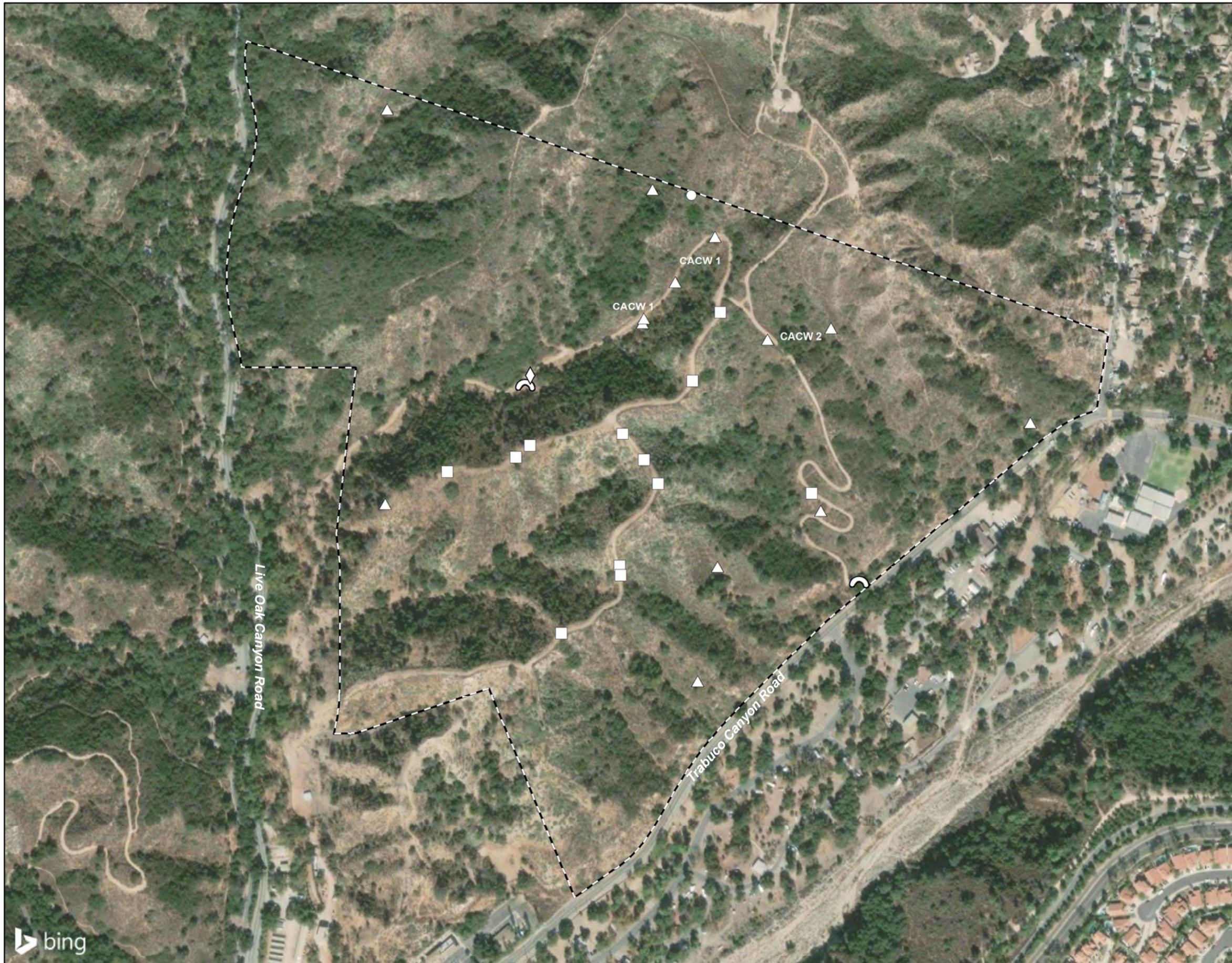
OCTA Covered/Sensitive Plant Species Map

GLENN LUKOS ASSOCIATES



Exhibit 3I



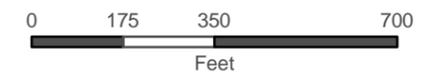


Wren's View Preserve Boundary

Previous Monitoring Periods

Covered Species

- Bobcat
- Cactus Wren
- California Gnatcatcher
- Mountain Lion
- Orangethroat Whiptail



1 inch = 350 feet

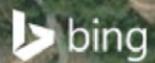
WREN'S VIEW PRESERVE

OCTA Covered/Sensitive Animal Species Map

GLENN LUKOS ASSOCIATES



Exhibit 3J





Live Oak Creek Preserve Boundary

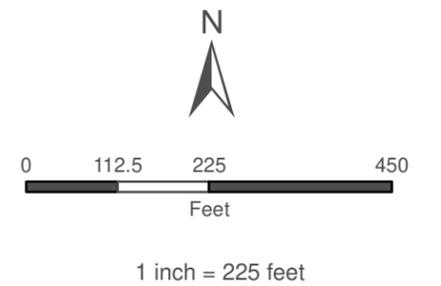
Previous Monitoring Periods

Covered Species

○ Intermediate Mariposa Lily

Non-Covered Sensitive Species

◇ Catalina Mariposa Lily



LIVE OAK CREEK PRESERVE

OCTA Covered/Sensitive Plant Species Map

GLENN LUKOS ASSOCIATES

Exhibit 3K



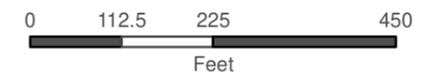


 Live Oak Creek Preserve Boundary

Previous Monitoring Periods

Covered Species

-  Cactus Wren
-  Bobcat



1 inch = 225 feet

LIVE OAK CREEK PRESERVE

OCTA Covered/Sensitive Animal Species Map

GLENN LUKOS ASSOCIATES

Exhibit 3L



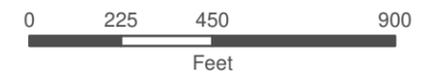


 Eagle Ridge Preserve Boundary

Previous Monitoring Periods

Non- Covered Sensitive Species

 Hubby's Phacelia



1 inch = 450 feet

EAGLE RIDGE PRESERVE

OCTA Covered/Sensitive Plant Species Map

GLENN LUKOS ASSOCIATES

Exhibit 3M





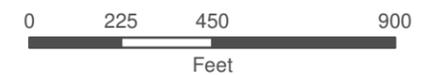
 Eagle Ridge Preserve Boundary

Previous Monitoring Periods

Non-Covered Sensitive Species

 Bobcat

 Golden Eagle



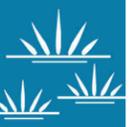
1 inch = 450 feet

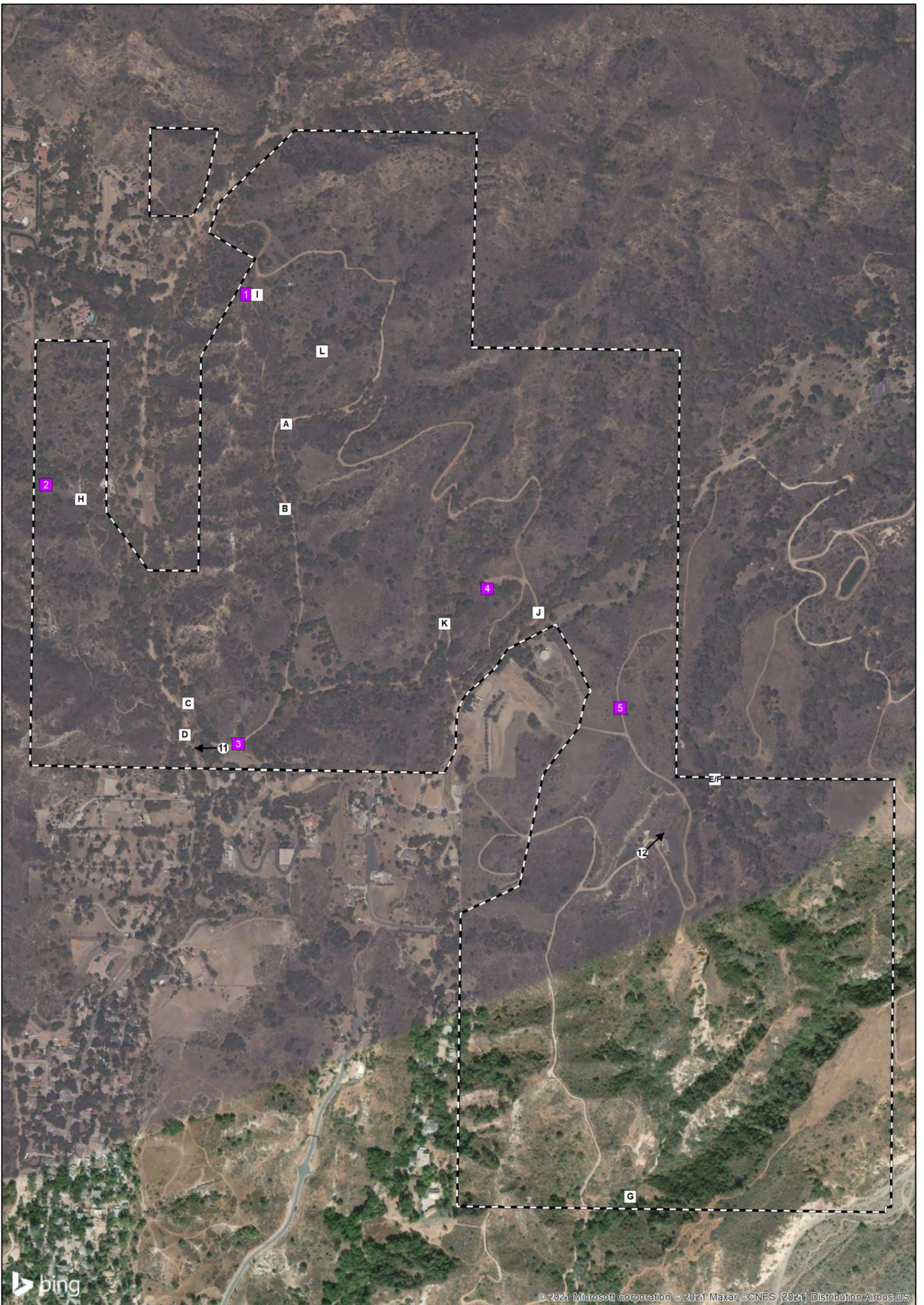
EAGLE RIDGE PRESERVE

OCTA Covered/Sensitive Animal Species Map

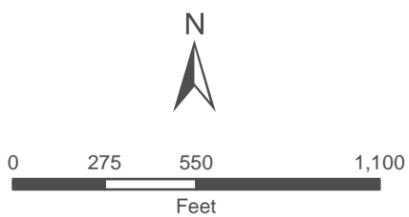
GLENN LUKOS ASSOCIATES

Exhibit 3N





-  Trabuco Rose Preserve Boundary
-  Wildlife Camera Station Inactive in 2020
-  Permanent Photo Station
-  Photo Location



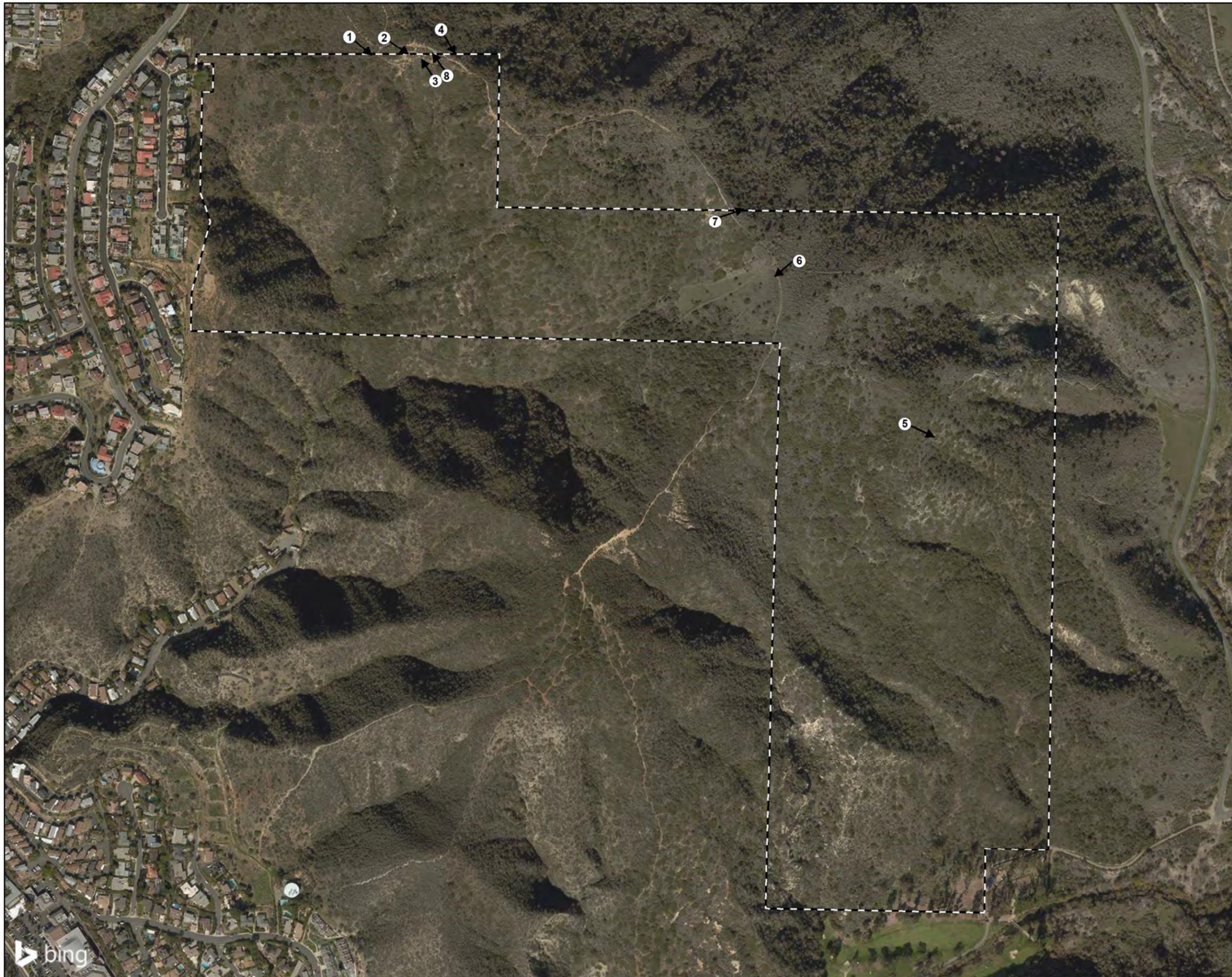
1 inch = 550 feet

TRABUCO ROSE PRESERVE
Photo Locations Map

GLENN LUKOS ASSOCIATES

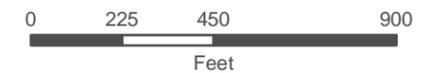
Exhibit 4A





 Pacific Horizon Preserve Boundary

 Photo Location



1 inch = 450 feet

PACIFIC HORIZON PRESERVE

Photo Locations Map

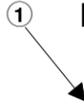
GLENN LUKOS ASSOCIATES

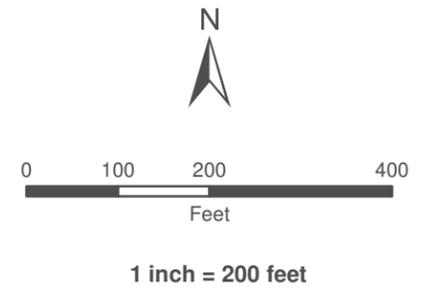


Exhibit 4B





-  Bobcat Ridge Preserve Boundary
-  Wildlife Camera Station
-  Photo Locations

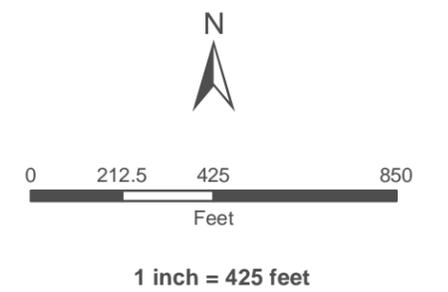


BOBCAT RIDGE PRESERVE
Photo Locations Map

GLENN LUKOS ASSOCIATES 
Exhibit 4C



-  Silverado Chaparral Preserve Boundary
-  Wildlife Camera Station Inactive in 2020
-  Photo Locations



SILVERADO CHAPARRAL PRESERVE

Photo Locations Map

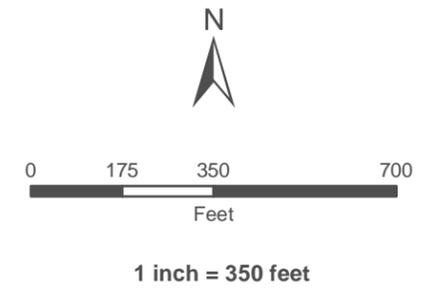
GLENN LUKOS ASSOCIATES

Exhibit 4D





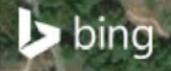
-  Wren's View Preserve Boundary
-  Wildlife Camera Station Inactive in 2020
-  Photo Locations



WREN'S VIEW PRESERVE
Photo Locations Map

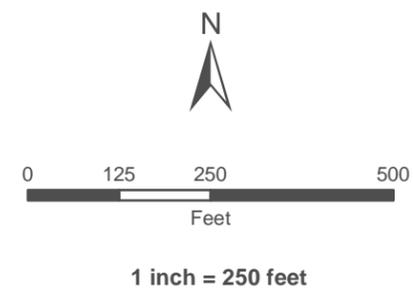
GLENN LUKOS ASSOCIATES 

Exhibit 4E





-  Live Oak Creek Preserve Boundary
-  Wildlife Camera Station Inactive in 2020
-  Photo Locations



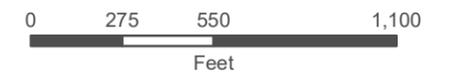
LIVE OAK CREEK PRESERVE
Photo Locations Map

GLENN LUKOS ASSOCIATES 

Exhibit 4F



-  Eagle Ridge Preserve Boundary
-  Wildlife Camera Station Inactive in 2020
-  Photo Locations



1 inch = 550 feet

EAGLE RIDGE PRESERVE

Photo Locations Map

GLENN LUKOS ASSOCIATES

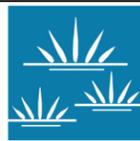
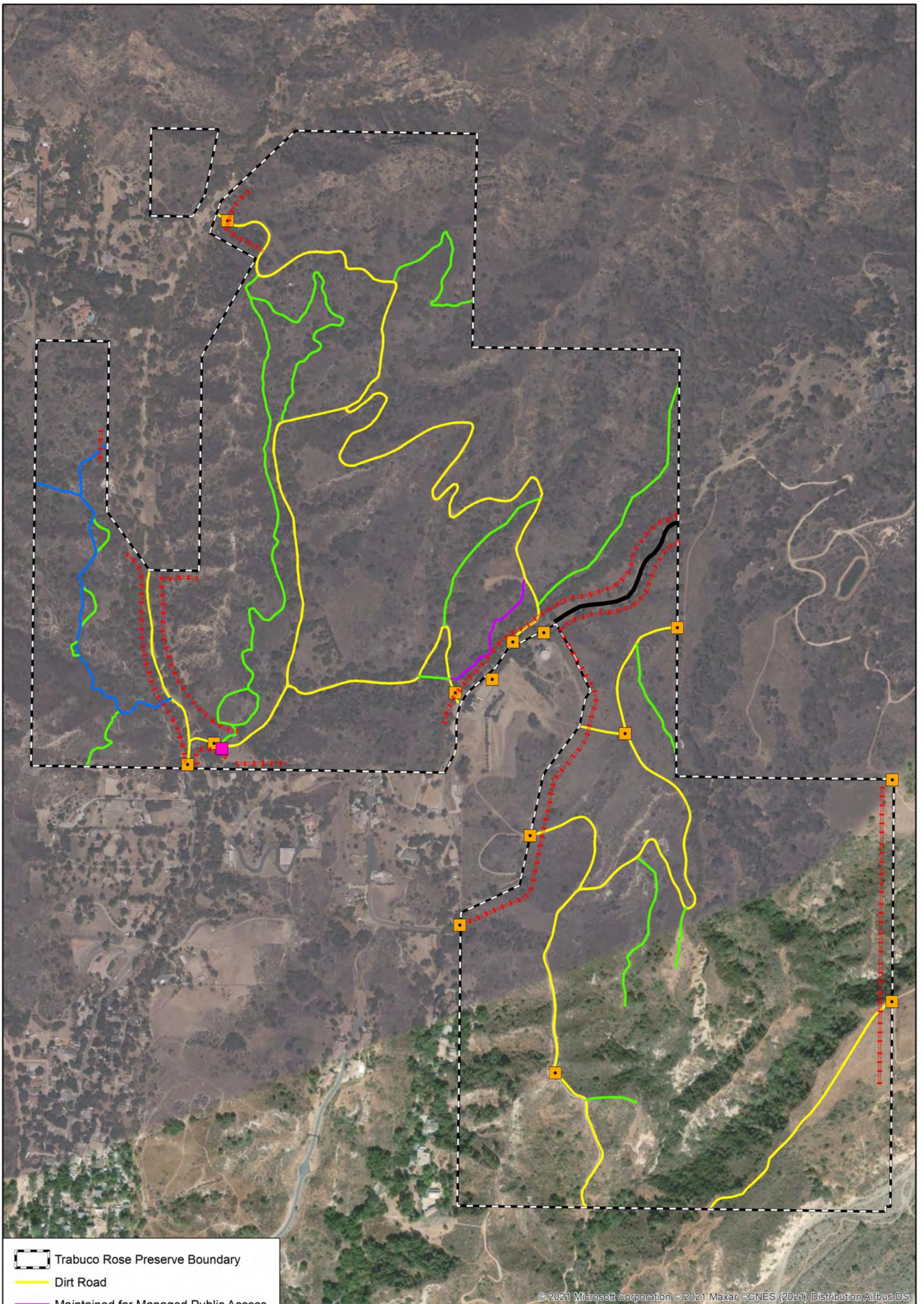


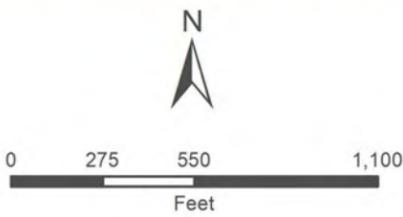
Exhibit 4G





© 2021 Microsoft Corporation © 2021 Maxar, ©CNES (2021) Distribution Airbus DS

-  Trabuco Rose Preserve Boundary
-  Dirt Road
-  Maintained for Managed Public Access
-  Maintained for Preserve Management
-  Passive Restoration
-  Rose Canyon Road
-  Fencing Limits
-  Gully Erosional Area
-  Gate Location



1 inch = 550 feet

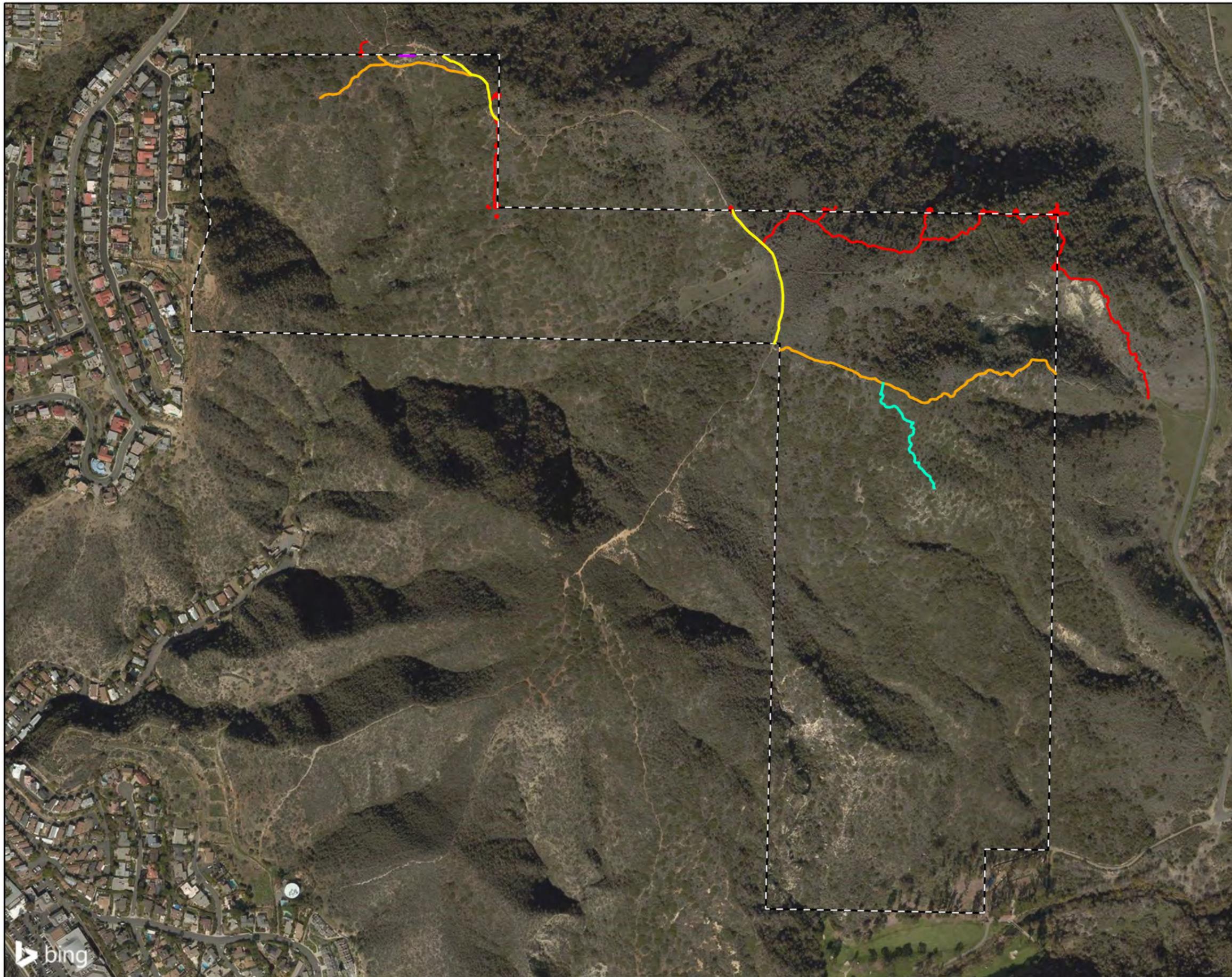
TRABUCO ROSE PRESERVE

Trails and Maintenance Map

GLENN LUKOS ASSOCIATES

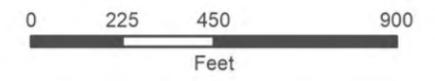


Exhibit 5A



-  Pacific Horizon Preserve Boundary
-  SCE Impacts
-  Foot Trails Open for Recreational Use*
-  Foot Trails Proposed for Decommission
-  Newly Cut Trail
-  Cut Fence

*Pursuant to the OCTA managed public access program



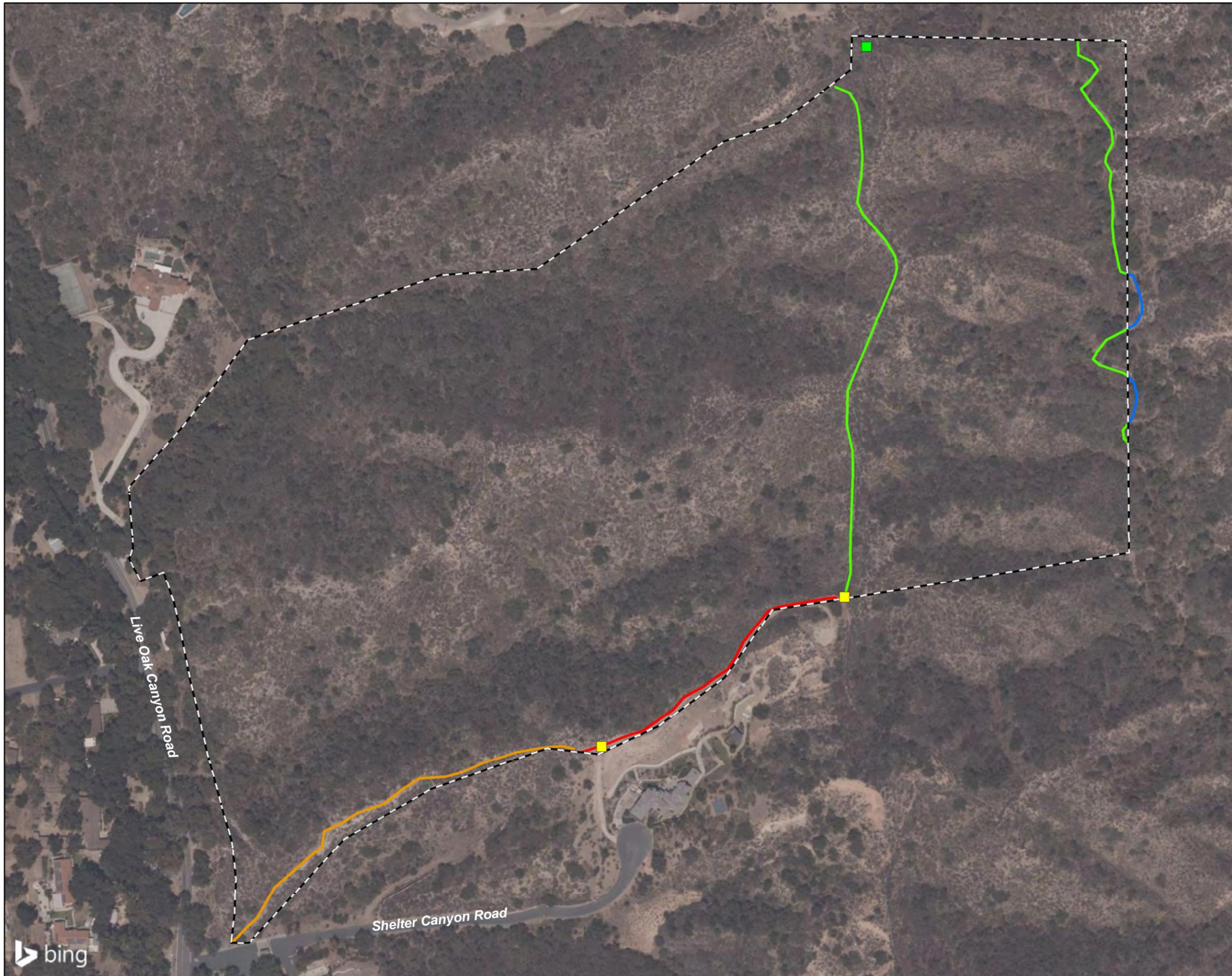
1 inch = 450 feet

PACIFIC HORIZON PRESERVE
Trails and Maintenance Map

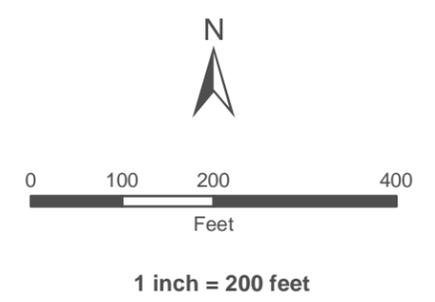
GLENN LUKOS ASSOCIATES 

Exhibit 5B 





-  Bobcat Ridge Preserve Boundary
-  Foot Trails Maintained for Preserve Management
-  Foot Trails (Decommissioned)
-  Unauthorized Trail
-  Offsite Trail
-  Loose OCTA Sign
-  Missing OCTA Sign



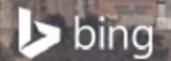
BOBCAT RIDGE PRESERVE

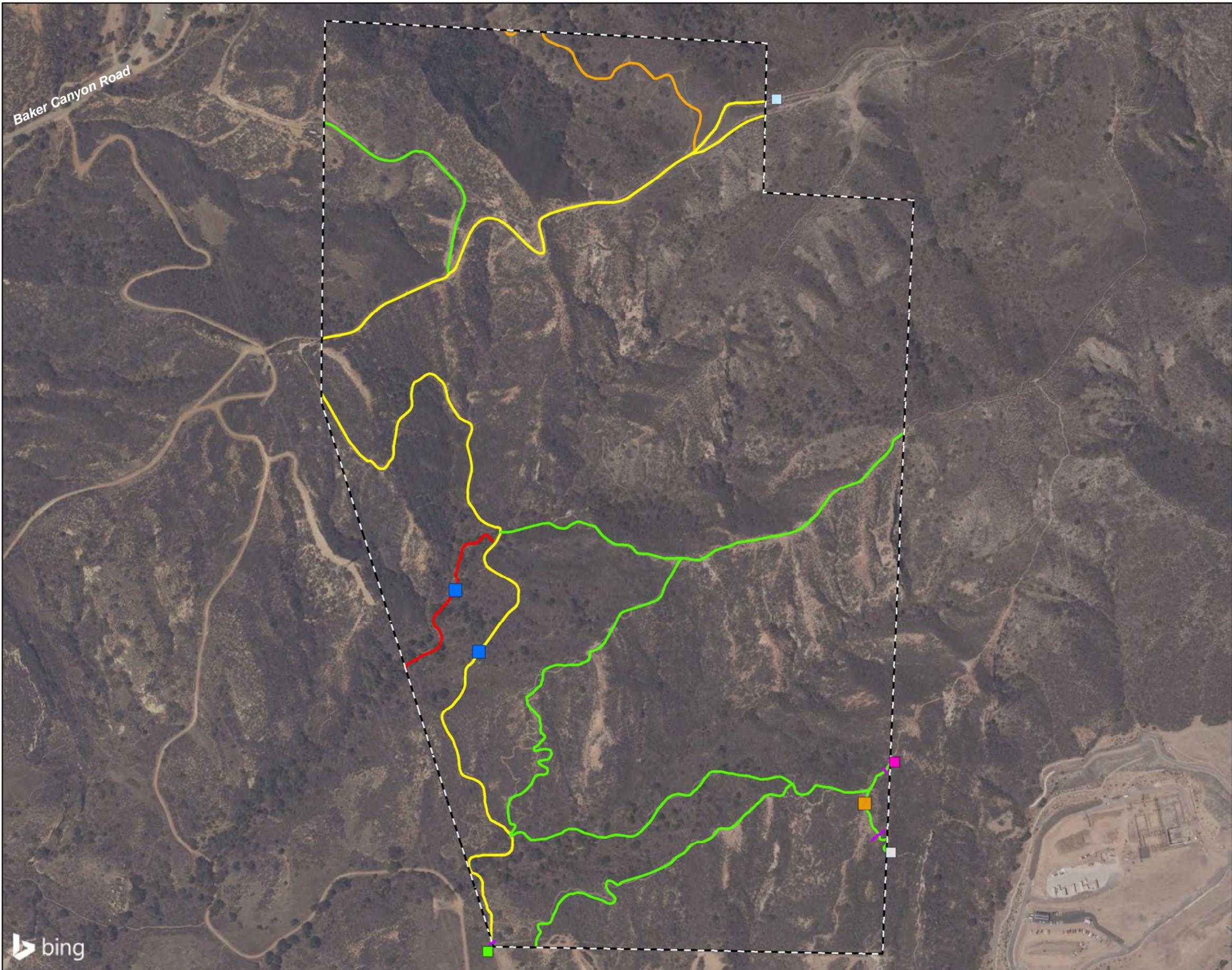
Trails and Maintenance Map

GLENN LUKOS ASSOCIATES



Exhibit 5C

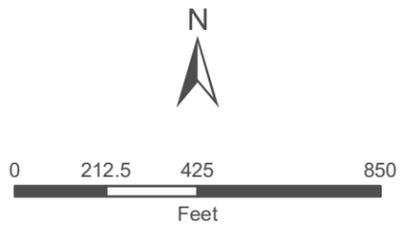




Baker Canyon Road

-  Silverado Chaparral Preserve Boundary
-  Foot Trails and Dirt Roads Maintained for Preserve Management
-  Foot Trails and Dirt Roads for Recreational Use*
-  Foot Trails (Decommissioned)
-  Unauthorized Trail Documented in 2018
-  Fencing Installed in 2019
-  Heavy Erosion Caused by Mountain Biking
-  Mountain Bike Habitat Disturbance 2019
-  Sign Area A - New Fence Cut and Evidence of Mountain Biking
-  Sign Area B - New Fence Down and OCTA Sign Down
-  Sign Area C - New Fence Down and OCTA Sign Missing
-  Sign Area D - 2 OCTA Signs

*Pursuant to the OCTA managed public access program



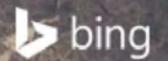
SILVERADO CHAPARRAL PRESERVE

Trails and Maintenance Map

GLENN LUKOS ASSOCIATES



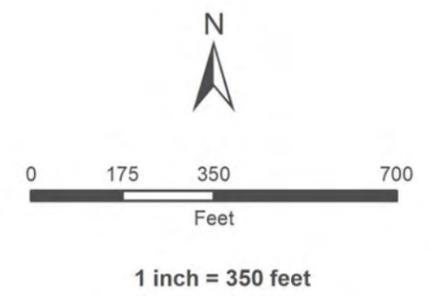
Exhibit 5D





- Wren's View Preserve Boundary
- Foot Trails and Dirt Roads Maintained for Preserve Management
- Dirt Roads Proposed for Recreational Use*
- Unauthorized Trail
- Access Road Erosion
- Downed Chainlink Fence
- Damaged Barbed-wire Fence
- Downed Chainlink Fence
- Graffiti on Cactus
- Graffiti on Oak
- AT&T Line
- Missing OCTA Sign
- Graffiti on Sign
- Gate

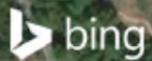
*Pursuant to the OCTA managed public access program



WREN'S VIEW PRESERVE
Trails and Maintenance Map

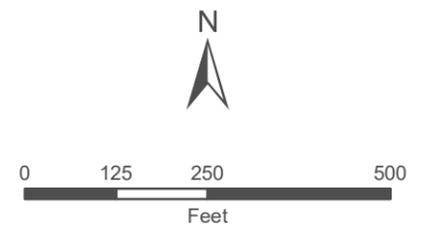
GLENN LUKOS ASSOCIATES 

Exhibit 5E





-  Live Oak Creek Preserve Boundary
-  Dirt Roads Maintained for Preserve Management
-  Foot Trails Maintained for Preserve Management
-  Foot Trails Decommissioned
-  Gate

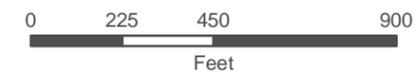


1 inch = 250 feet

LIVE OAK CREEK PRESERVE



-  Eagle Ridge Preserve Boundary
-  Foot Trails and Dirt Roads Maintained for Preserve Management
-  Gate



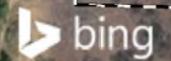
1 inch = 450 feet

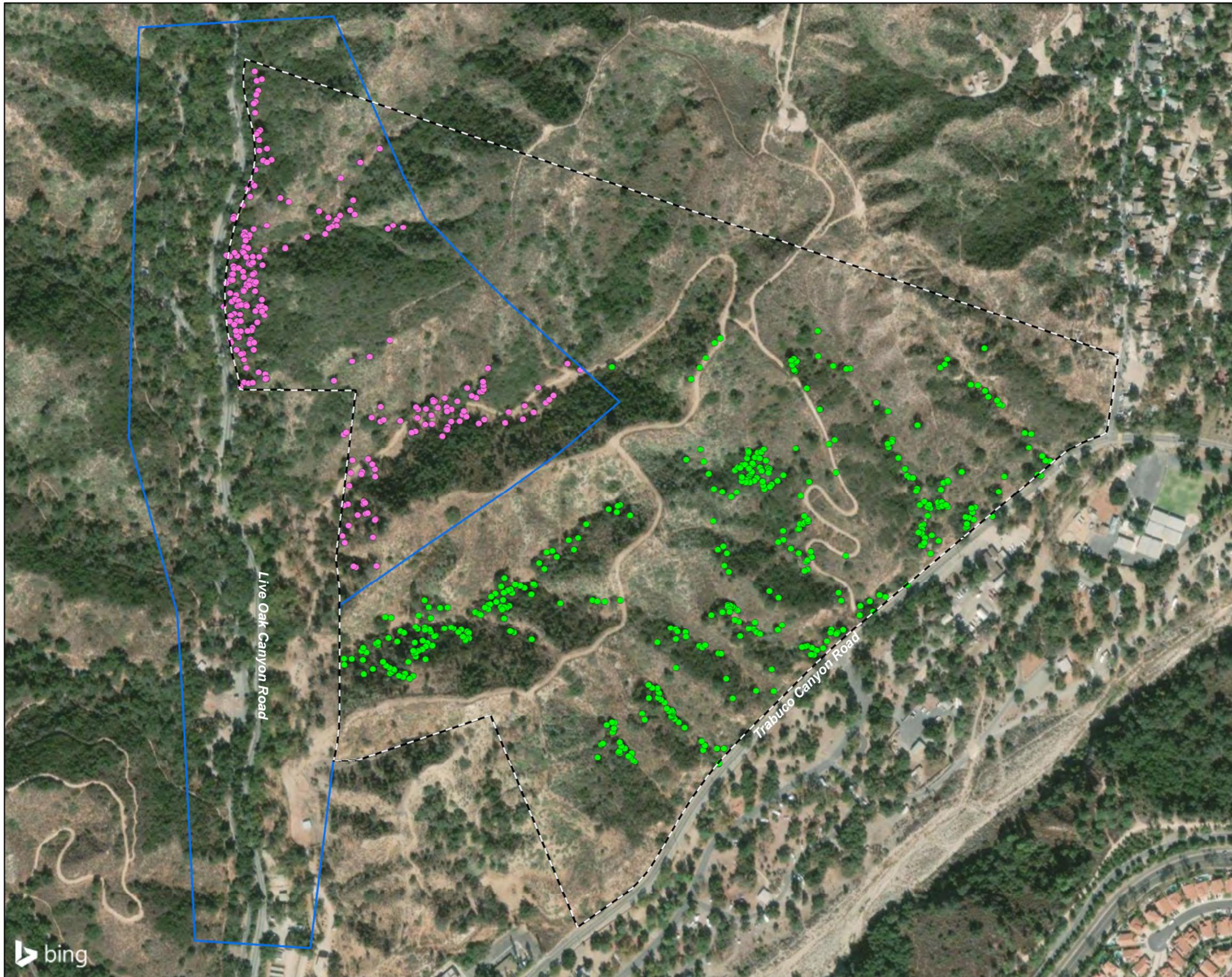
EAGLE RIDGE PRESERVE
Trails and Maintenance Map

GLENN LUKOS ASSOCIATES



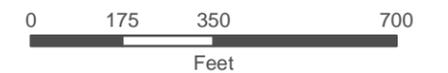
Exhibit 5G





- Wren's View Preserve Boundary
- Orange County Fire Authority Treatment Area*
- GSOB-Treated Oak Tree (248 Total)
- Oak Tree

*Digitized from OCFA "Final_GSOB_Trabuco" PDF



1 inch = 350 feet

WREN'S VIEW PRESERVE

Oak Tree Map

GLENN LUKOS ASSOCIATES



Exhibit 6

APPENDIX A

TRABUCO ROSE PRESERVE USACE/SWRCB ANNUAL MONITORING FORM

A total of 1.75 acres of waters of the U.S., of which 0.14 acre consists of wetlands, within Trabuco Rose Preserve is compensatory mitigation for U.S. Army Corps of Engineers (USACE) and California State Water Resources Control Board (SWRCB) in the form of preservation (Exhibit 1). While monitoring and reporting for the entire Preserve is related to the USACE/SWRCB mitigation sites since these are surrounding buffer areas, this appendix provides the USACE/SWRCB with the information they require regarding tasks within the Trabuco Rose RMP that are specific to their mitigation areas. The tasks also apply to a 50-foot buffer from these preserved waters of the U.S./waters of the State to ensure the sustainability of the USACE/SWRCB mitigation site. This form constitutes the second annual monitoring of the USACE/SWRCB mitigation areas.

A. Biological Resources

Element A.1 – Waters of the U.S., including wetlands

- I. *Task: At least one annual walk-through survey will be conducted to qualitatively monitor the general condition of these habitats. General topographic conditions, hydrology, general vegetation cover and composition, invasive species, and erosion or aggradation will be noted, evaluated and mapped during a site examination in the spring. Notes to be made will include observations of species encountered, general water quality (i.e., turbidity, pollutants such as oil sheen), general extent and condition of non-wetland waters of the U.S., and any occurrences of erosion or aggradation, and weed/non-native species invasion.*

Monitoring Summary: GLA conducted an annual walk-through survey to qualitatively monitor the general condition of preserved waters of the U.S. on May 1, 2020. Preserved waters of the U.S. are depicted on Exhibit 1. Reference photographs were taken from the established locations and are attached as Exhibit 2. A map depicting photograph locations is attached as Exhibit 1.

See below for a summary of the monitoring results:

Drainage 1/Site Photo 1 – Drainage 1 consists of an ephemeral tributary in a steep canyon. No water was present during the monitoring. The drainage is mostly vegetated, primarily with healthy California sagebrush scrub/cactus and some coast live oak woodland. No invasive perennial species were noted within Drainage 1; however, non-native grasses and weeds (i.e., crete weed (*Hedypnois rhagadioloides*) and mustard) are present within the road. The non-native species appear to be contained to the road and are not encroaching into waters of the U.S.; however, routine road maintenance is recommended. No active restoration is recommended at this time. No erosion or aggradation was noted. Overall, the drainage is in good condition and does not appear to have changed in extent since the baseline mapping. No actions are recommended to maintain the current condition.

Drainage 2/Site Photos 2, 3, 5, 6, and 7 – The upper ephemeral tributaries associated with Drainage 2 (photographs 2, 3, and 7) are within steep canyons and are mostly vegetated. No water was present during the monitoring. Vegetation includes California sagebrush scrub, coast live oak woodland, laurel sumac-lemonade berry chaparral, and California buckwheat scrub. No invasive perennial species were noted within the upper tributaries of Drainage 2; however, non-native grasses and weeds (i.e., crete weed, Italian thistle (*Carduus pycnocephalus*), riggut brome (*Bromus diandrus*)) are present within the road. The non-native species appear to be contained to the road and are not encroaching into waters of the U.S.; however routine road maintenance is recommended. No active restoration is recommended at this time. No erosion or aggradation was noted. Overall, the upper tributaries associated with Drainage 2 are in good condition and do not appear to have changed in extent since the baseline mapping. Other than routine road maintenance, no actions are recommended to maintain the current condition.

The lower portion of Drainage 2 (photograph 6) is a lower gradient ephemeral stream segment in the valley floor and is mostly vegetated. No water was present during the monitoring. Vegetation includes arroyo willow thickets, mulefat (*Baccharis salicifolia*), coast live oak woodland, olive (*Olea europa*), and Eucalyptus. No weed/non-native grass species invasion was noted in the portion of Drainage 2. No erosion or aggradation was noted. Overall, the lower portion of Drainage 2 is in good condition and does not appear to have changed in extent since the baseline mapping. No actions are recommended to maintain the current condition.

The wetland (photograph 5) at the southernmost point of USACE/SWRCB mitigation associated with Drainage 2 was dry during the May 1, 2020 monitoring. Vegetation consisted of arroyo willow thickets and mulefat. In addition, annual non-native grasses and weeds (i.e., Italian thistle, sow thistle (*Sonchus* sp.), rabbitsfoot grass (*Polypogon monspeliensis*), and curly dock (*Rumex crispus*) were abundant; however, since these are common annual weeds and are not impeding the wetland function, removal is not recommended at this time. No erosion or aggradation was noted. The wetland does not appear to have changed in extent since the baseline mapping. Other than routine road maintenance, no actions are recommended to maintain the current condition.

Drainage 3/Site Photo 4 – Drainage 3 is a large drainage complex consisting of steep canyon ephemeral tributaries. No water was present during the monitoring. Vegetation includes California sagebrush scrub, coast live oak woodland, laurel sumac-lemonade berry chaparral, California buckwheat scrub, scrub oak chaparral, chamise chaparral, and needle grass grassland. Some areas of mustard are present along road on the terrace above the drainage, which appear to be contained to the road and are not encroaching into waters of the U.S.; however routine road maintenance is recommended. No active restoration is recommended at this time. Some areas are naturally erosive but are not actively eroding. No aggradation was noted. Overall, the drainage is in good condition and does not appear to have changed in extent since the baseline mapping. Other than routine road maintenance, no actions are recommended to maintain the current condition.

- II. *Task: Hydrology and erosion control activities within preserved waters of the U.S. shall be coordinated with Regulatory Agencies. The Preserve Manager will inspect preserved waters of the U.S. immediately after a heavy rainstorm to identify problems with erosion and sedimentation. Where erosion or sedimentation is identified, the Preserve Manager will coordinate with the USACE to implement BMPs (e.g., install control devices) as soon as possible to avoid further damage. In addition, access will be restricted to limit further damage or where required for safety purposes.*

Monitoring Summary: GLA was onsite on May 1 and December 22, 2020 to check for erosion and sedimentation issues within drainage areas onsite. No active erosion or sedimentation was identified within preserved waters of the U.S. As such, no hydrology and erosion control activities within preserved waters of the U.S. were conducted during 2020.

- III. *Task: CRAM will be updated using the existing baseline scores. This will be completed every 5 or 10 years depending on qualitative changes observed through the annual monitoring efforts. If no changes are clearly recorded in the overall habitats, species occurrences or erosional conditions on roads and trails, a CRAM can be updated every 10 years. If a large natural event occurs such as a fire or flood, CRAM should be completed at the next five year interval to assess changes to the system and help guide adaptive management, restoration, and enhancement activities.*

Status: Monitoring was initiated in 2019; the site will be assessed for the need for CRAM monitoring in 2024.

- IV. *Task: During each annual site visit, record general areas of persistent or problematic trash and trespass. Record type, location, and management mitigation recommendations to avoid, minimize, or rectify a trash, trespass, and/or potential fire hazard impact.*

Monitoring Summary: No trash was observed in preserved waters of the U.S. No signs of fire hazards within preserved waters of the U.S. were identified. Although there are signs of occasional trespass documented via wildlife cameras on the Preserve (not documented in USACE/SWRCB mitigation areas), no vandalism (including trail/fence cutting or signage vandalism) has occurred on the Preserve within the recent past.

- V. *Task: Reference photograph locations and a photo location map will be established. Site photographs depicting existing site conditions and documenting management activities will be taken from the reference sites.*

Monitoring Summary: Reference photograph locations and a photo location map [Exhibit 1] were established in 2019. Updated photos were taken from the reference locations in 2020 [Exhibit 2].

Element A.2 - Threatened/Endangered Animal Species Minimization

- I. *Task: Avian Species: CAGN – Management activities during the breeding season¹ that have the potential to destroy active nests (e.g., spraying or pulling vegetation off existing roads or trails within coastal sage scrub) or disrupt nesting activities (e.g., weed whipping along roads and trails adjacent*

¹ The breeding season for gnatcatcher is February 15 through August 31.

to coastal sage scrub) will be conducted under the oversight² of a monitoring biologist³ who will ensure that nesting activities for gnatcatcher nests are not disrupted and that no nests are destroyed. In addition, a specific nesting bird policy for Preserve management (Appendix D of the RMP) has been approved by the Wildlife Agencies. This policy conforms to existing regulations and procedures for protection of nesting birds.

As normal operating practice, routine management activities are conducted during the non-breeding season. Since no activities are anticipated to occur during the nesting season for any of the listed species, no funding specific to this task is allocated. The USACE mitigation sites were specifically located in areas that are not anticipated to be subject to emergency work. In the unlikely event that work is necessary, the contingency fund (i.e., 15% contingency added to the annual task total) would be used.

Monitoring Summary: RECON field crews performed maintenance work, with direction and oversight conducted by a RECON Restoration Biologist. Prior to maintenance tasks (performed during bird breeding season), a biologist would check work areas for nesting birds, and proceed accordingly based on findings of surveys. All work was done consistent with the OCTA Resource Management Plans (RMPs).

Element A.3 - Invasive Species

- I. *Initial Task: A Restoration Ecologist shall prepare an invasive species management plan (see RMP Section 3.2) for the Preserve and include preserved waters of the U.S. in the plan to target the above species. The invasive species management plan must be approved prior to recordation of the conservation easement.*

Status: The USACE approved the invasive species management plan on January 18, 2018. Implementation is ongoing.

- II. *Task: Each year's annual walk-through survey (or a supplemental survey) will include a qualitative assessment of potential or observed weed invasions, primarily in or around the waters of the U.S. Additional actions to control invasive species will be evaluated and prioritized on an annual basis, as necessary, to ensure that any new growth of invasive plant species is treated and not permitted to become large masses that degrade the functions and services provided by any of the conserved habitats.⁴*

² "Oversight" includes, but is not limited to, the following activities, which will be conducted as necessary to ensure that no nests are destroyed and that nesting activities of listed species are not disrupted: training personnel on vegetation to be avoided and removed; flagging specific areas to be avoided; training personnel on avoidance and minimization measures; regularly inspecting work activities; and providing direct supervision of management activities when necessary.

³ The monitoring biologist will be familiar with the listed species that potentially occur in the affected habitat (i.e., gnatcatcher) and its breeding behavior.

⁴ Monitor and maintain control over target invasive plant species that threaten native plant communities within the USACE mitigation site, including cardoon (*Cynara cardunculus*), giant reed (*Arundo donax*), Mexican fan palm (*Washingtonia robusta*), pampas grass (*Cortaderia selloana*), shortpod mustard (*Hirschfeldia incana*), tree tobacco (*Nicotiana glauca*), salt cedar (*Tamarix ramosissima*), and wild oats (*Avena fatua* and *A. barbata*). These species are targeted due to their level of invasiveness within onsite habitats, rated as "high" or "moderate" by the California Invasive Plant Council (Cal-IPC). Monitor

Monitoring Summary: GLA conducted an annual walk-through survey to qualitatively monitor for weed invasions and invasive species within or adjacent to preserved waters of the U.S. on May 1, 2020. In general, the USACE/SWRCB mitigation sites currently appear to be very stable with established native habitat present; however, roads adjacent to the mitigation sites should be maintained to prevent encroachment of invasive species. Additionally, annual non-native grasses and weeds (i.e., Italian thistle, sow thistle, rabbitsfoot grass, and curly dock) were abundant; however, since these are common annual weeds and are not impeding the wetland function, removal is not recommended at this time. No other issues or recommendations were made regarding invasive species or weed invasions.

- III. *Task: Each year's annual walk-through survey (or a supplemental survey) will include an assessment of potential infestations of invasive insects and other pathogens that can threaten native habitat within preserved waters of the U.S. The Preserve Manager will stay current on the latest information and science of invasive insects or other pathogens (e.g. goldspotted oak borer) and monitor for signs of infestations as part of general stewardship monitoring. If an infestation is identified, the Preserve Manager will coordinate with the OCTA NCCP/HCP Administrator, Regulatory Agencies, and the Wildlife Agencies on any appropriate control actions.*

Monitoring Summary: On May 21, 2020, Dudek arborists evaluated trees within the USACE/SWRCB mitigation areas and 50-foot buffer for invasive shot hole borer (*Euwallacea fornicatus*; ISHB), goldspotted oak borer (*Agrilus auroguttatus*; GSOB), and other invasive insects and pathogens and none were found. A report detailing the results of the tree survey is attached to the Annual Monitoring Report as Appendix B.

B. Security, Safety, and Public Access

Element B.1 - Trash and Trespass Monitoring, Enforcement, and Repair

- I. *Task: Approved trails, roads, and recreational activities (see Section 3.1.3 of RMP, "Ferber Ranch Public Access Plan") shall be located outside of preserved waters of the U.S. The Preserve Manager will be responsible for enforcing public access guidelines and ensuring that only permitted recreational and general access activities occur within the Preserve.*

Monitoring Summary: No trails, roads, and recreational activities were located within preserved waters of the U.S. The Preserve Manager enforced public access guidelines and ensured that only permitted recreation and general access activities occurred within the Preserve.

- II. *Task: As needed, and at least once yearly collect and remove all observed trash and repair and rectify vandalism and trespass impacts within the USACE mitigation site.*

other potential infestations of invasive insects and other pathogens that can threaten native habitat within preserved waters of the U.S. The site will be monitored on an annual basis to ensure that the property maintains its biological functions and conservation value and does not degrade due to invasive plant species, trespassing, or illegal dumping.

Monitoring Summary: The USACE mitigation sites were monitored for trash and none was observed. Although there are signs of occasional trespass documented wildlife cameras on the Preserve (not documented in USACE/SWRCB mitigation areas), no vandalism (including trail/fence cutting or signage vandalism) has occurred on the Preserve within the recent past.

C. Infrastructure and Facilities⁵

Element C.1 - Signs, Fences, and Gates

- I. *Initial Task:* Develop a Fire Management Plan (FMP) that establishes policies and approaches to maximize protection of biological resources and preserved waters of the U.S. during fire suppression activities, to the degree feasible. Post-fire response shall be consistent with Section 3.5.3 of the RMP, "Post-Fire Response".

Status: In consultation with the local fire authority, OCTA is preparing fire management plans (FMPs) for each OCTA Preserve. The goal of this effort will be to develop FMPs that are easily implementable, establishes a framework for long-term benefits and protection, and guides decision-makers via policies and guidelines. The FMPs will address all stages of fire management: prevention, vegetation management, suppression, and post-fire responses and will help OCTA make decisions regarding fire management that also reflect conservation and stewardship responsibilities. The consultant has completed the first working draft for one of the FMPs and is currently working on the Trabuco Rose Preserve FMP through coordination with Orange County Fire Authority. It is anticipated that the Trabuco Rose plan will be completed in 2021.

- II. *Task:* During each annual site visit, record condition of signs, fences, and gates. Record location, type, and recommendations to implement fence and/or gate repair or replacement, if applicable.

Monitoring Summary: No existing signs, fencing, or gates are in need of repair or replacement. The fencing is checked on an annual basis to ensure that the wires do not have slack that could ensnare wildlife. Although there are signs of occasional trespass documented wildlife cameras on the Preserve (not documented in USACE/SWRCB mitigation areas), no vandalism (including trail/fence cutting or signage vandalism) has occurred on the Preserve within the recent past.

- III. *Task:* Maintain fences and gates as necessary by replacing posts, wire, and/or gates. Replace signs, fences and/or gates, as necessary. Signage or fencing will be located at potential access points to deter unapproved access to preserved waters of the U.S. (see Section 3.7.4, "Signage" of the RMP).

Monitoring Summary: No fence or gate maintenance was necessary.

⁵ Signs, fences, and gates are not within the mitigation area, but are being utilized to control trespass into the mitigation site at other access points on the property. Fence and gate maintenance and repair frequency will be dependent on trespass and access control issues. There is no existing infrastructure within the USACE mitigation site that may require repairs such as culverts, riprap, and or gabion structures.

D. Cultural Resources

Element D.1 - Management of Cultural Resources

- I. *Task: Preserve Manager will follow directives set forth in the Archeological Sensitivity Assessment (ASA) of how and where cultural resources need to be protected, and the Preserve Manager will use this information to help ensure that activities on the Preserve do not impact any sensitive cultural resources. These include: monitoring by a qualified archaeologist for any ground-disturbing activities within 100 feet of culturally sensitive areas; and if significant portions of the Preserve are ever burned by a wildfire, sensitive areas will be resurveyed for archaeological resources.*

Status: No management activities with the potential to affect cultural resources were conducted.

J. Reporting and Administration

Element E.1 – Program Management

- I. *Task: Coordinate long-term management activities with land manager staff and/or third-party contractors conducting work on the Preserve (i.e., biologists, habitat restoration ecologists, and/or maintenance contractors).*

Status: The Preserve Manager (OCTA) coordinated long-term management activities as-necessary with the entities described above. Specifically, OCTA coordinated biological monitoring and habitat restoration activities with GLA as described in this Annual Report, while maintenance activities were coordinated with Recon.

- II. *Task: Coordinate as needed with the fire department, police department, utility and easement holders, and/or adjacent land owners regarding encroachment issues, transients, or illegal activities, access, or other reasons, as needed.*

Status: No encroachment issues, transients, or illegal activities, access, etc., were documented in USACE/SWRCB mitigation areas on the Preserve and as such, this coordination was not necessary.

Element E.2 – Conservation Easement Enforcement

- I. *Task: This task will be carried out by OCTA or a third-party easement holder and consists of review of the conservation easement and one annual inspection to assess the condition of native and non-native plant species coverage; erosion and sedimentation; hydrology and water quality; signage, fencing, and gates; trespassing/vandalism; general site condition; and will identify remedial measures necessary to maintain site compliance, as applicable. The inspection results and completion of general and habitat maintenance activities described above, corrective actions (if any), and prohibited activities (if any) will be discussed in annual reports (described below).*

Status: Although the conservation easement has not been recorded, biological monitoring is ongoing. As documented throughout this annual monitoring form, the Trabuco Rose Preserve is in good condition. Waters of the U.S. are in stable condition regarding erosion/aggradation and native vegetation communities and composition. No major issues with invasive species or weed invasions were noted. No water quality issues were observed. Signage, fencing, and gates were checked throughout the Preserve and are intact. The USACE/SWRCB mitigation and buffer areas were monitored for trash and none was observed. Although there are signs of occasional trespass documented via wildlife cameras on the Preserve (not documented in USACE/SWRCB mitigation or buffer areas), no vandalism (including trail/fence cutting or signage vandalism) has occurred on the Preserve within the recent past. As discussed above, roads adjacent to USACE/SWRCB mitigation areas should be maintained to prevent the spread of invasive annual weeds and grasses. No other recommendations were necessary.

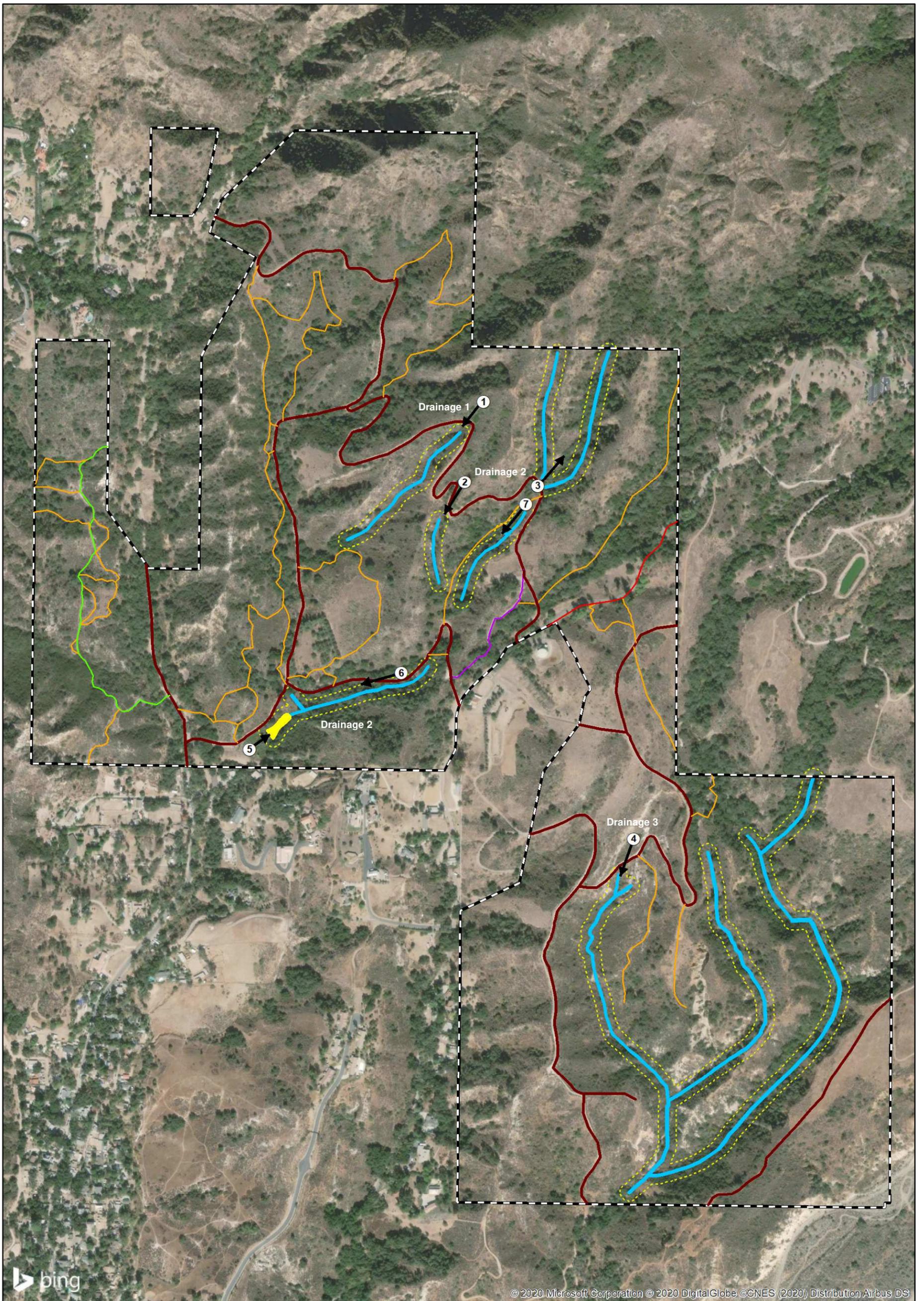
Element E.3 – Annual Report

- I. *Task: Prepare a summary of general USACE mitigation site conditions/monitoring results and management activities for inclusion in the M2 NCCP/HCP Annual Progress Report, which will be submitted per the RMP.*

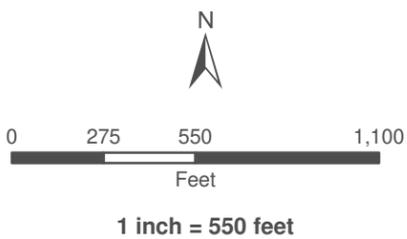
Monitoring Summary: GLA biologists conducted monitoring of the USACE/SWRCB mitigation site and adjacent buffer areas on the Trabuco Rose Preserve on May 1, 2020. On May 21, 2020, arborists from Dudek evaluated trees within the USACE/SWRCB mitigation areas and 50-foot buffer for ISHB, GSOB, and other invasive insects and pathogens and none were found. Overall, the Preserve is in good condition. Waters of the U.S. are in stable condition regarding erosion/aggradation and native vegetation communities and composition. No major issues with invasive species or weed invasions were noted. No water quality issues were observed. Signage, fencing, and gates were checked throughout the Preserve and are intact. The USACE/SWRCB mitigation and buffer areas were monitored for trash and none was observed. Although there are signs of occasional trespass documented via wildlife cameras on the Preserve (not documented in USACE/SWRCB mitigation or buffer areas), no vandalism (including trail/fence cutting or signage vandalism) has occurred on the Preserve within the recent past. As discussed above, roads adjacent to USACE/SWRCB mitigation areas should be maintained to prevent the spread of invasive annual weeds and grasses. No other recommendations were necessary.

- II. *Task: Make recommendations with regard to (1) any habitat enhancement or restoration measures deemed to be warranted, (2) any problems that need near term attention (e.g., weed removal, fence repair, erosion or aggradation control), and/or (3) any changes in the monitoring or management program that appear to be warranted based on monitoring results to date.*

Monitoring Summary: No habitat enhancement or restoration measures are warranted; no issues were documented that require near term attention, other than the recommended road maintenance to prevent the spread of invasive weeds and grasses; and no changes in the monitoring or management program are currently warranted based on 2020 monitoring results.



- Trabuco Rose Preserve Boundary
- Non-Wetland Preservation/Mitigation - 1.61 ac.
- Wetland Preservation/Mitigation - 0.14 ac.
- Corps 50-foot Buffer
- Dirt Roads
- Foot Trails (Decommissioned)
- Foot Trails (Preserve Management)
- Foot Trails (Public Access)
- Paved Road
- Photo Location



TRABUCO ROSE PRESERVE

USACE/SWRCB Preservation/Photo Location Map

GLENN LUKOS ASSOCIATES



Exhibit 1



Photograph 1: Drainage 1 facing southwest. Photo dated May 1, 2020.



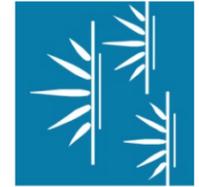
Photograph 2: Drainage 2 facing southwest. Photo dated May 1, 2020.



Photograph 3: Drainage 2 facing northeast. Photo dated May 1, 2020.



Photograph 4: Drainage 3 facing southwest. Photo dated May 1, 2020.



GLENN LUKOS ASSOCIATES
Exhibit 2

TRABUCO ROSE PRESERVE
Site Photographs



Photograph 5: Drainage 2 facing northeast. Photo dated May 1, 2020.



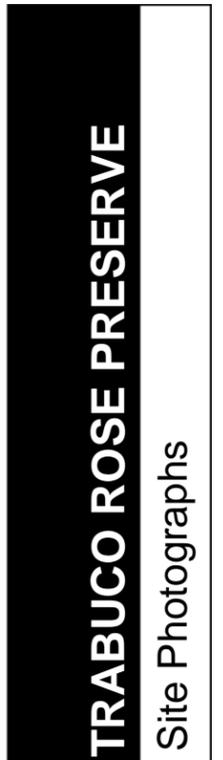
Photograph 6: Drainage 2 facing southwest. Photo dated May 1, 2020.



Photograph 7: Drainage 2 facing south. Photo dated May 1, 2020.



GLENN LUKOS ASSOCIATES
Exhibit 2



APPENDIX B

June 5, 2020

11788

Lesley Hill
Project Manager, Environmental Mitigation Program
Orange County Transportation Authority
550 South Main Street
Orange, California 92868

Subject: Invasive Shot Hole Borer Monitoring – OCTA Preserves, Orange County, California

Dear Ms. Hill,

This letter report includes information from Dudek's invasive shot hole borer (*Euwallacea fornicatus*; ISHB) and Gold Spotted Oak Borer (*Agrilus auroguttatus*; GSOB) monitoring surveys in Wren's View, Trabuco Rose, Bobcat Ridge, and Live Oak Creek. All four properties are owned and managed by the Orange County Transportation Authority (OCTA). Due to the previous (2017, 2018, and 2019) on-site identification of ISHB by Dudek at Wren's View and Trabuco Rose, and the presence of GSOB at Wren's View, OCTA and Glenn Lukos Associates (GLA) expressed concern over the level of infestation and possible spread of ISHB throughout these preserves. As such, OCTA requested that Dudek conduct ISHB monitoring and evaluation surveys to monitor infestation levels of ISHB and GSOB within these Preserves.

To that end, Dudek arborists certified by the International Society of Arboriculture conducted ISHB monitoring surveys within OCTA-managed Wren's View, Trabuco Rose, Bobcat Ridge, and Live Oak Creek Preserves on May 21, 2020. The woodlands within each preserve were visually evaluated for signs of advance decline and/or infestations. The 2020 ISHB surveys focused on collecting information for accessible riparian tree species (primarily sycamore and willow species) and oak woodlands that could be used to estimate the level of ISHB infestation within the four preserves and to provide recommendations for the short- and long-term management of the woodlands and pests.

Assignment

Dudek's assignment included the following:

1. Evaluate previously mapped riparian woodland within Wren's View and Trabuco Rose Preserves maintained by OCTA in Trabuco Canyon, California, for the presence of ISHB and GSOB infestation.
2. Conduct overview evaluations for the presence of ISHB and GSOB within Bobcat Ridge, Live Oak Creek, Wren's View, and Trabuco Rose.
3. Develop a letter report documenting the survey observations and management recommendations.

Methods

Invasive Shot Hole Borer Monitoring

On May 21, 2020, Dudek arborists certified by the International Society of Arboriculture conducted ISHB and GSOB surveys. The surveys were visual surveys limited to the previously mapped riparian tree species within Wren's View and Trabuco Rose Preserves and oak woodlands located within all four preserves. Included in the survey was an assessment of potential infestations of invasive insects and pathogens that can threaten native habitat within 50 feet of preserved waters of the United States as shows in Attachment 1, Figure 17 USACE Preservation/Mitigation Map, prepared by Glenn Lukos Associates. The selection of riparian tree species was based on known ISHB-infested trees documented during the 2017 and 2018 ISHB presence and absence surveys conducted within OCTA Preserves. Dudek arborists evaluated riparian trees and oak woodlands within the four individual preserves and evaluated approximately 1.61 acres of non-wetland preservation/mitigation areas, and 0.14 acres of wetland mitigation area located in Trabuco Rose (light blue drainages and yellow wetland polygon shown in Attachment 1). The locations of the individual mitigation preservation sites and woodlands are illustrated in Attachment 2, Woodland Locations.

The evaluations included visiting accessible riparian areas (primarily sycamore and willow species) and oak woodlands on the four properties. The surveys were conducted by teams of two (Christopher Kallstrand and Ryan Allen) that visited each riparian and oak woodland and visually surveyed each for potential signs and symptoms of the presence of ISHB. The evaluations were primarily overview visual evaluations that inspected woodlands for signs of ISHB and/or GSOB. Signs included, but were not limited to, crown dieback and/or decline and the observation of bore holes and/or staining.

Findings

Invasive Shot Hole Borer Monitoring

Dudek arborists re-evaluated 161 riparian trees within the two individual preserves (Wren's View and Trabuco Rose), which included an evaluation of trees located within 50 feet of preserved waters of the United States for the presence of ISHB and other pests. In summary, and consistent with 2019, 134 riparian trees were evaluated in Trabuco Rose Preserve, and 27 riparian trees were evaluated in Wren's View Preserve. Of the two preserve locations surveyed, each were found to contain riparian tree species that exhibit signs and symptoms of ISHB infestation. However, no trees located within 50 feet of preserved waters of the United States, identified in Attachment 1, were found to have invasive insects and pathogens.

Within the two preserves, 21 riparian trees (13 in Wren's View Preserve and 8 in Trabuco Rose Preserve) continued to exhibit signs and symptoms of ISHB. Signs of potential ISHB observed in these trees consisted of bore holes (perfectly round and <0.1 inches in diameter), bark staining (oily dark stain), and frass exudate (sawdust from boring). Symptoms of ISHB included discolored wood, leaf discoloration and wilting, and dieback of entire branches. Infestation rates ranged from high to low. In total, 14 trees had low infestation rates (Trabuco Rose – 7 trees, Wren's View – 7 trees), 6 trees had moderate infestation rates (Trabuco Rose – 1 tree, Wren's View – 5 trees.). ISHB was not observed on any red willow (*Salix laevigata*), and no newly infested trees were observed. As such, no trees located within 50 feet of preserved waters of the United States were found to have invasive insects and/or pathogens.

Individual tree locations are presented in Attachment 2. No new pests and/or disease were observed within the remaining preserves.

Gold Spotted Oak Borer Monitoring

Dudek arborists visited Wren’s View Preserve on May 21, 2020, to evaluate nine coast live oak trees previously found to exhibit signs of GSOB in 2019. Consistent with Dudek’s 2019 surveys, levels of potential GSOB within the nine trees ranged from low (five trees) to moderate (four trees). No trees were found to have high occurrences of GSOB exit holes. The nine trees are comprised of two trees in fair health, three trees in poor health, and four dead trees. As shown in Attachment 3, Goldspotted Oak Borer Distribution Overview at Wren’s View Preserve, the trees exhibiting signs of GSOB are located along Live Oak Canyon Road and along a site access road within the preserve. It should be noted, that this was not an individual tree survey, and only the trees previously found to exhibit GSOB were inspected. However, during the evaluations, Dudek visually assessed adjacent tree crowns for signs of significant decline and/or stress. During the visual assessment, no significant crown decline was noted on trees adjacent to those observed to potentially have GSOB in 2019.

Discussion and Recommendations

Invasive Shot Hole Borer Surveys, Monitoring, and Trapping

Based on the results of the 2019 and 2020 surveys within the four Preserves, ISHB and GSOB continues to be in the early stages of infestation at Trabuco Rose and Wren’s View. Furthermore, with the exception of three interior trees found on the Trabuco Rose Preserve and two interior trees found on the Wren’s View Preserve, the majority of ISHB signs and symptoms continue to be found on the periphery of the western boundaries of the two sites. The observation of ISHB along the sites’ western boundaries along Trabuco Canyon is believed to be due to high infestation levels observed throughout O’Neill Regional Park and ISHB’s active spread throughout the region. Alternatively, the observation of ISHB sign within the interior of the two preserves continues to be considered an outlier from the observed population along the edge of the two properties. However, based on the ISHB’s potential for spread, it is within the ISHB’s zone of influence/impact for the area.

Signs of GSOB activity continue to present themselves in the interior of Wren’s View. However, with the exception of two dead trees (previously found to have GSOB) the overall health condition of the trees at the preserve remains fair. Furthermore, sign of GSOB appears to be limited to the trees that were initially found to be infested in 2019. No signs and/or significant crown dieback was observed at the remaining three parks. As such, the GSOB infestation appears limited to Wren’s View at the time of the surveys.

Observed levels of ISHB within Trabuco Rose and Wren’s View preserves, and levels of GSOB with Wren’s View were consistent with the 2018 and 2019 surveys, and no new occurrences of ISHB were observed. As such, Dudek recommends that OCTA maintain an active ISHB monitoring, treatment, and removal program that focuses on riparian tree species identified and mapped within the previous letter reports. Specifically, it is recommended that this program focus on high-priority areas located throughout OCTA Preserves. Areas that should be considered for monitoring include but are not limited to high-use recreation areas, native oak woodlands, and riparian areas that do not contain ISHB, and those areas identified within this letter report. The frequency of ISHB monitoring within the selected areas should be conducted on a biweekly (i.e., every other week) basis during peak flight season (November through March). Active and frequent monitoring would allow OCTA land managers to identify ISHB quickly and to remove infested material

Ms. Lesley Hill

Subject: *Invasive Shot Hole Borer Monitoring – OCTA Preserves, Orange County, California*

before ISHB spreads into uninfested areas. This type of monitoring is currently employed in Riverside County by the U.S. Fish and Wildlife Service in conjunction with UCR. As previously stated, with many insect infestations, it is at the early stages that the outbreak/infestation can be controlled. As such, routine monitoring of the site will play an important role in managing ISHB and GSOB within OCTA preserves.

Conclusion

This letter report provides conclusions and recommendations based on the examination of trees located within Bobcat Ridge, Live Oak Creek, Wren's View, and Trabuco Rose Preserves; a visual examination of the trees and surrounding site by Dudek's International Society of Arboriculture-certified arborists; and the reasonable reliance on the completeness and accuracy of the information provided to the arborists. The examination did not include subterranean or internal examination of the trees.

Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees; recommend measures to enhance the beauty and health of trees; and attempt to reduce the risk of living near them. Although trees provide many benefits to those who live near them, they also include inherent risks from breakage or failure that can be minimized but not eliminated.

Arborists cannot detect every condition that could possibly lead to the failure of a tree. Trees are living organisms subject to attack by disease, insects, fungi, weather, and other forces of nature, and conditions that lead to failure are often hidden within trees and below ground. There are some inherent risks associated with trees that cannot be predicted with any degree of certainty, even by a skilled and experienced arborist. Arborists cannot predict acts of nature, including storms of sufficient strength, which can cause even an apparently healthy tree to fail. Additionally, arborists cannot guarantee that a tree will be healthy or safe under all circumstances or for any specific period of time. A tree's condition could change over a short or long period of time due to climatic, environmental, and other conditions. Further, there is no guarantee or certainty that recommendations or efforts to correct unsafe conditions will prevent future breakage or failure of a tree.

To live or work near trees is to accept some degree of risk. Neither the author of this letter report nor Dudek assumes responsibility or liability for any claims, losses, or damages to any tree, death or injury to any person, or loss of or damage to any personal or real property.

I would be pleased to answer any questions or respond to any comments regarding this letter report. I can be contacted at 949.373.8310 or ckallstrand@dudek.com.

Sincerely,



Christopher J. Kallstrand
Certified Arborist No. WE-8208A

Att.: 1, *Figure 17 USACOE Preservation/Mitigation Map*
2, *Woodland Locations*
3, *Goldspotted Oak Borer Distribution Overview at Wren's View Preserve*

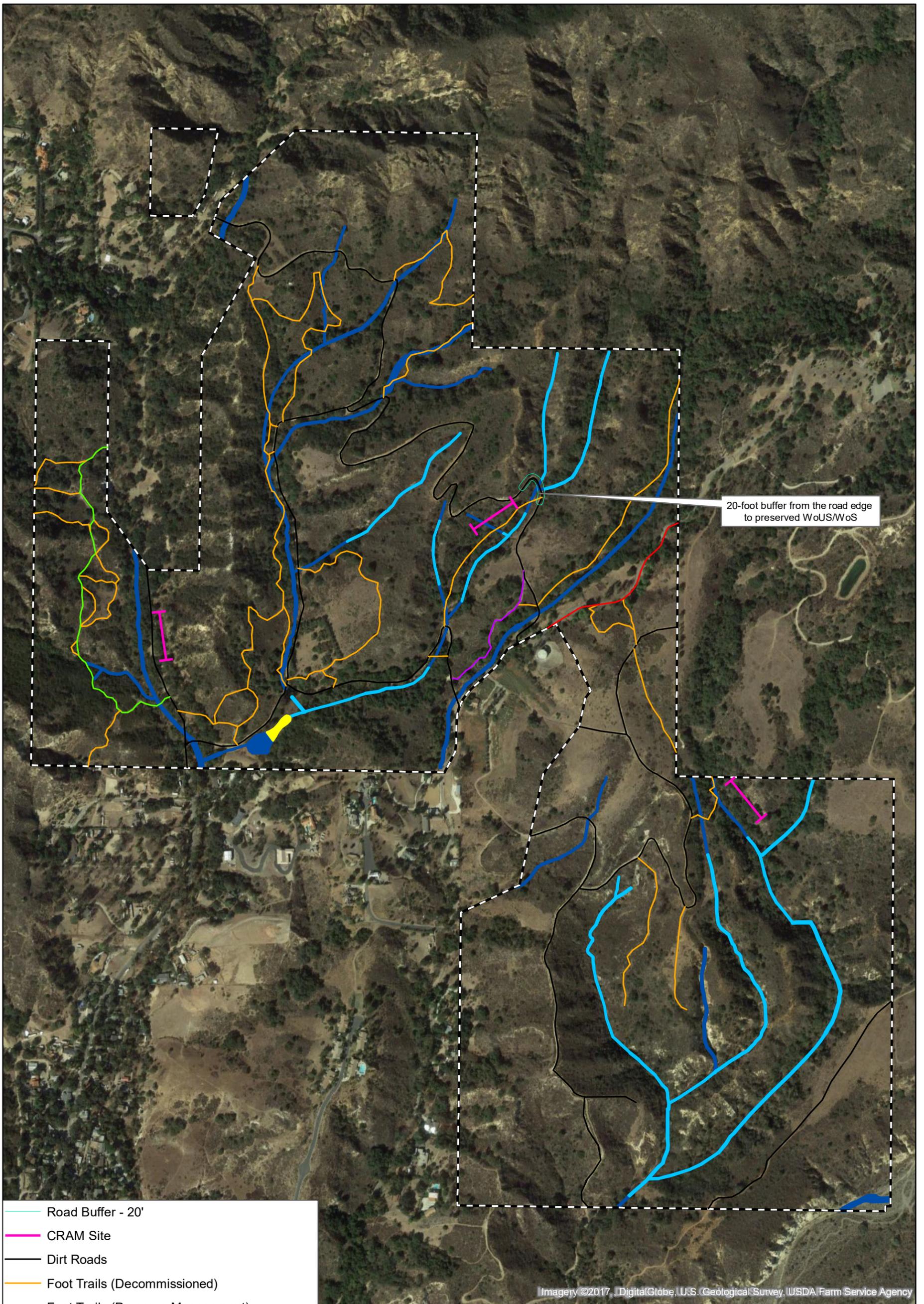
References Cited

- Center for Invasive Species Research. 2014. "Polyphagous Shot Hole Borer." University of California, Riverside. Accessed August 2018. http://cistr.ucr.edu/polyphagous_shot_hole_borer.html.
- Seybold, S.J., T.D. Paine, and S.H. Dreistadt. 2008. "Bark Beetles." Pest Notes 7421. Revised November 2008. Accessed August 2018. <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7421.html>.
- UCR (University of California, Riverside). 2019. "About Goldspotted Oak Borer." University of California Cooperative Extension Website. Accessed January 13, 2020. https://ucanr.edu/sites/gsobinfo/About_Goldspotted_Oak_Borer_930/.
- University of California. 2018. "Invasive Shot Hole Borer." Pest and Diseases of Southern California Oaks. University of California, Division of Agriculture and Natural Resources. Accessed August 2018. <http://ucanr.edu/sites/pshb/>.



Attachment 1

Figure 17 USACOE Preservation/Mitigation Map



- Road Buffer - 20'
- CRAM Site
- Dirt Roads
- Foot Trails (Decommissioned)
- Foot Trails (Preserve Management)
- Foot Trails (Public Access)
- Paved Road
- Ferber Ranch Preserve Boundary
- Non-Wetland Preservation/Mitigation - 1.61 ac.
- Wetland Preservation/Mitigation - 0.14 ac.
- Non-Mitigation WoUS/WoS

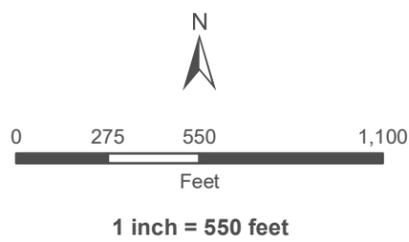


FIGURE 17

USACOE Preservation/Mitigation Map

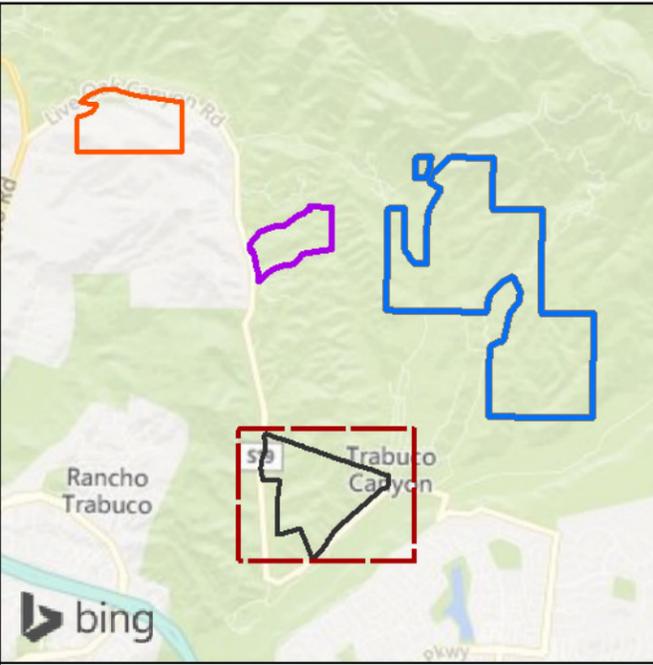
GLENN LUKOS ASSOCIATES





Attachment 2

Woodland Locations

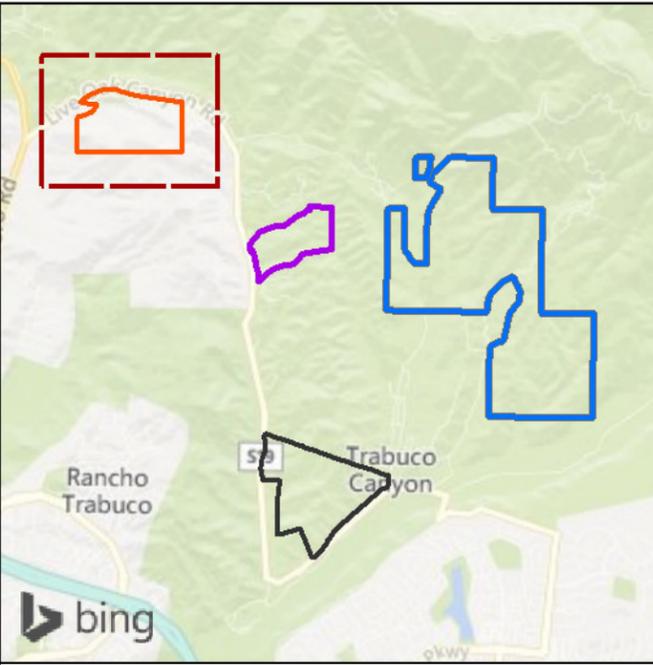
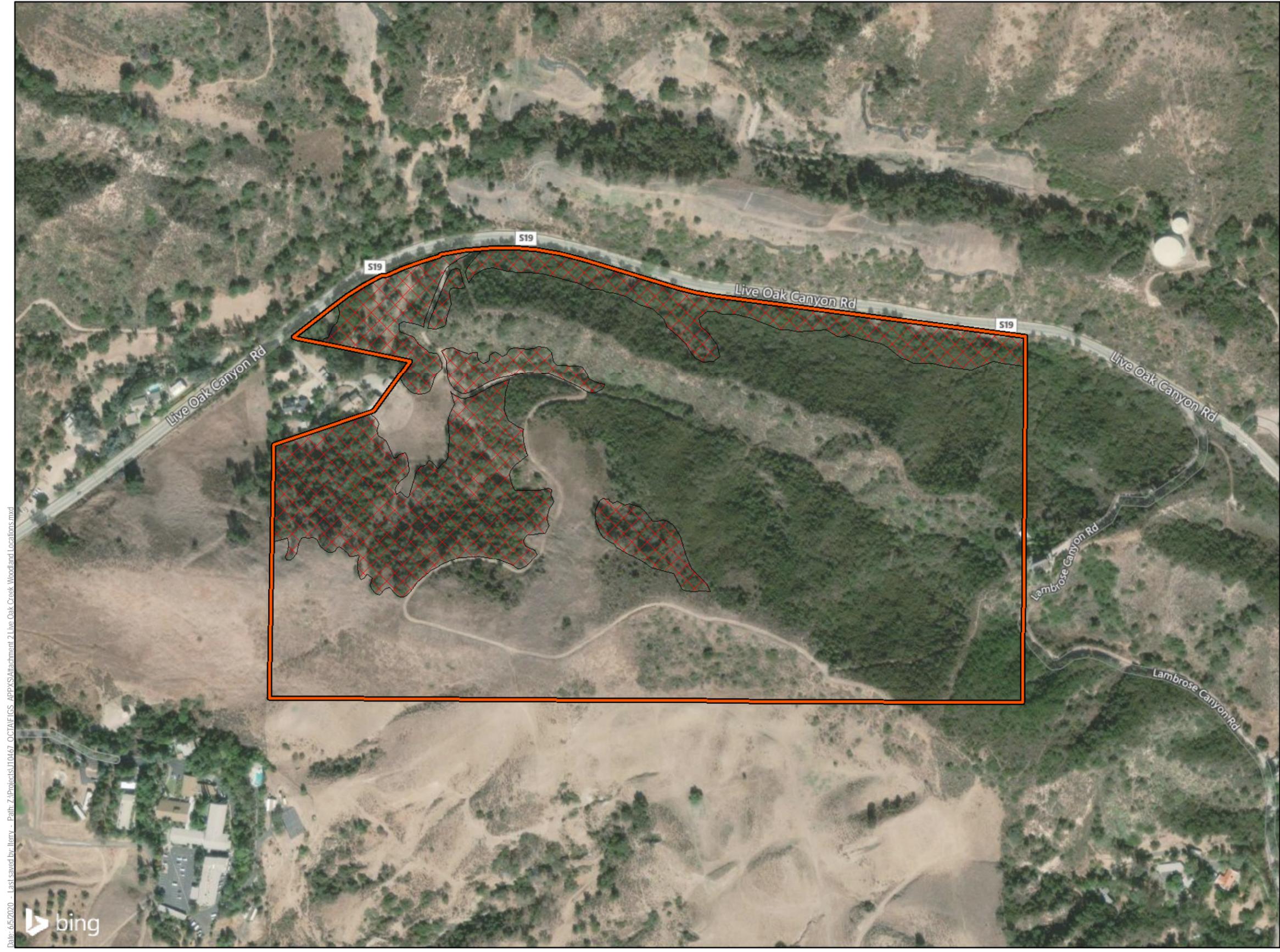


-  Coast Live Oak Woodland (12.54 Ac.)
-  Wrensvew Preserve
-  Bobcat Ridge Preserve
-  Saddlecrest South Preserve
-  Trabuco Rose Preserve

Date: 6/5/2020 - Last saved by: lterry - Path: Z:\Projects\110467 - OCTA\FIGS - APP\SS\Attachment 2\Wrensvew\Woodland Locations.mxd

SOURCE: AERIAL - BING MAPPING SERVICE 2019



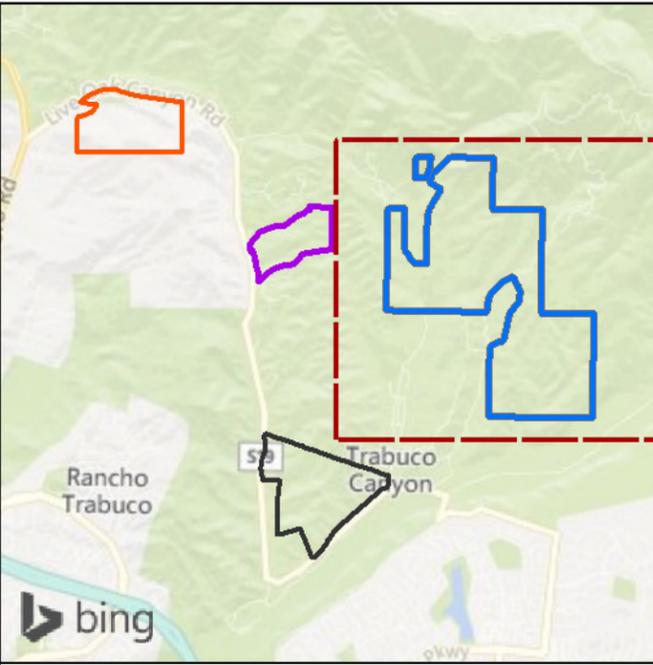
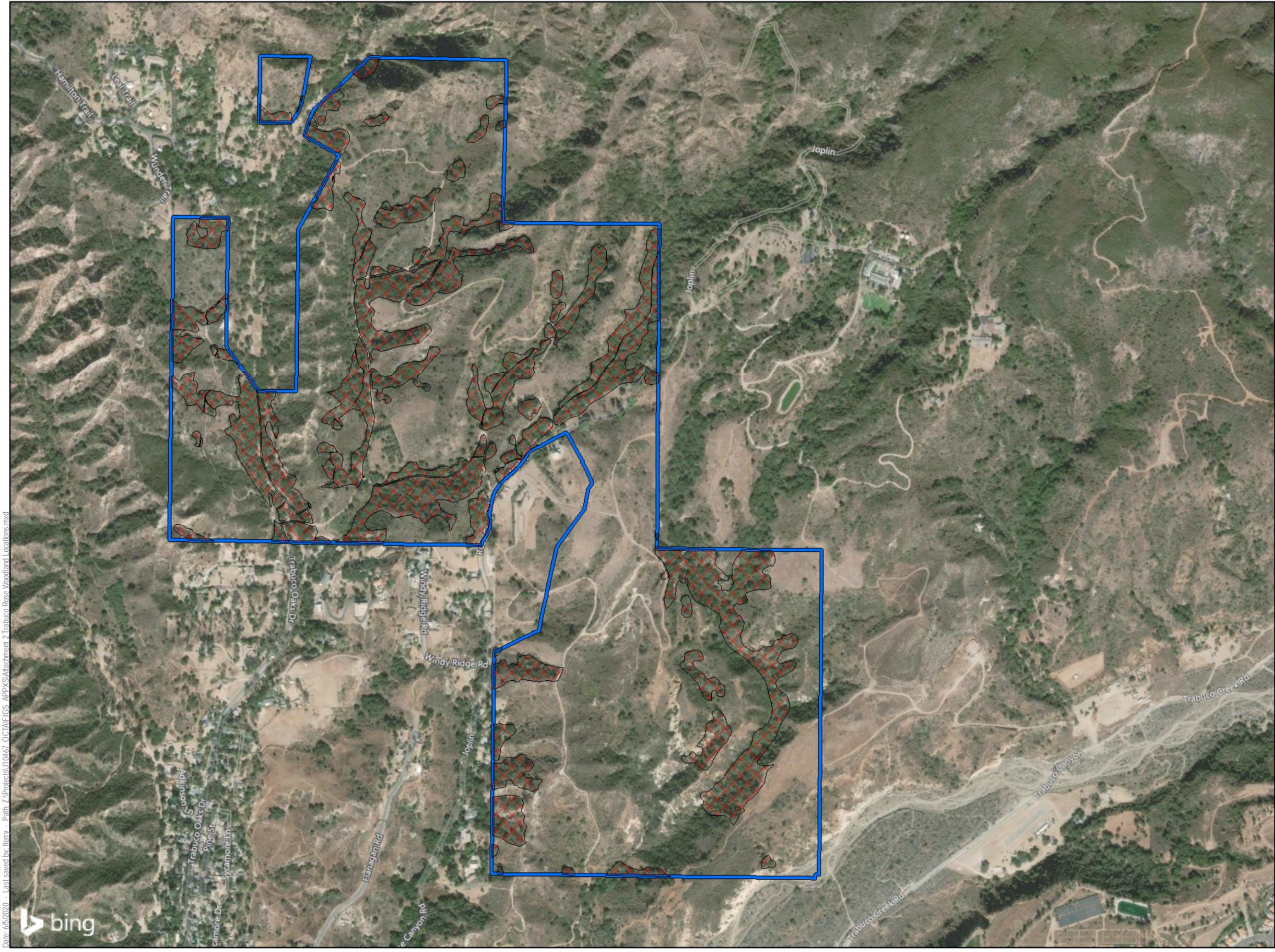


-  Coast Live Oak Woodland (19.15 Ac.)
-  Saddlecrest South Preserve
-  Bobcat Ridge Preserve
-  Trabuco Rose Preserve
-  Wrensview Preserve

Date: 6/5/2020 - Last saved by: lterry - Path: Z:\Projects\110467 - OCTA\FIGS - APP\SS\Attachment 2 Live Oak Creek Woodland Localities.mxd

SOURCE: AERIAL - BING MAPPING SERVICE 2019

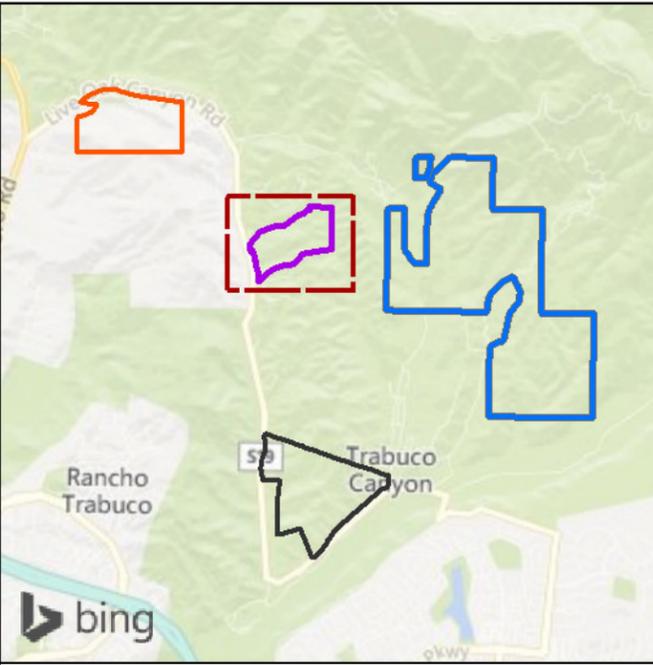
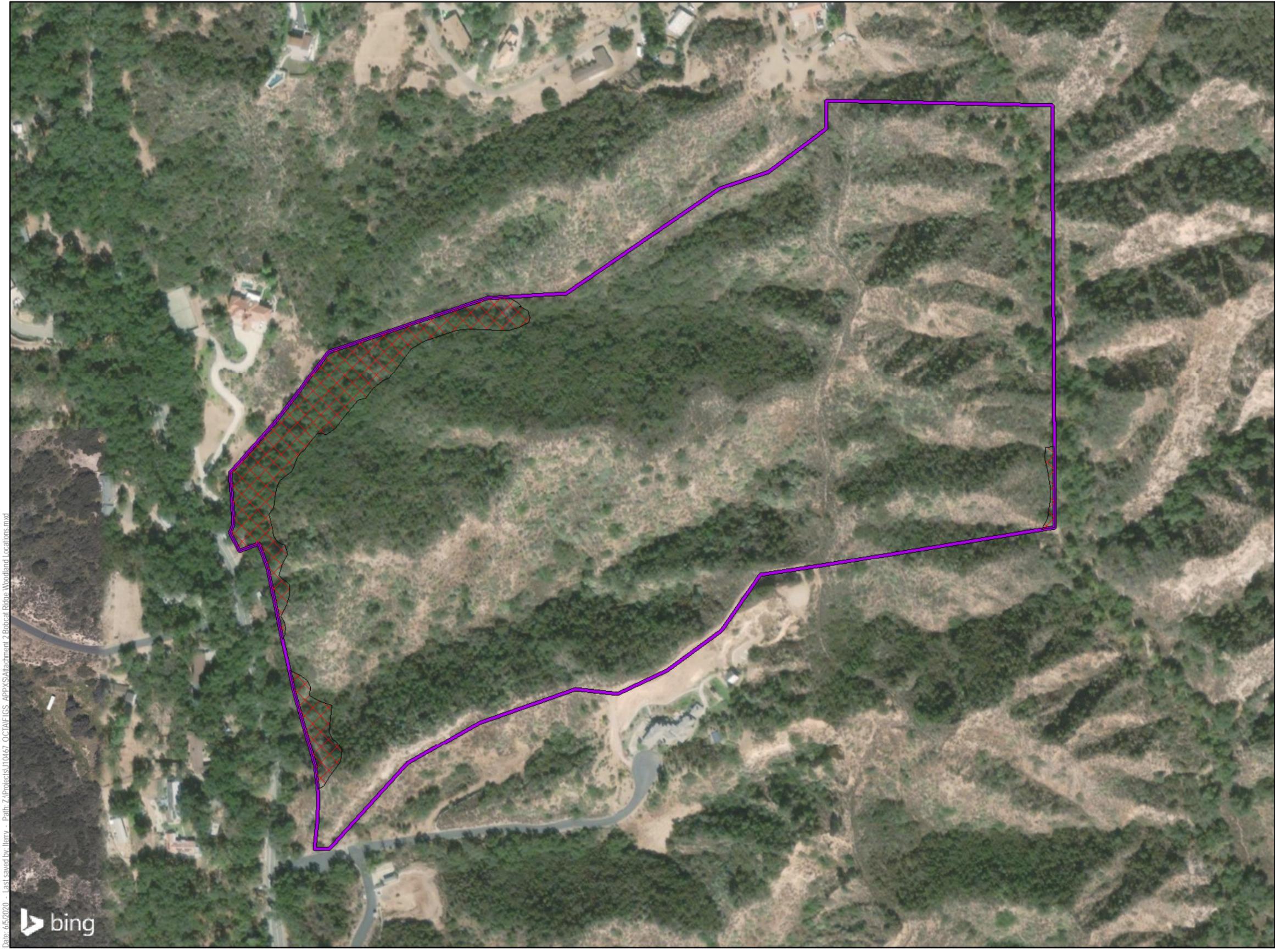




-  Coast Live Oak Woodland (92.04 Ac.)
-  Trabuco Rose Preserve
-  Saddlecrest South Preserve
-  Wrensvew Preserve
-  Bobcat Ridge Preserve

Date: 05/2020 - Last saved by: lerry - Path: Z:\Projects\110467 - OCTAVE\FIGS - APP\SS\Attachment 2 Trabuco Rose Woodland Locations.mxd

SOURCE: AERIAL- BING MAPPING SERVICE 2019



-  Coast Live Oak Woodland (2.80 Ac.)
-  Bobcat Ridge Preserve
-  Saddlecrest South Preserve
-  Trabuco Rose Preserve
-  Wrensvew Preserve

Date: 6/5/2020 - Last saved by: lterry - Path: Z:\Projects\110467 - OCTA\FIGS - APPX\Attachment 2 Bobcat Ridge Woodland Locations.mxd



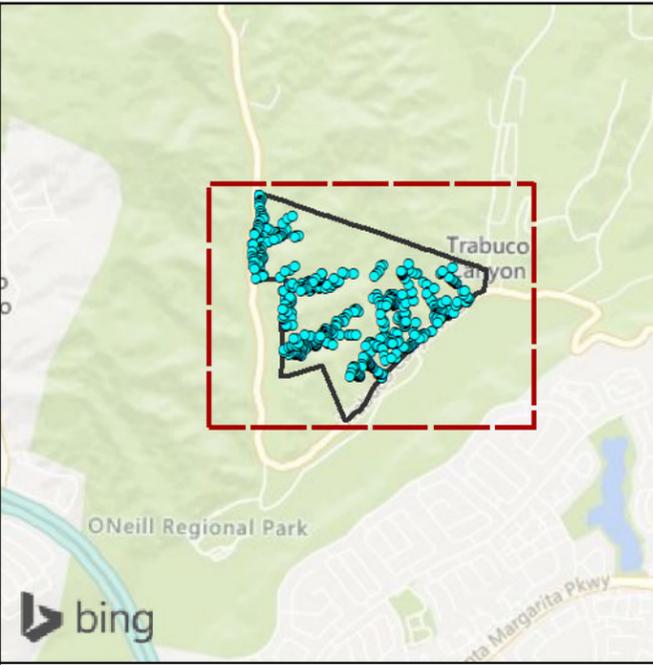
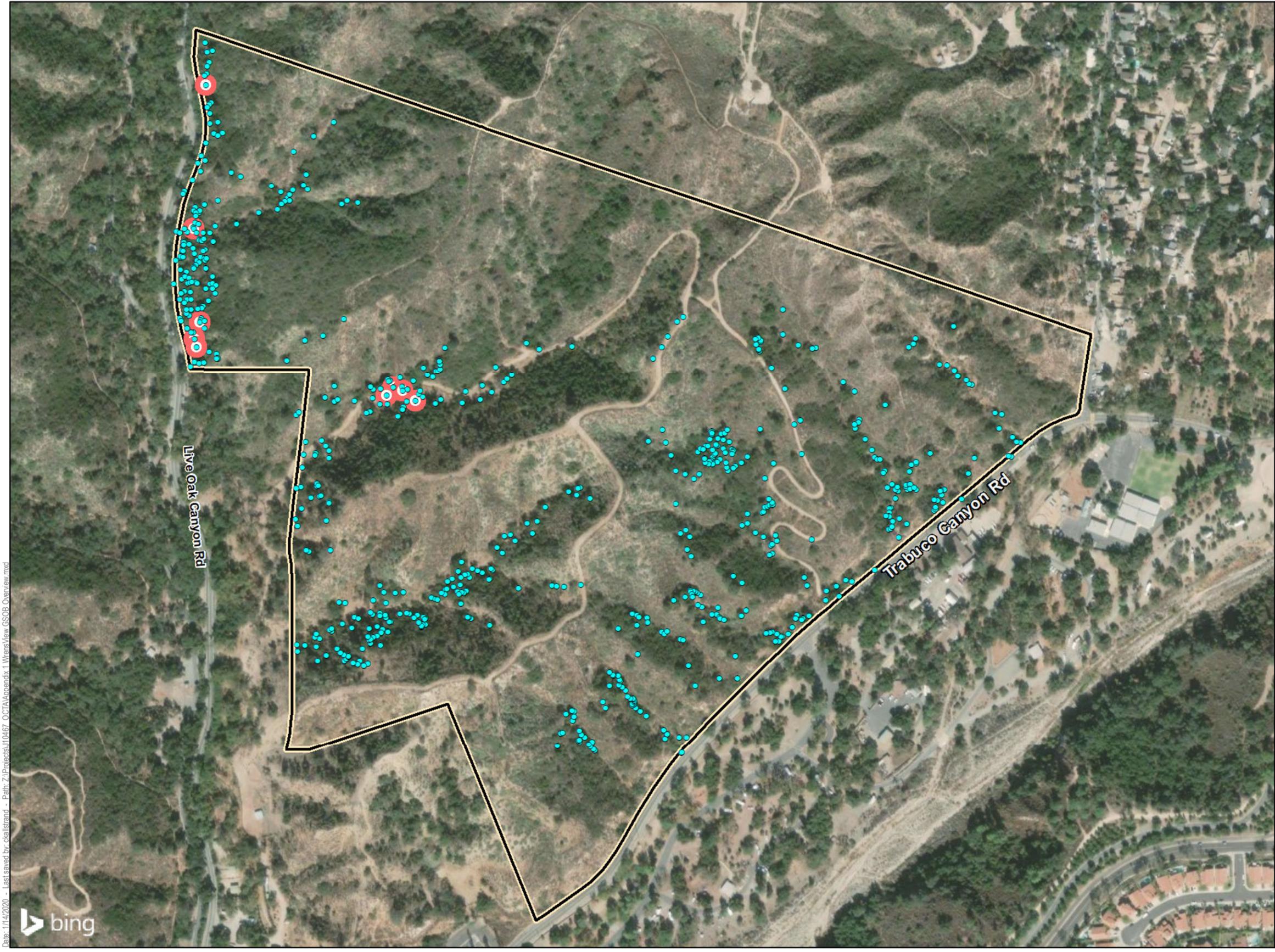
SOURCE: AERIAL - BING MAPPING SERVICE 2019





Attachment 3

Goldspotted Oak Borer Distribution at Wren's View Preserve



-  Wrensvew Preserve
-  Coast Live Oak
-  QUAG-GSOB

Date: 1/14/2020 - Last saved by: djalistrand - Path: Z:\Projects\110467_OC\Appendix 1\WrensView_GSOB_Overview.mxd

SOURCE: AERIAL- BING MAPPING SERVICE 2017



APPENDIX C

Memorandum

To Setal Prabhu, SCE Page 1

CC Michelle Fehrensens, AECOM

Subject Pacific Horizons Preserve Weed Control

From Chris Hargreaves, AECOM Restoration Ecologist

Date August 26, 2020

Southern California Edison (SCE) is requesting authorization to conduct weed control within and adjacent to the Pacific Horizon Preserve (Preserve), as further described in the Biological Resources Survey Report for the Pacific Horizon Preserve Restoration Project (Bio Resources Survey Report) (SCE 2020). The Bio Resources Survey Report documents temporary impacts associated with SCE’s Pole Replacement and Vegetation Management Activities on their Acres 12kV/Agate 12kV Distribution Lines as well as project background and description, regulatory requirements for the work conducted, and summarizes the survey methodology, habitat impacts, and completed and planned restoration activities to address after-the-fact impacts.

Weed control within the temporary impact areas will be initiated upon California Coastal Commission (CCC) approval. Table 1 lists the non-native weed species observed within SCE’s impact areas, as provided in the Bio Resources Survey Report, that will be targeted for removal. Also included in Table 1 are the California Invasive Plant Council ratings, blooming periods and timing to conduct removal/treatment for each of the species

Table 1. Target Non-Native Weed Species

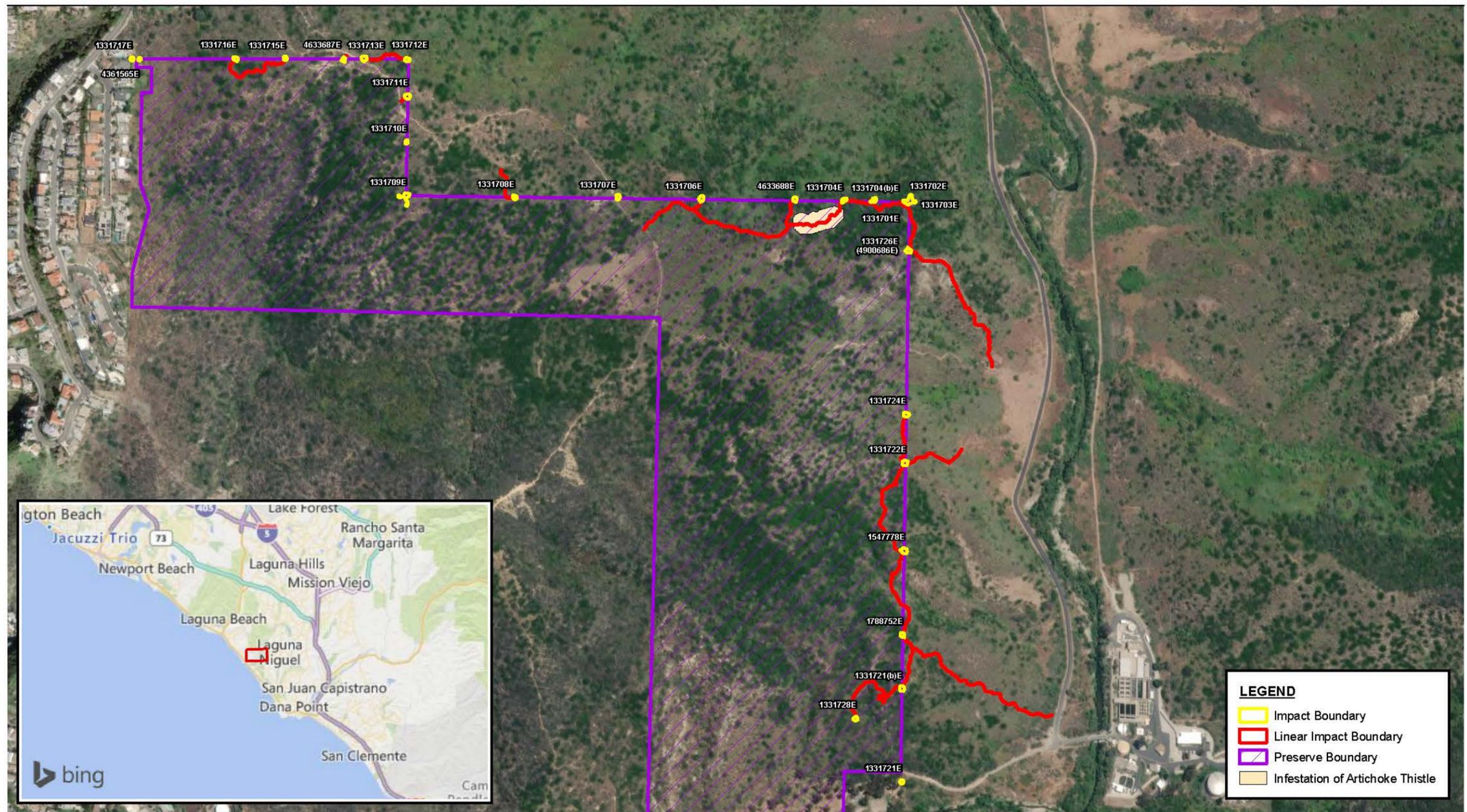
Scientific Name	Common Name	Cal-IPC Rating	Bloom Period	Timing
<i>Avena barbata</i>	slender wild oat	Moderate	March-June	Feb and April 2021
<i>Bromus madritensis</i> spp. <i>Rubens</i>	red brome	High	February-March	Feb and April 2021
<i>Carduus pycnocephalus</i>	Italian thistle	Moderate	February-July	Sept 2020, Feb-July 2021
<i>Carpobrotus edulis</i>	freeway iceplant	High	February-October	Sept 2020, Feb-July 2021
<i>Centaurea melitensis</i>	tochalote	Moderate	April-August	Sept 2020, April-July 2021
<i>Cynara cardunculus</i>	artichoke thistle	Moderate	April-July	Sept 2020, April-July 2021
<i>Cortaderia selloana</i>	Selloa pampas grass	High	September-March	Sept 2020, Feb-April 2021
<i>Foeniculum vulgare</i>	sweet fennel	Moderate	March-September	Sept 2020, April-July 2021
<i>Lysimachia arvensis</i>	scarlet pimpernel	NA	March-September	Feb-July 2021
<i>Marrubium vulgare</i>	horehound	Limited	March-August	Sept 2020, April-July 2021
<i>Nicotiana glauca</i>	artichoke thistle	Moderate	March-September	Sept 2020, April-July 2021

<i>Salsola tragus</i>	Russian thistle	Limited	July-October	Sept 2020, July 2021
<i>Schinus mole</i>	Peruvian pepper tree	Limited	March-July	Sept 2020, April-July 2021
<i>Silybum marianum</i>	milk thistle	Limited	April-July	Sept 2020, April-July 2021
<i>Sonchus asper</i>	prickly sow thistle	NA	February-October	Sept 2020, Feb-July 2021

California Invasive Plant Council (Cal-IPC) Invasive Plant Inventory Database

SCE will conduct four weed control visits over the course of a year. Each visit will be appropriately timed to maximize efficacy for the target weed species. Weed control will be conducted by methods provided in the Pacific Horizon Preserve’s Invasive Species Management Plan (ISMP, 2018), and are anticipated to include hand pulling, cutting, seed removal, and use of chemical herbicide (growth inhibitors). Herbicide application will be conducted only when weather conditions are conducive to effective uptake of the herbicide by the target species (e.g., sunny, dry with moderate temperatures, and when plants are at the peak growing stage), and when wind conditions are such that herbicide drift is minimized (five mph or less). All non-native weeds and their associated debris will be removed and properly disposed of offsite. A designated restoration ecologist will observe and direct all weed removal efforts to ensure only the target species are removed/treated and that no native vegetation is affected, with extra care to be taken around rare and sensitive species where no chemical herbicide will be used.

With CCC approval, SCE will conduct weed removal in September 2020, February 2021, April 2021, and July 2021 as shown in the “Timing” column in Table 1. September 2020 is not the most ideal time to conduct weed removal, however it will be the first opportunity to conduct weed removal following SCE’s impacts and receiving approval from CCC. The September weed removal visit will still provide benefit by removing the late-season weed species as well as to capture any remaining seed heads of the early and mid-season perennials such as milk thistle and Italian thistle. Artichoke thistle is also a mid-season perennial that will still have seed heads intact in September. In addition to removal of the seed, the artichoke thistle that is dense in the area between poles 4633688E and 1331704E (see Figure 1) will also be cut in September and then treated in April (when in the rosette stage), as per the ISMP.



Source: Vivid Maxar 2018; SCE 2019; AECOM 2020.
 500 250 0 500 Feet
 Scale: 1:3,000; 1 inch = 250 feet

LEGEND
 Impact Boundary
 Linear Impact Boundary
 Preserve Boundary
 Infestation of Artichoke Thistle

Figure 1
Weed Control Areas in Pacific Horizon Preserve and Aliso & Wood Canyons Wilderness Park

Monday (9/28)
-Weed removal



Iceplant at 1331717E, facing west and north-Before



Iceplant at 1331717E, facing south-After



Additional trail (created by hikers) leading to 1331715E; blocked with side cast material



1331715E completely free of weeds



Iceplant removal at 4633687E



Avoided intermediate mariposa lily growing amongst the iceplant at 4633687E



Scarlett pimpernel and fennel removed at 1331707E



1331709E completely free of weeds aside from spent non-native grasses



Cutting and bagging artichoke thistle heads along trail leading from pole 1331806E to pole 4633688E

Tuesday (9/29)
-Weed removal



Spent mustard and hemlock seeds and Russian thistle removed from 1331726E



Large patch of horehound being removed at 1331701E



Tree tobacco at 1331704(b)E-Before



Tree tobacco at 1331704(b)E-After



Artichoke thistle patch-Before



Artichoke thistle patch-After



Artichoke thistle patch-Before



Artichoke thistle patch-After

Wednesday (9/30)

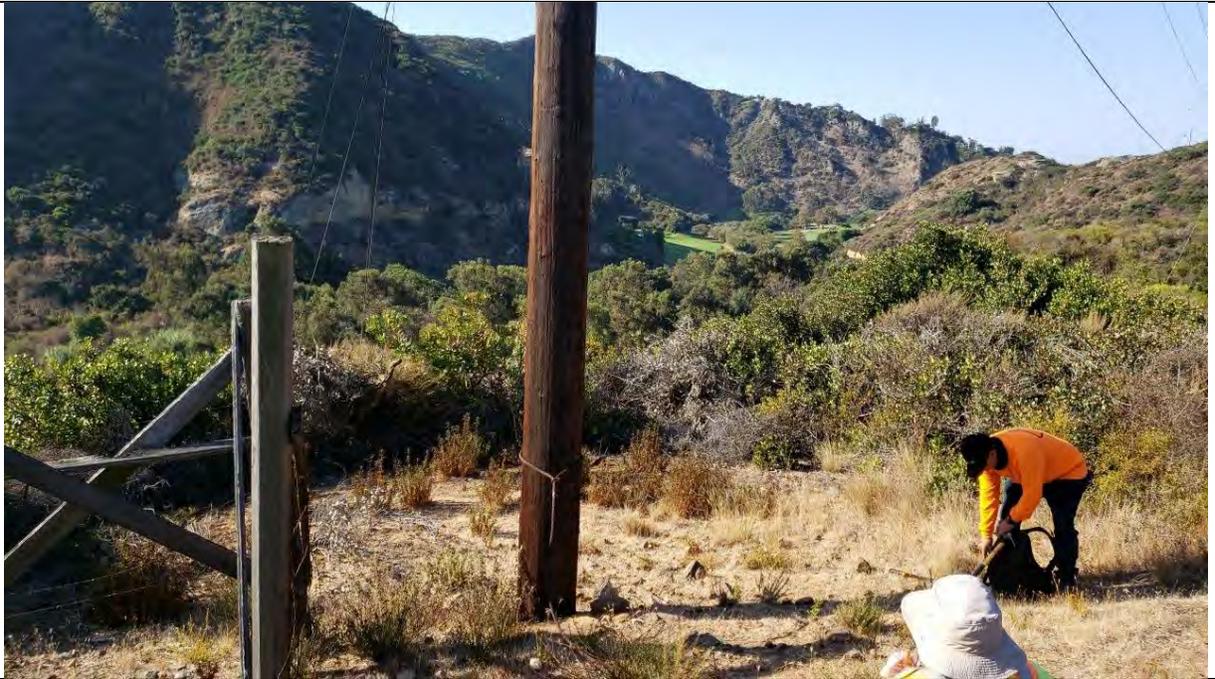
-Weed removal and side cast cleanup



Side cast cleanup at 1788752E; facing southeast. Before (left) and After (right)



Side cast cleanup at 1788752E; facing northwest. Before (left) and After (right)



Side cast cleanup at 1331721(b)E; facing south-Before



Side cast cleanup at 1331721(b)E; facing south-After. Avoided western dichondra present around the base of pole



Side cast cleanup along trail leading to 1331721(b)E. Before (left-facing south) and After (right-facing north)



Side cast cleanup along trail leading to 154778E. Before (left) and After (right)

Thursday (10/01)
-Weed removal and side cast cleanup



Side cast cleanup along trail leading to 1331728E



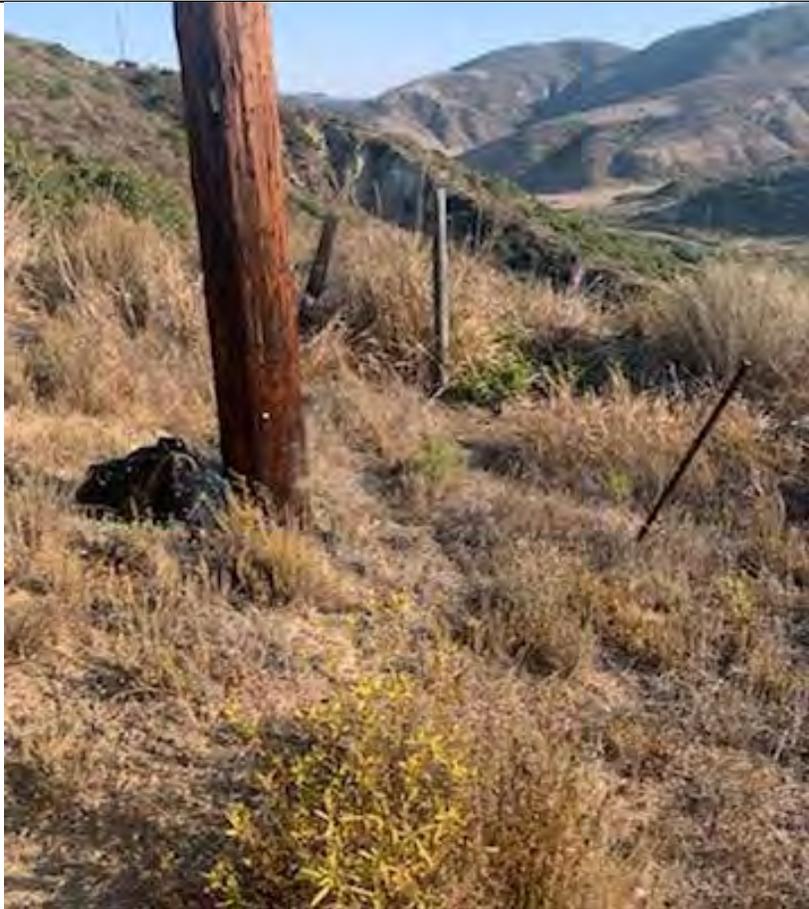
Artichoke thistle head removal along trail leading from Aliso Cyn Rd. to 1788752E. Before (left) and After (right)



Minor side cast removal at 1331728E; completely free of weeds



Side cast cleanup along trail leading to 1331722E



Minor side cast removal at 1331724E; completely free of weeds

APPENDIX D

MEMORANDUM

GLENN LUKOS ASSOCIATES

Regulatory Services



TO: Lesley Hill, OCTA

FROM: Lexi Kessans and Trina Ming, GLA

DATE: June 11, 2020

SUBJECT: Third Quantitative Monitoring Associated with the Road Encroachment Area at OCTA's Bobcat Ridge Preserve, Located in Trabuco Canyon, Orange County, California

The purpose of this memorandum is to document the 2020 quantitative monitoring associated with the road encroachment area (Encroachment Area) at Bobcat Ridge Preserve, a property owned by Orange County Transportation Authority (OCTA). The Preserve is one of seven of OCTA's properties associated with their Measure M2 Environmental Mitigation Program. The 48-acre Preserve is located northwest of the City of Rancho Santa Margarita in Trabuco Canyon, immediately adjacent to the east side of Live Oak Canyon Road, north of its intersection with Shelter Canyon Road and is accessed from Live Oak Canyon Road, Shelter Canyon Road, and Hunky Dory Lane.

OCTA was notified by California Department of Fish and Wildlife (CDFW) in January 2017 of a disturbance at the southern boundary of the Bobcat Ridge Preserve. The adjacent resident had cleared and graded a dirt road to provide access to an additional part of his property. OCTA and Glenn Lukos Associates (GLA) conducted a site visit on February 2, 2017 to review and map the Encroachment Area, which totaled approximately 0.135 acre (617 linear feet) to areas mapped as California sagebrush-California buckwheat scrub and scrub oak chaparral. Three individual intermediate mariposa lily (*Calochortus weedii* var. *intermedius*) points and one intermediate mariposa lily point mapped as a population of three were located in the disturbance footprint. OCTA has been in contact with the resident to discuss the property boundary location and sensitivity of the Preserve's resources. GLA conducted additional site visits on August 18, 2017 and November 21, 2017 to review status of the Encroachment Area that had passively recovered since the initial disturbance. GLA conducted the first quantitative monitoring event on December 18, 2018. The second quantitative monitoring event occurred on May 2, 2019.

On May 26, 2020, GLA biologists Stephanie Cashin and Trina Ming conducted the third quantitative monitoring event and took photographs from the same position and orientation as photo location points established during the first quantitative monitoring event in 2018 along the road encroachment area. Quantitative monitoring included walking the entire length of the Encroachment Area to document native habitat re-establishment, including percent cover and species recruitment [Exhibit 1: Road Encroachment Area Map (showing photo locations), Exhibit 2: Site Photos]. Note that two wildlife cameras were established along the encroachment in 2019

MEMORANDUM

June 11, 2020

Page 2

to document wildlife usage and unauthorized activities. The cameras did not pick up any unauthorized activities; however, a trash bag was placed over the southern camera [see Exhibits 1 and 2 – Photo Location 6].

New impacts to native vegetation were observed within approximately 0.04 acre (175 linear feet) or approximately 30-percent of the Encroachment Area during the third quantitative monitoring site visit. As such, these results are described as two categories: Re-disturbed Area and Previously Disturbed Area.

Within the Re-disturbed Area, young shrubs of deerweed (*Acmispon glaber*) and California buckwheat (*Eriogonum fasciculatum*) and non-native species red brome (*Bromus madritensis* ssp. *rubens*) and crete weed (*Hedypnois cretica*) appeared to be weed whipped to less than an inch above the ground. This area coincides with the area between Photo Location 1 and Photo Location 2 as shown on Exhibits 1 and 2.

I. RE-DISTURBED AREA

Due to the new impacts described above, the Re-disturbed Area remains largely bare. The third quantitative monitoring indicates that this area consists of approximately 70-percent bare ground, approximately 29-percent native species coverage, and approximately 1-percent non-native species coverage. Signs of passive restoration are noted with emergence of seedlings of deerweed and California buckwheat that were impacted prior to the third quantitative monitoring. Growth of non-impacted species along the margins of the Re-disturbed Area including existing California buckwheat, black sage (*Salvia mellifera*), and California sagebrush (*Artemisia californica*) has facilitated some revegetation in this area.

Native species detected in this area include (listed in order of relative dominance): deerweed, California buckwheat, black sage, California sagebrush, sandaster (*Corethrogyne filaginifolia*), sapphire eriastrum (*Eriastrum sapphirinum*), telegraph weed (*Heterotheca grandiflora*), and bedstraw (*Galium* sp.).

Non-native species coverage during the third quantitative monitoring is low, with one non-native species, crete weed, comprising 1-percent of this area. This is due to the re-disturbance activities that removed native and non-native vegetation. The Re-disturbed Area is likely to be susceptible to weed invasion in the upcoming wet season (winter/spring 2021) due to the new disturbance that has left the area barren.

II. PREVIOUSLY DISTURBED AREA

The Previously Disturbed Area has reestablished native vegetative cover and diversity since the original unauthorized disturbance detected in 2017. Passive restoration successfully reduced non-native coverage and revegetated the area through naturally recruited seedlings and the expansion of existing shrubs. Total native vegetative cover is approximately 89-percent, while non-native species contribute approximately 5-percent and 6-percent remains bare ground. Deerweed, a

MEMORANDUM

June 11, 2020

Page 3

pioneer species following the clearing, has expanded in size, developing into dense shrub coverage in this area, with black sage, California sagebrush, foothill needlegrass (*Stipa lepida*) and California buckwheat also establishing further native coverage in the area with many seedlings and young shrubs present in the understory. Additionally, saw-tooth goldenbush (*Hazardia squarrosa*) and crested needle grass (*Stipa cornata*) present along the undisturbed edge of the Previously Disturbed Area further revegetate this area. Establishing native vegetation has suppressed non-native growth as indicated by the low percentage of non-native species coverage noted during the third quantitative monitoring.

Native plant species detected within the Previously Disturbed Area include (listed in order of relative dominance): deerweed, black sage, California sagebrush, foothill needlegrass, California buckwheat, sapphire eriastrum, California dodder (*Cuscuta californica*), sandaster, telegraph weed, ladies' tobacco (*Pseudognaphalium californicum*), saw-tooth goldenbush, yucca (*Hesperoyucca whipplei*), crested needle grass, purple owl's clover (*Castilleja exserta*), sticky monkeyflower (*Diplacus aurantiacus*), and rod wirelettuce (*Stephanomeria virgata*). These species indicate high natural recruitment and diversity in this area.

Non-native plant species detected within the Previously Disturbed Area (listed in order of relative dominance) include: tocalote (*Centaurea melitensis*), summer mustard (*Hirschfeldia incana*), rattail sixweeks grass (*Festuca myuros*), red brome, longbeak stork's bill (*Erodium botrys*), and crete weed.

III. DISCUSSION

As compared to last year's (second year) monitoring results, the Previously Disturbed Area showed a significant increase in native cover from 48-percent to 89-percent, and a significant decrease in non-native cover from 22-percent to 5-percent. Bare ground also decreased from 30-percent to 6-percent, indicating the positive trajectory of native habitat establishment within the Encroachment Area since the initial disturbance. Native shrub species including California buckwheat, California sagebrush, foothill needlegrass, and black sage are present in the understory of the pioneer species and are establishing, and are expected to develop into mature stature over time and increase diversity in this area in the absence of further disturbance.

Within the Re-disturbed Area, approximately 70-percent is bare ground, with native cover at approximately 29-percent and non-native cover at approximately 1-percent. Although evidence of native seedling recruitment and annual species coverage is present in the Re-disturbed Area, this area remains highly susceptible to weed invasion in the next rainy season. The new weed whipping that occurred between the second and third quantitative monitoring has prevented the expected restoration within this area.

GLA recommends the installation of additional fencing or staking to occur in the Re-disturbed Area to clearly demarcate the property boundary and prevent future disturbance events. Due to the evidence of natural recruitment, successful habitat development is expected to occur provided that there is no future disturbance within the Re-disturbed Area, although active restoration would

MEMORANDUM

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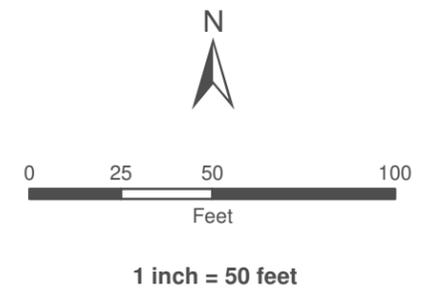
Page 4

expedite habitat recovery. These activities may include weeding of the Re-disturbed Area in winter/spring 2021, and the installation of coast prickly pear (*Opuntia littoralis*) pads and/or hand seeding of black sage, California buckwheat, and California sagebrush during the winter months. GLA recommends continuing monitoring of the Previously Disturbed and Re-Disturbed Areas in the winter and spring months when vegetation is actively growing to determine native and non-native species development and provide timely site recommendations.

Please contact Lexi Kessans at (949) 340-3942 with any questions.



-  Preserve Boundary
-  Previously Disturbed Area
-  Re-disturbed Area
-  Cactus Wren
-  Intermediate Mariposa Lily
-  Wildlife Camera Station
-  Photo Location



Trash bag placed over camera

BOBCAT RIDGE PRESERVE
2020 Encroachment Area Map

GLENN LUKOS ASSOCIATES 

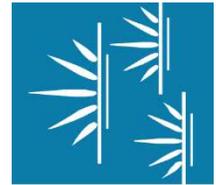
Exhibit 1



Photograph Location 1: Taken May 2, 2019 of the Re-disturbance Area prior to new impacts identified in 2020. Photograph depicts bare areas and non-native species dominated with crete weed (*Hedypnois cretica*), red brome (*Bromus madritensis* ssp. *rubens*), and riggut brome (*Bromus diandrus*).



Photograph Location 1: Taken May 26, 2020 of the Re-disturbance Area after new impacts identified in 2020. Native vegetation including deerweed (*Acmispon glaber*) and California buckwheat (*Eriogonum fasciculatum*) and non-native vegetation including red brome and crete weed appear to be weed whipped to less than an inch tall in this location.



GLENN LUKOS ASSOCIATES

Exhibit 2 – Page 1

**BOBCAT RIDGE PRESERVE
ROAD ENCROACHMENT**

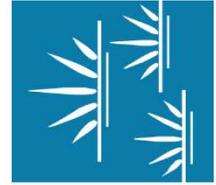
Site Photographs



Photograph Location 2: Taken May 2, 2019, depicting the Re-disturbed Area in the background and Previously Disturbed Area in the foreground prior to new impacts identified in 2020. Growth of deerweed seedlings was noted during the 2018 road encroachment.



Photograph Location 2: Taken May 26, 2020 depicting the Re-disturbed Area in the background and Previously Disturbed Area in the foreground after new impacts identified in 2020. Further establishment of the deerweed noted in 2018 and 2019 is occurring. Non-impacted native shrubs have begun to expand into the encroachment area.



GLENN LUKOS ASSOCIATES

Exhibit 2 – Page 2

**BOBCAT RIDGE PRESERVE
ROAD ENCROACHMENT**

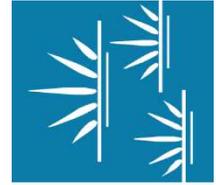
Site Photographs



Photograph Location 3: Taken May 2, 2019 of the Previously Disturbed Area depicting growth of deerweed seedlings noted in 2018 and infill of native shrub seedlings including California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and sandaster (*Corethrogyne filaginifolia*).



Photograph Location 3: Taken May 26, 2020 of the Previously Disturbed Area depicting growth of native species noted in the 2019 year. Native annuals including sapphire eriastrum (*Eriastrum sapphirinum*), California dodder (*Cuscuta californica*), and telegraph weed (*Heterotheca grandiflora*) contribute to overall species diversity and understory development.



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Exhibit 2 – Page 3

**BOBCAT RIDGE PRESERVE
ROAD ENCROACHMENT**

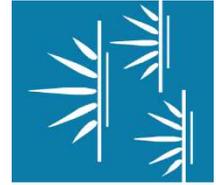
Site Photographs



Photograph Location 4: Taken May 2, 2019 of the Previously Disturbed Area depicting significant growth of deerweed seedlings noted in 2018 and natural recruitment of California sagebrush, needle grass (*Stipa* sp.), black sage (*Salvia mellifera*).



Photograph Location 4: Taken May 26, 2020 of the Previously Disturbed Area depicting deerweed that has developed into a mature size.



GLENN LUKOS ASSOCIATES

Exhibit 2 – Page 4

**BOBCAT RIDGE PRESERVE
ROAD ENCROACHMENT**

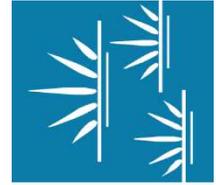
Site Photographs



Photograph Location 5: Taken May 2, 2019 of the Previously Disturbed Area depicting significant growth of deerweed and California sagebrush noted in 2018.



Photograph Location 5: Taken May 26, 2020 of the Previously Disturbed Area depicting mature deerweed with young shrubs and seedlings of California sagebrush, black sage, foothill needlegrass (*Stipa lepida*), and crested needle grass (*Stipa cornata*) developing under and between deerweed shrubs.



GLENN LUKOS ASSOCIATES

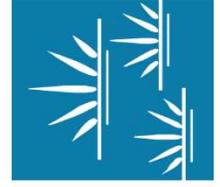
Exhibit 2 – Page 5

**BOBCAT RIDGE PRESERVE
ROAD ENCROACHMENT**

Site Photographs



Photograph Location 6: Taken May 26, 2020 of the wildlife camera covered with a trash bag.



GLENN LUKOS ASSOCIATES

Exhibit 2 – Page 7

**BOBCAT RIDGE PRESERVE
ROAD ENCROACHMENT**

Site Photographs

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Appendix D

**2020 Summary Letter for Maintenance Activities
Performed on OCTA Preserves (RECON Number 9779)**

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An Employee-Owned Company

February 1, 2021

Ms. Lesley Hill
Environmental Mitigation Program
Orange County Transportation Authority
550 South Main Street
Orange, CA 92863-1584

Reference: 2020 Summary Letter for Maintenance Activities Performed on OCTA Preserves
(RECON Number 9779)

Dear Ms. Hill:

This letter summarizes the maintenance activities that were performed in 2020 (January–December) on the Orange County Transportation Authority (OCTA) Preserves. The preserves where maintenance occurred during 2020 include Trabuco Rose, Live Oak Creek, Silverado Chaparral, and Pacific Horizon. During 2020, there were no maintenance needs requested for Wren’s View, Bobcat Ridge, or Eagle Ridge. For all maintenance work, the work tasks were performed by a RECON field crew with supervision/coordination from a RECON restoration biologist. The specific maintenance tasks and dates performed, for each preserve, are included below. Figures of each preserve where work was performed during 2020 have been included in Attachment 1, Figures 1 through 4. Additionally, photographs taken in 2020 of maintenance work at the preserves have been included in Attachment 2, Photographs 1 through 22.

Trabuco Rose Preserve

During 2020, and similarly during 2019, the majority of the maintenance work was conducted at the Trabuco Rose Preserve (see Figure 1). Tasks included the following: invasive plant treatments, removal of fallen branches and debris, fence repairs to deter unauthorized access, vegetation removal on fire roads/access roads, and vegetation thinning and removal within two fuel modification zones.

Invasive plant species control work on Trabuco Rose Preserve continued in 2020 (Table 1) and followed the methodology in the approved Invasive Species Management Plan for OCTA M2 Preserves – Trabuco Rose Preserve, prepared by Glenn Lukos Associates (GLA; 2017). The initial treatment of the Priority 1 invasive species and some of the Priority 2 invasive species, as classified by GLA (2017), was completed in fall 2018, and retreatments occurred in spring 2019, as well as in early 2020 (January and February, see Table 1). The areas of the Trabuco Rose Preserve that were retreated for invasive species in 2020 are presented in Figure 1. Photographs of the invasive species control work areas, taken in 2020, have been included in Photographs 1 through 5.

In February 2020, RECON field crews cut up and removed large oak branches that had fallen on interior fire roads, in areas along Hickey Spur, and along Rose Canyon Road, all within the Trabuco Rose Preserve. This material was placed away from roads and drainages and spread out as to not create a fire hazard. Fence that was damaged along Rose Canyon Road due to fallen tree branches was also repaired (see Photograph 6).

In March 2020, vegetation control began on select fire roads of Trabuco Rose Preserve. Additional vegetation control on the fire roads/access roads also occurred in May and June 2020 for fire prevention/removal of fire hazards (see Table 1 and Photograph 7). Consistent with previous years of treatment, depending on the plants’ stage of growth and proximity to sensitive species growing on or near

the fire roads (i.e., intermediate mariposa lily [*Calochortus weedii* var. *intermedius*]), vegetation was removed either by hand, mechanically with line trimmers, and/or sprayed with herbicide. Additionally, vegetation was also removed and/or thinned within two fuel modification zones on Trabuco Rose Preserve, which include the zones adjacent to the following residences: 20022 Trabuco Oaks Drive (see Figure 1, Trabuco Rose A, and Photograph 8) and 1 Windy Ridge Road (see Figure 1, Trabuco Rose B, and Photograph 9).

Fence repair work was performed in May and June 2020 (see Table 1). This work included repairing damaged fence along Rose Canyon Road, adding more metal t-posts in areas where trespassing was observed along Rose Canyon Road and near the Hickey Spur gate, and tightening of the fence line to further deter unauthorized access (see Photograph 10). A summary of the work completed at Trabuco Rose Preserve is included in Table 1.

Date	Task
January 20–23, 2020	Non-native invasive species treatment work, specifically to control germinating artichoke thistle plants, was conducted at: Areas 17, 15, 14, 13, 36, 37, 35, 32, C, and 28 (presented in the order they were treated; see Figure 1).
February 11, 2020	Cut up and removed three large oak branches that had fallen and were blocking the interior fire roads; cut back and removed branches in two areas along Hickey Spur; cut back a fallen pine tree along Rose Canyon Road and repaired the damaged fence line; and conducted non-native invasive species work, specifically to control germinating artichoke thistle plants, at Areas 25 and 26 (see Figure 1).
March 9, 2020	Sprayed herbicide on germinating vegetation growing on interior fire roads.
May 11–15, 2020	Vegetation thinning and removal within the fuel modification zone adjacent to 20022 Trabuco Oaks Drive (see Figure 1, Trabuco Rose A); and vegetation thinning and removal within the fuel modification zone adjacent to 1 Windy Ridge Road (see Figure 1, Trabuco Rose B).
May 18–22, 2020	Performed fence repair work along Rose Canyon Road, including adding more metal t-posts in areas where trespassing was observed, and tightened the fence line. Vegetation was also line trimmed on the fire roads on the Rose Canyon side of the Preserve.
May 28–29, 2020	Removed vegetation on main access road north of the main gate (Trabuco Oaks Drive) and removed vegetation on interior fire roads.
June 23, 2020	Removed vegetation on remaining fire roads and access roads.
June 25, 2020	Installed additional t-posts on both sides of the Hickey Spur gate and both sides of the other lower gate along Rose Canyon Road, to further deter trespassing; and line trimming of mustard plants that had grown back within the fuel modification zone adjacent to 20022 Trabuco Oaks Drive (see Figure 1, Trabuco Rose A).
NOTE: RECON field crews performed maintenance work, with direction and oversight conducted by a RECON restoration biologist. Prior to maintenance tasks (performed during bird breeding season), a biologist would check work areas for nesting birds, and proceed accordingly based on findings of surveys. All work was done consistent with the OCTA Resource Management Plans (RMPs).	

Live Oak Creek Preserve

Maintenance tasks performed at the Live Oak Creek Preserve included vegetation thinning and removal within two fuel modification zones, and vegetation removal on the fire roads/access roads of the Preserve (see Figure 2). Vegetation was either thinned or completely removed around two properties which included 19071 Live Oak Canyon Road (see Figure 2, Live Oak Creek A, and Photograph 11) and 19041 Lambrose Canyon Road (see Figure 2, Live Oak Creek B, and Photograph 12). Vegetation was also

removed from all fire roads/access roads within the Preserve (see Photograph 13). A summary of the work completed at Live Oak Creek Preserve is included in Table 2.

Table 2 Summary of Work Completed at Live Oak Creek Preserve during 2020	
Date	Task
May 11–15, 2020	Vegetation thinning and removal within the fuel modification zones adjacent to 19071 Live Oak Canyon Road (see Figure 2, Live Oak Creek A) and 19041 Lambrose Canyon Road (see Figure 2, Live Oak Creek B).
June 22, 2020	Vegetation removal on fire roads/access roads.
NOTE: RECON field crews performed maintenance work, with direction and oversight conducted by a RECON restoration biologist. Prior to maintenance tasks (performed during bird breeding season), a biologist would check work areas for nesting birds, and proceed accordingly based on findings of surveys. All work was done consistent with the OCTA RMPs.	

Silverado Chaparral Preserve

Maintenance tasks performed at the Silverado Chaparral Preserve included vegetation removal on some of the fire roads, the shoring up of loose rocks in select areas (see Photograph 14), and the installation of posts, barbed wire, and Preserve signs (see Figure 3). Dates of the work performed at the Silverado Chaparral Preserve are included below in Table 3.

The installation of fencing included barbed wire 3-strand fencing to deter unauthorized access. Fencing was installed in six separate locations along a trail that had been illegally created. Additionally, preserve signs were also installed at the new fence locations (see Photographs 15 and 16). A summary of the work completed at the Silverado Chaparral Preserve is included in Table 3.

Table 3 Summary of Work Completed at Silverado Chaparral Preserve during 2020	
Date	Task
June 25, 2020	Vegetation removed on fire roads and shored up loose rocks in select areas that are regularly used by the security patrol personnel.
September 24–25, 2020	Installed barbed wire, posts, and wilderness signs at six separate locations along a trail that had been impacted/widened by unauthorized activity (i.e., mountain bikers).
September 30, 2020	Installed more barbed wire and stakes at the most southern location of the preserve to deter unauthorized access.
NOTE: RECON field crews performed maintenance work, with direction and oversight conducted by a RECON restoration biologist. Prior to maintenance tasks (performed during bird breeding season), a biologist would check work areas for nesting birds, and proceed accordingly based on findings of surveys. All work was done consistent with the OCTA RMPs.	

Pacific Horizon Preserve

The maintenance tasks performed at the Pacific Horizon Preserve during 2020 included the installation of posts and barbless wire, the removal of barbed wire, the installation of habitat restoration signs and posts for wildlife cameras, the decommissioning of an unauthorized trail, and invasive plant treatments (see Figure 4 and Photographs 17–22).

The fence was installed in October 2020 along the northern perimeter of the preserve where native vegetation is sparse and unauthorized access is high, and which has historically been an area where bike trails and bike jumps have been illegally created. The installation of fencing included barbless wire 3-strand fencing, with the lowest strand of fencing at least 18 inches from the ground to allow for the safe passage of wildlife (i.e., deer). Portions of an unauthorized trail were decommissioned in October 2020

using non-mechanized hand tools to roughen up the soil, and fallen vegetation and debris were placed at entry points to the trail to deter use by pedestrians and bicyclists.

In October 2020, the field crew also removed the seed heads from the pampas grass (*Cortaderia selloana*) plants that were growing in the northern area of the preserve, near the decommissioned trail (see Figure 4). Seed heads were removed from the preserve and taken to an off-site disposal facility, and the remaining pampas grass foliage was sprayed with a glyphosate-based herbicide. A summary of the work completed at Pacific Horizon Preserve is included in Table 4.

Date	Task
October 5–6, 2020	<p>Installed barbles wire fence and t-posts along the northern boundary of the Preserve. The old barbed wire was removed from the site and existing stakes were used as much as possible. Habitat restoration signs (3), and posts for wildlife cameras (2) were also installed.</p> <p>Also, a portion of the lower (southern) trail was decommissioned using hand tools to break up the soil, and branches and other debris was added to the path to deter pedestrians and bikers. Bike jumps were also removed in this area by removing berms and returning areas to their original grade with hand tools.</p> <p>Additionally, the seed heads were removed from the pampas grass (<i>Cortaderia selloana</i>) plants in the northern area of the preserve and disposed of off-site, and the remaining pampas grass foliage was sprayed with a glyphosate-based herbicide.</p>
<p>NOTE: RECON field crews performed maintenance work, with direction and oversight conducted by a RECON restoration biologist. Prior to maintenance tasks (performed during bird breeding season), a biologist would check work areas for nesting birds, and proceed accordingly based on findings of surveys. All work was done consistent with the OCTA RMPs.</p>	

If you have any questions regarding this letter, please contact me by email (ratik@reconenvironmental.com) or by phone (619-308-9333 ext. 178).

Sincerely,



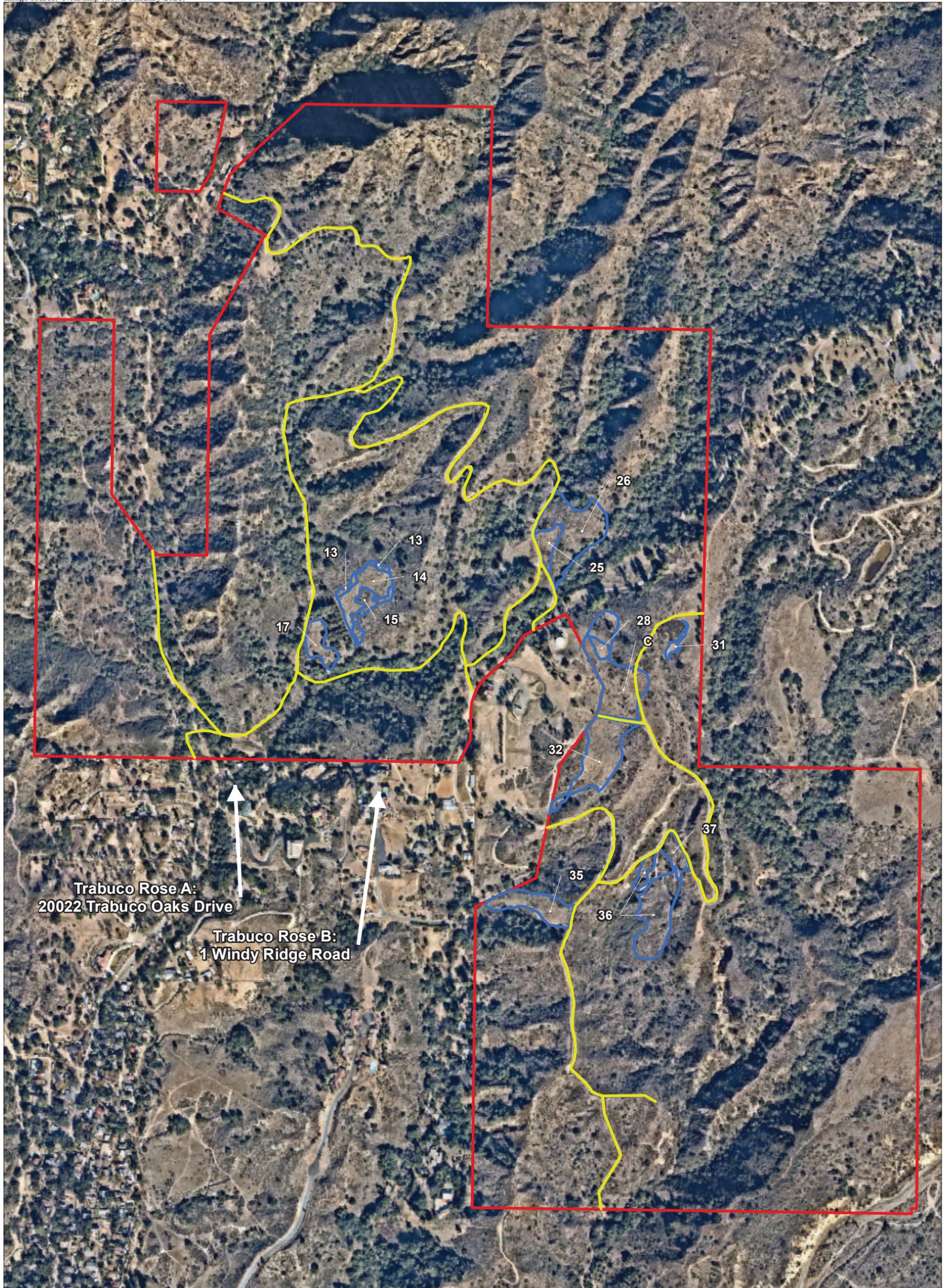
Raquel Atik
 Restoration Project Manager

Reference Cited

Glenn Lukos Associates (GLA)
 2017 Invasive Species Management Plan for OCTA M2 Preserves – Trabuco Rose Preserve. November.

ATTACHMENT 1

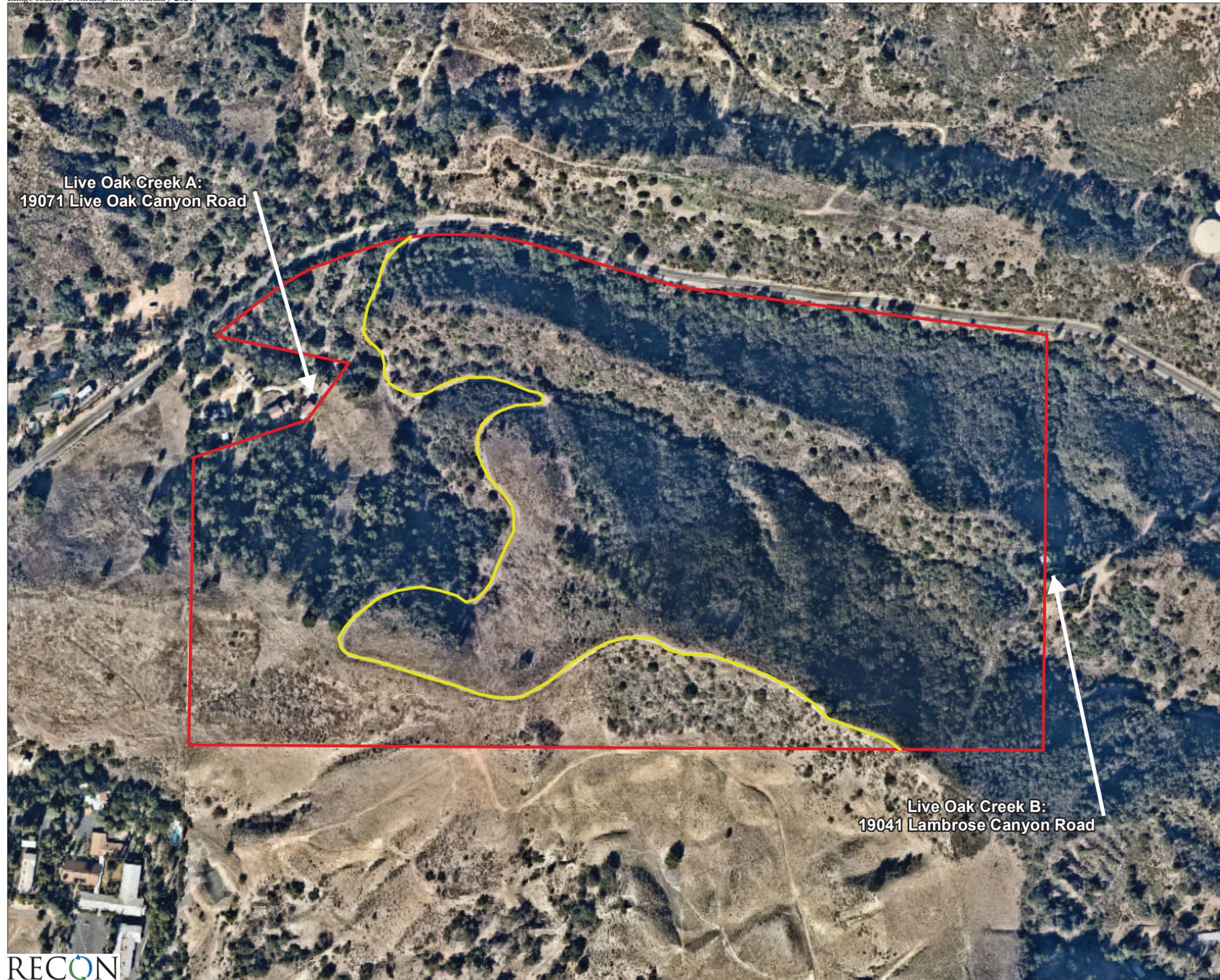
Figures 1-4



- | | | |
|---|---|--------------------------------|
|  Trabuco Rose | Invasive Species Control Areas
(Treated in 2020) | Fuel Modification Zones |
|  Fire Road / Access Road |  Artichoke Thistle | Trabuco Rose A |
| | | Trabuco Rose B |

Note: Polygons with numbers were mapped by GLA and presented in the ISMP (2017); polygons with letters were mapped by RECON (2019)

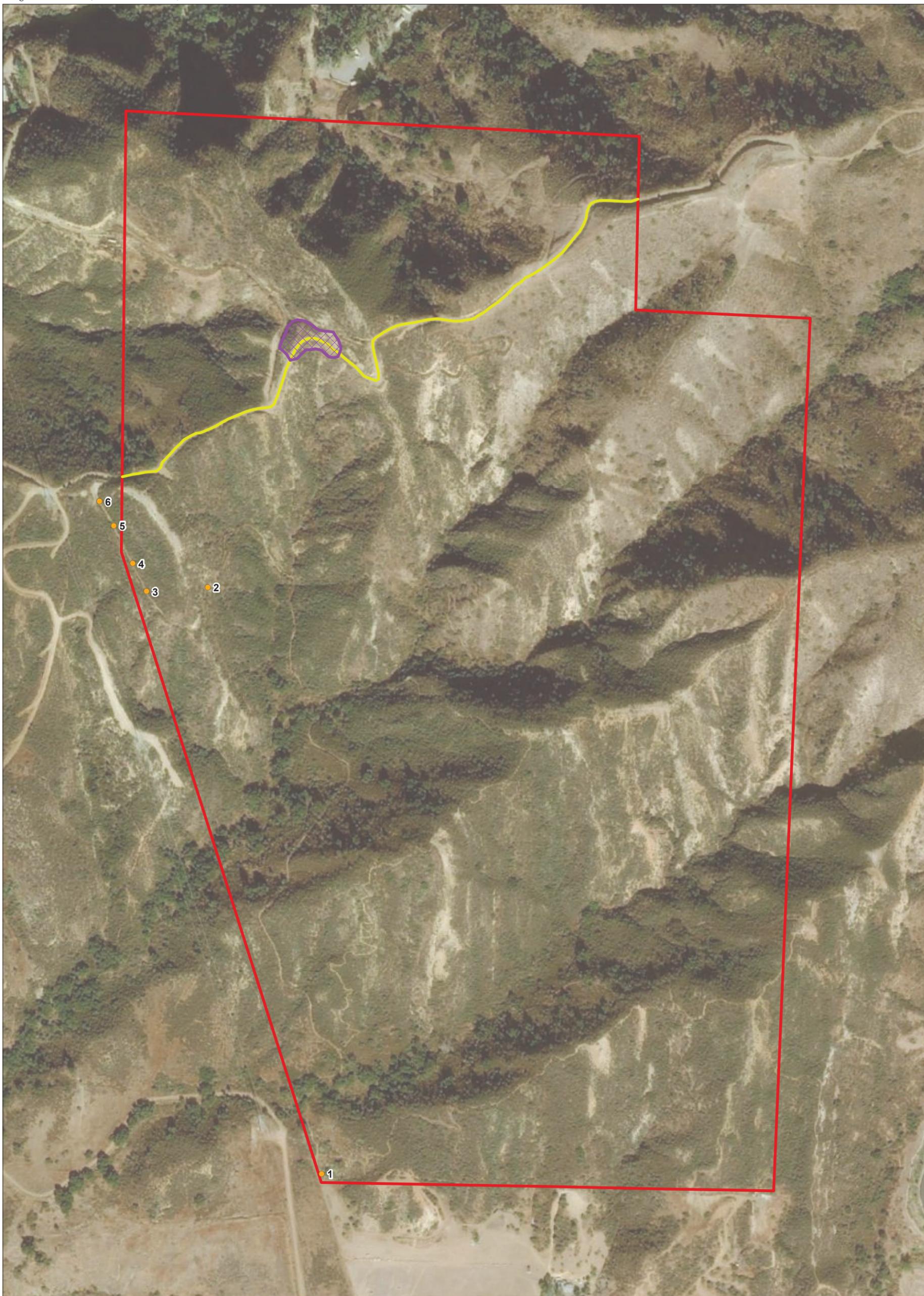
FIGURE 1
Trabuco Rose Preserve



- ▭ Live Oak Creek Preserve Boundary
- ▬ Fire Road / Access Road
- Fuel Modification Zones**
- Live Oak Creek A
- Live Oak Creek B



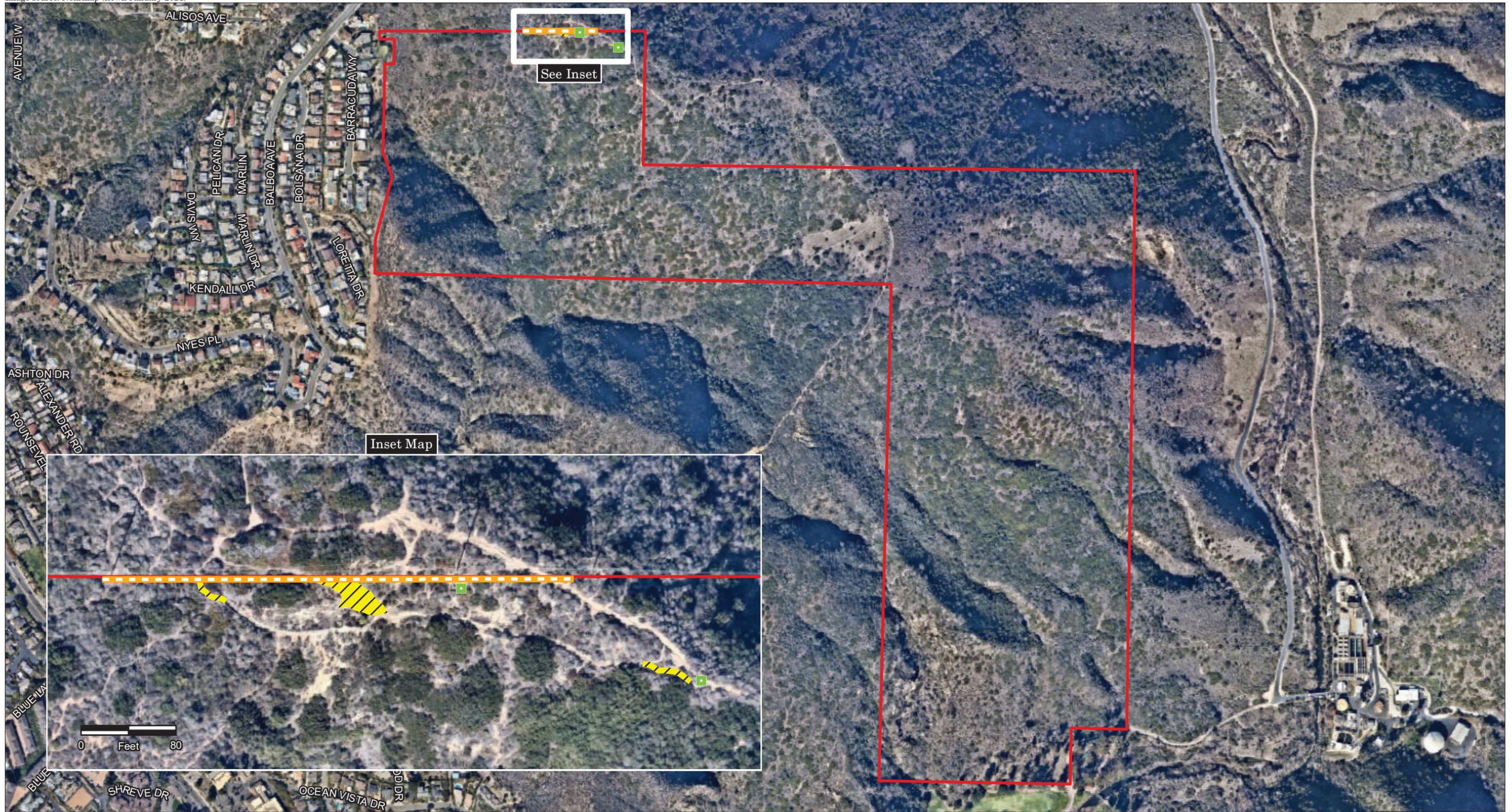
FIGURE 2
Live Oak Creek Preserve



-  Silverado Chaparral Preserve Boundary
-  Barbed Wire Fence and Preserve Signs (Installed September 2020)
-  Shored-up Loose Rocks (June 2020)
-  Fire Road



FIGURE 3
Silverado Chaparral Preserve



- Posts for Wildlife Cameras (Installed October 2020)
- Barbless Wire Fence and Habitat Restoration Signs (Installed October 2020)
- ▨ Decommissioned Trail (October 2020)
- Pacific Horizon Preserve Boundary



FIGURE 4
Pacific Horizon Preserve

ATTACHMENT 2

Photographs 1-22



PHOTOGRAPH 1
Artichoke Thistle Treatments in Area 17 at Trabuco Rose,
January 2020



PHOTOGRAPH 2
Artichoke Thistle Treatments in Area 13 at
Trabuco Rose, January 2020



PHOTOGRAPH 3
Artichoke Thistle Treatments in Area 14 at
Trabuco Rose, January 2020



PHOTOGRAPH 4
Artichoke Thistle Treatments in Area 15 at
Trabuco Rose, January 2020



PHOTOGRAPH 5
Treated Artichoke Thistle in Area 36 at
Trabuco Rose, January 2020



PHOTOGRAPH 6
Removal of Fallen Branches and Repairs to
Damaged Fence Along Rose Canyon Road at
Trabuco Rose, February 2020



PHOTOGRAPH 7
Vegetation Removal on Fire Roads at
Trabuco Rose, May 2020



PHOTOGRAPH 8
Vegetation Removal within Trabuco Rose A Fuel Modification Zone,
May 2020



PHOTOGRAPH 9
Vegetation Removal within Trabuco Rose B Fuel Modification Zone,
May 2020



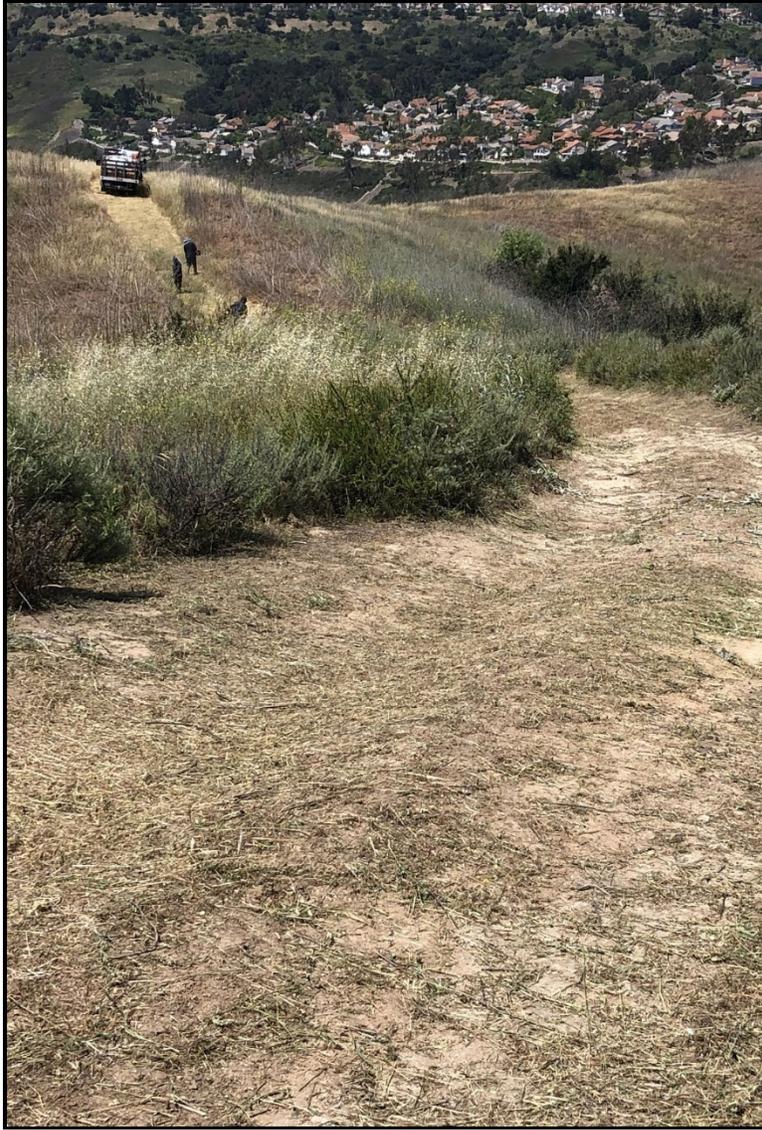
PHOTOGRAPH 10
Installation of Additional T-Posts to Deter Trespassing at
Trabuco Rose, June 2020



PHOTOGRAPH 11
Vegetation Removal within Live Oak Creek A Fuel Modification Zone,
May 2020



PHOTOGRAPH 12
Live Oak Creek B Fuel Modification Zone,
Following Vegetation Removal, May 2020



PHOTOGRAPH 13
Vegetation Removal on Fire Roads at
Live Oak Creek, May 2020



PHOTOGRAPH 14
Vegetation Removal on Fire Road and Shoring up of Loose Rocks at
Silverado Chaparral, June 2020



PHOTOGRAPH 15
Installation of Barbed Wire, Posts, and Signage in
Northwestern Area of Silverado Chaparral,
September 2020



PHOTOGRAPH 16
Installation of Barbed Wire, Posts, and Signage in
Southwestern Corner of Silverado Chaparral,
September 2020



PHOTOGRAPH 17
Installed Barbless Wire, Posts, and Signage Along Northern Boundary
of Pacific Horizon, October 2020



PHOTOGRAPH 18
Installed Post for Wildlife Camera at
Pacific Horizon, October 2020



PHOTOGRAPH 19
Decommissioning of an Unauthorized Trail at
Pacific Horizon, October 2020



PHOTOGRAPH 20
OCTA Project Manager Removing Unauthorized
Berm Along Decommissioned Trail, October 2020



PHOTOGRAPH 21
Branches Placed Along Decommissioned Trail to
Deter Trespassing at Pacific Horizon, October 2020



PHOTOGRAPH 22
Herbicide Application on Pampas Grass in Northern Area of
Pacific Horizon, October 2020