

VASQUEZ PROPERTY BIOLOGICAL SURVEYS REPORT

PREPARED FOR:
WATERSHED CONSERVATION AUTHORITY
100 Old San Gabriel Canyon Road
Azusa, CA 91702

PREPARED BY:



TIDAL INFLUENCE, LLC
1340 E. Florida Street
Long Beach, CA 90802

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Acronyms and Abbreviations

ASLA	American Society of Landscape Architects
Cal-IPC	California Invasive Plant Council
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CMOS	complementary metal-oxide-semiconductor
CSS	coastal sage scrub
DBH	diameter breast height
FESA	Federal Endangered Species Act
FGC	Fish and Game Code
GIS	Geographic Information System
GPS	Global Positioning System
GRM	Glendora Motor Ridgeway
IUCN	International Union for Conservation of Nature
JPA	joint powers authority
LACFCDD	Los Angeles County Flood Control District
MBTA	Migratory Bird Treaty Act
NPPA	Native Plant Protection Act
OS	open space
RMC	San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy
RWQCB	California Regional Water Quality Control Board
SCC	Species of Special Concern

SGMRC	San Gabriel Mountains Regional Conservancy
SGV	San Gabriel Valley
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WCA	Watershed Conservation Authority

1.0 Background

1.1 Introduction

The foothills of the San Gabriel Mountains act as the transition between one of the world's most intensely populated urban sprawls and the over 345,000-acre San Gabriel Mountains National Monument. The San Gabriel Valley is home to over 1.4 million people who are separated from the Mohave desert by the 655,360-acre Angeles National forest covering much of the San Gabriel Mountain Range. The foothills are the way through which both wildlife and humans access this sprawling open space. Better understanding this merging of urbanized land and wilderness will allow us to best manage this dynamic setting. Through both this wilderness and the urban sprawl flows the San Gabriel River, with headwaters starting as high as 9,648 feet in elevation and travelling over 58 miles through numerous dams and diversions to the Pacific Ocean.

This project is located right at the edge of a suburban neighborhood in Azusa, California. The anthropogenic impacts are observable, however, Tidal Influence's relatively brief biological investigation of recently acquired conservation land documented existing biological resources that are high in diversity and quality. These existing resources highlight a potential for ecological enhancement that can be achieved alongside improved recreational opportunities. This blending of these beneficial uses is at the heart of what the San Gabriel Mountain foothills represent, however, this can only be done through a concerted planning effort that properly connects our urban communities with our ecological communities. This report is a preliminary step in that effort.

1.1.1 Project Description

The San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC) was founded in 1999 with a mission to preserve open space and habitat to provide for low-impact recreation and educational uses, wildlife habitat restoration and protection, and watershed improvements within their jurisdiction. Since its founding, the RMC has engaged in partnerships that have led to the formation of four different joint powers authorities, including the Watershed Conservation Authority (WCA), which was established in 2003. The WCA is a joint powers authority (JPA) consisting of the RMC and the Los Angeles County Flood Control District (LAFCD), with a vision of "Connecting Communities through Nature".

The WCA's vision embraces a 'work with nature' approach to watershed enhancement to improve water conservation and supply reliability, as well as to provide increased access to open space and recreational opportunities within the San Gabriel and Lower Los Angeles Rivers Watersheds. This vast and varied area includes mountains, valleys, rivers, coastal plain, wetlands, and coastline, as well as the Puente Hills, Montebello Hills, San Gabriel Foothills, Angeles National Forest, and the newly established San Gabriel Mountains National Monument. WCA's territory also includes some of the densest urban neighborhoods in the United States, yet many of these areas are also very culturally diverse and have a high percentage of immigrant residents (Personal Communication, WCA Staff).

In pursuing its mission, the WCA has acquired eight properties along three urban rivers, totaling more than 500 acres. These properties range from wilderness open space to urban river parkways in various stages of planning and development for future public use. Additionally, the WCA partners with local and regional entities to implement plans and projects to improve regional watersheds and invest in open space, parks, trails, bikeways, greenways, and urban greening programs and projects.

In response to increasing public demand for passive recreational access to the foothills and mountains of the area, the WCA proposed the development of a San Gabriel Mountains Foothills Open Space Acquisition Master Plan (Appendix A). The WCA began implementation of this plan in October of 2017 with grant funding provided by the RMC under Prop. 84. This plan will develop a comprehensive prioritized acquisition strategy and recommend resource management and operations strategies to preserve habitat and open space. The plan will also include strategies to improve watershed health and increase the requested public access on approximately 100 potential properties where compatible uses such as passive recreation on multi-use trails and related recreational amenities can occur. The recommendations in this report will contribute to this master plan.

In working toward this mission, the WCA, acquired an approximately 40-acre parcel of undeveloped land in the foothills of the San Gabriel Mountains, north of the City of Azusa, in November of 2016. Originally, this piece of land was to be purchased by the San Gabriel Mountains Regional Conservancy (SGMRC), a private not-for-profit conservation organization. However, when the organization's revenue source was lost approximately halfway through the purchasing process as a result of changes in federal policy, the property risked foreclosure and could have potentially been acquired by private developers at a reduced rate. To prevent the property from falling out of public ownership, the WCA along with grant funds from the RMC, was able to purchase the 40-acre parcel for the remaining balance of the SGMRC's original estimate. The parcel, herein referred to as the Vasquez Property, was acquired for the purpose of watershed restoration and community-driven stewardship, with the possibility for passive recreation. Before being purchased by the WCA, this property was privately owned by the Vasquez Family. The Vasquez Family have owned and operated avocado orchards in the San Gabriel Mountain foothills since before the 1980's and have increased the size of their orchard from 250 avocado trees to over 3700. Some of the first avocados planted in California were planted in Azusa in the 1840's by Henry Dalton.

In January of 2014, the Vasquez Property and surrounding foothills suffered impacts from the Colby Fire. This anthropogenically derived wildfire lasted for ten days, covered almost two thousand acres of land, and destroyed five residential structures. It swept through over 75% of the Vasquez Property and consumed a majority of the site's scrubland, while also damaging larger vegetation. Thus far no ecological restoration efforts have been pursued to assist with fire recovery.

In order for the WCA to best understand this newly acquired land, a springtime biological survey was requested with the goal of evaluating the ecological resources occurring within the parcel. The objectives of these surveys were not only to document the existing flora and fauna, but also to analyze 1) the potential for the Vasquez Property to support special status species, 2) the Vasquez Property's

habitat restoration potential, and 3) the feasibility for future public access to and through the Vasquez Property. These analyses are detailed in the following report and are accompanied by a series of recommendations designed to provide the WCA with an understanding for how to prioritize land management activities to achieve their vision for this property in both the near- and long-term.

1.1.2 Project Location

The project area is located in the City of Azusa, California in the County of Los Angeles (Figure 1; AIN # 8684-024-907). The Vasquez Property is situated in the foothills of the San Gabriel Mountains on the south facing slope of the westernmost portion of the Glendora Ridge, just south of the San Gabriel River Canyon. The property is bordered by undeveloped land on all sides but is just north of a suburban neighborhood

(Figure 2). The Vasquez Family owns the 40-acre parcel (aka Vasquez 035; AIN 8684-024-035) along the Property's western boundary and uses the land to grow avocados. The City of Pasadena owns the parcel along the property's northern boundary for use as open space, and the Azusa-RMC JPA has recently acquired the parcels along the property's eastern and southern boundaries for the purpose of habitat conservation.

The property is currently inaccessible via paved public roadway; however, it is in close proximity of an unpaved dirt road, known as the Glendora Ridge Motorway, to the west and north. The property is approximately 0.25 miles north of the major public road, Sierra Madre Avenue, and 0.75 miles southeast of San Gabriel Canyon Road. No major roads are located to the east of the property. The southern RMC property (AIN 8625-001-079) contains a short asphalt access road leading in from the Azusa neighborhood. This road is contained within the Azusa-RMC JPA's property and is the nearest paved roadway to the Vasquez Property.

1.2 Regional Setting

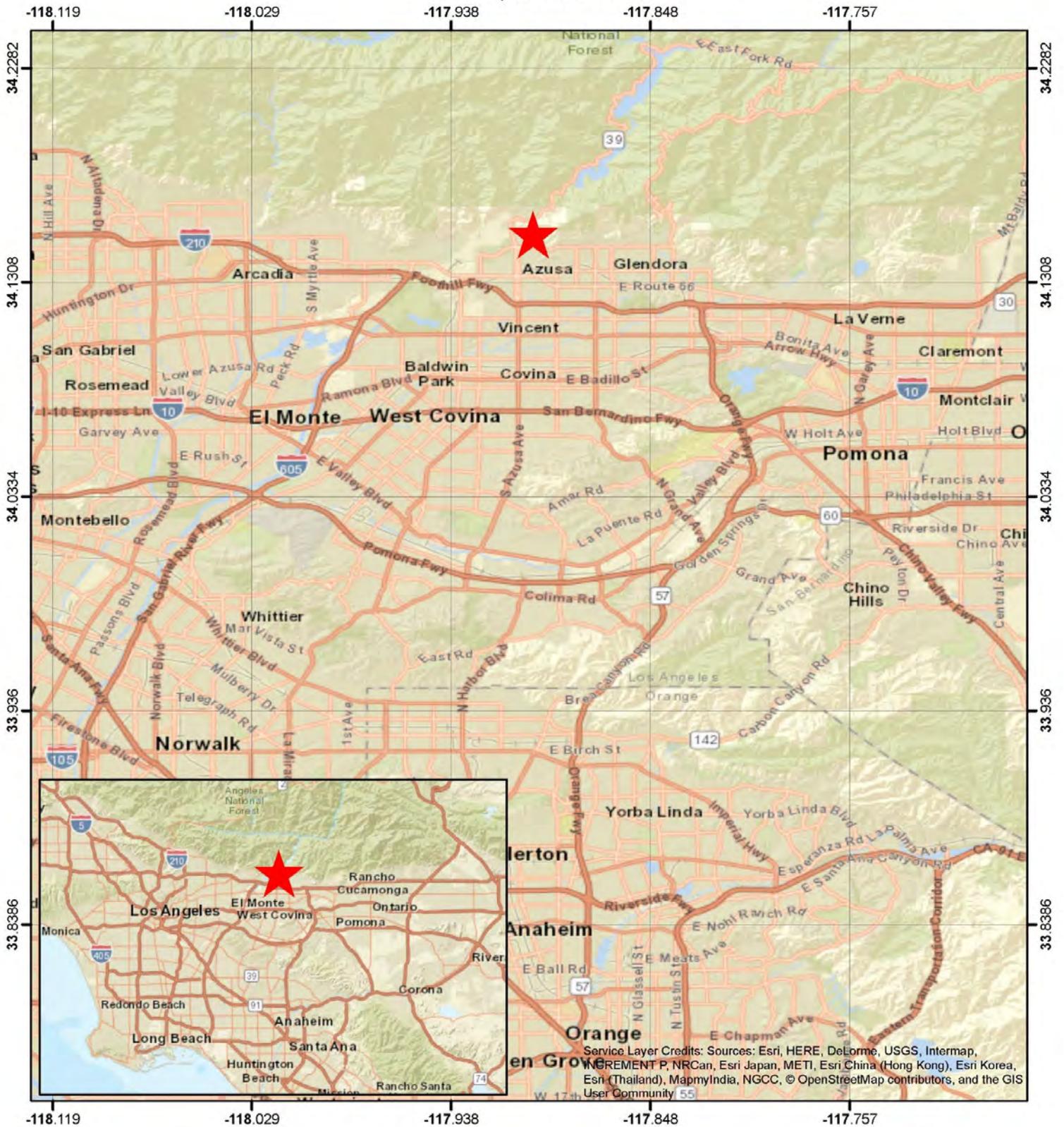
The City of Azusa is set in the northwest portion of the San Gabriel Valley (SGV), an approximately 180,000-acre portion of the Los Angeles Basin comprised of 31 different municipalities in the County of Los Angeles. The SGV is flanked by the San Gabriel Mountains to the north, the Puente Hills and Brea Hills to the south, the San Rafael Hills to the west, and the Chino and San Jose Hills to the east. The San Gabriel River bisects the SGV, and therefore the majority of the Valley is found within the San Gabriel River Watershed.

1.2.1 Geography

The elevations of the Vasquez Property are dynamic, with the highest elevation reaching 1,480 ft and a low of 895 feet. Flat areas are limited, and the majority of the site is sloped terrain. The majority of slopes on the property range from 50% to 85% grade, with some sections reaching up to 90% grade. Three main ridges finger southward and divide the site into four distinct canyons. The largest canyon is found in the northeast corner, which forms a small arroyo.

Project Vicinity - Vasquez Property

Azusa, California



 Vasquez Property Location



0 1.25 2.5 5 7.5 10 Miles



Author: Hannah Craddock
Date: July 11, 2019
Data Source: Tidal Influence Trimble Geo X3

Figure 1

Project Site - Vasquez Property

Azusa, California

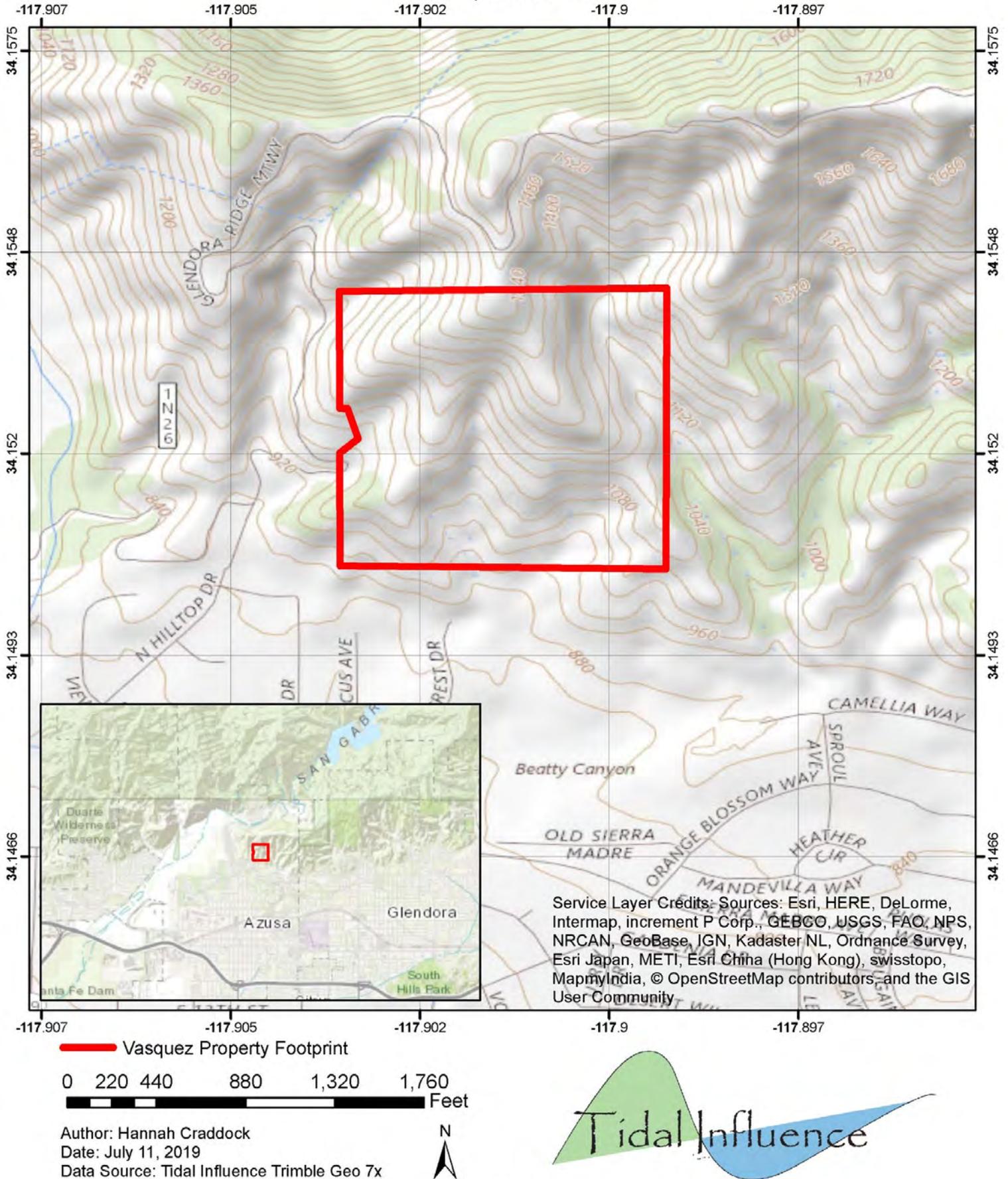


Figure 2

1.3 Regulations

State, federal, and local regulations are potentially relevant to the subject property.

1.3.1 Federal Regulations

Federal Endangered Species Act:

The Federal Endangered Species Act (FESA) grants protection to both flora and fauna that have been listed as either threatened or endangered by the National Marine Fisheries Service (NMFS) or the United States Fish and Wildlife Service (USFWS). Section 9 of the FESA prohibits the taking of endangered wildlife, where taking is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (50 CFR 17.3). In regard to flora, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law (16 USC 1538). Section 7 of FESA states that federal agencies are required to consult with the USFWS if their actions, including those with permit approvals or funding, could adversely affect a listed (or proposed) species (flora and fauna) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing for the take of a species that is incidental to an otherwise authorized activity, provided that the activity will not jeopardize the continued existence of the species. Section 10 of FESA provides for issuance of incidental take permits where no other federal actions are necessary provided a habitat conservation plan is developed.

Migratory Bird Treaty Act:

The Migratory Bird Treaty Act (MBTA) implements international treaties devised to protect migratory birds and any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits are in 50 Code of Federal Regulations (CFR) part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3503.5 of the California Department of Fish and Game (CDFG) Code.

1.3.2 State Regulations

California Endangered Species Act:

The California Endangered Species Act (CESA) generally parallels the main provisions of the FESA, but unlike its federal counterpart, CESA applies the take prohibitions to species that are proposed for listing (referred to as “candidates” by the state). Section 2080 of the Fish and Game Code (FGC) prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the FGC as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue catch, capture, or kill.” CESA

allows for the take incidental to otherwise lawful development projects. State lead agencies are required to consult with the California Department of Fish and Wildlife (CDFW) to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of essential habitat.

The CESA states that “all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline will be protected or preserved.” This includes species with limited degrading habitat, where if degradation is not halted, would lead to a threatened or endangered designation. This act is intended for CDFW to work with all interested persons, agencies and organizations to protect and preserve such sensitive resources and their habitats (CDFW, 2014).

Fully Protected Species:

Prior to the creation of the FESA and CESA, California had already begun designating species as “fully protected.” Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction, and included fish, amphibians, reptiles, birds, and mammals. Most species on the fully protected species list have since been listed as threatened or endangered under the CESA and/or FESA. The regulations that implement the Fully Protected Species Statute (FGC Section 4700) provide that fully protected species may not be taken or possessed at any time. The CDFW prohibits any state agency from issuing an incidental take permit for a fully protected species for reasons other than scientific research.

Native Plant Protect Act:

The Native Plant Protection Act (NPPA) of 1977 (FGC Sections 1900 – 1913) was created to “preserve, protect, and enhance rare or endangered plants in this State.” The NPPA is administered by CDFW. The California Fish and Game Commission has the authority to designate native plants as “endangered” or “rare” and to protect these species from take. The CESA of 1984 (FGC Section 2059 – 2116) provided further protection for endangered or rare plant species, but the NPPA remains part of the FGC.

Migratory Birds:

CDFW enforces the protection of non-game native birds in Sections 3503, 3503.5, and 3800 of the FGC. Section 3513 of the FGC prohibits the possession or take of birds listed under the MBTA. These sections mandate the protection of California non-game native birds’ nests and makes it against the law to take these species. All raptor species are protected from “take” pursuant to FGC 3503.5 and are also protected at the federal level by the MBTA of 1918 (USFWS, 1918).

1.4 Agency Oversight

The Vasquez Property is owned by the WCA. Adherence to CEQA may become necessary if any alterations to the land are proposed.

Additional oversight may be provided by the California Department of Fish & Wildlife (CDFW) and/or the California Regional Water Quality Control Board (RWQCB). CDFW requires oversight, and in some instances permits, if land management or habitat restoration actions have potential to impact California state listed floral or faunal species and/or their associated habitats (e.g. trail development or vegetation clearance). Permitting through RWQCB may be required if proposed discharges or activities from a project could affect California's surface, coastal, or ground waters (e.g. grading drainages) . Additional permits may be required for restoration or changes to the land and should be thoroughly vetted by WCA staff prior to initiation of any alterations to the Vasquez Property.

1.5 Zoning Restrictions

Chapter 88 of the Azusa Municipal Code, released in April of 2019, designates the Vasquez Property as Open Space (OS). According to Article 2 of this municipal code chapter, OS zone is intended to protect its important natural resources by limiting building within the mountains, foothills, and river channels. The primary allowable land uses are: public recreation, limited residential development on legal lots of record with adequate access, building areas, and infrastructure, limited agriculture uses, and, where authorized by the general plan lodging, resort, and conference center facilities and related activities. Certain areas within the OS zone may be subject to long-term preservation through land conservancy arrangements (City of Azusa, 2018).

While the City of Azusa has designated the property and surrounding areas as open space in their municipal code (City of Azusa, 2018), the property is an unincorporated area of Los Angeles County. This designation prevents the City of Azusa from having jurisdiction over the property, but its inclusion as an open space in their planning efforts gives a good indication to what the City of Azusa hopes the property will be preserved as in the future.

2.0 Methodology

Tidal Influence staff conducted biological resources surveys on the Vasquez Property throughout the Spring of 2019 to assess the site's ecological functionality, feasibility of public access, and document any land management considerations. Data was collected over the course of seven site visits between April and June 2019. These biological resources surveys follow a winter with above average amounts of rainfall that broke a multi-year drought. This increase in rainfall was concurrent with a particularly profuse wildflower bloom throughout southern California, likely providing an increase in the abundance of the various species present in and around the site. Data collection and analysis for this investigation required a combination of field work and GIS analysis, supported by ongoing literature review.

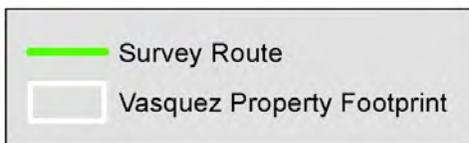
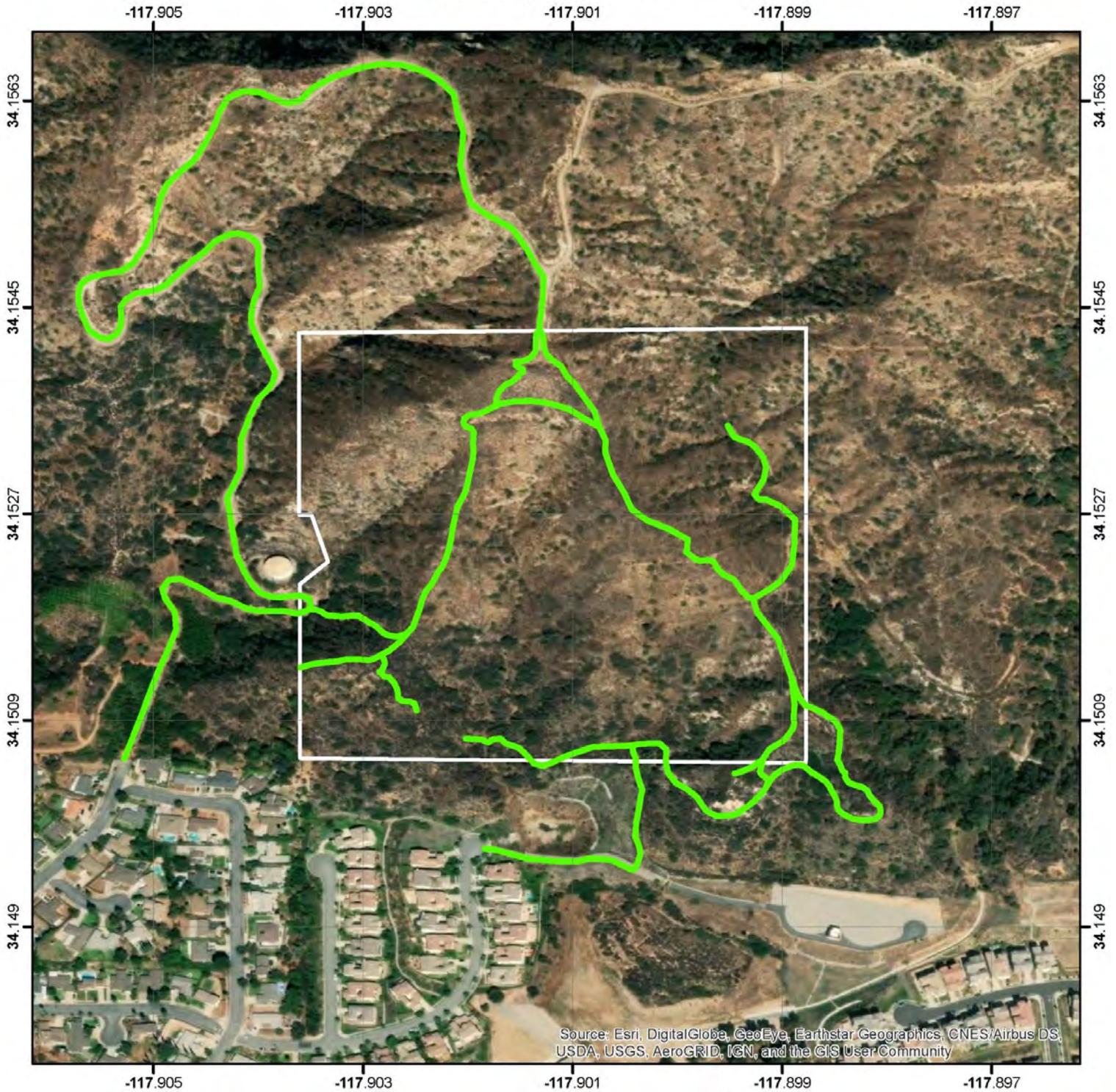
2.1 Literature and Database Searches

A comprehensive literature and database search was initiated in advance of field work. This literature search included a search of the California Natural Diversity Database (CNDDDB) to identify all potential special status species that could occur within the site (CDFW, 2018). Site soil data was gathered from the United States Department of Agriculture's Web Soil Survey interactive online soil data explorer. To prepare the field biologists, reports for nearby biological surveys were reviewed as well as online species databases including eBird and iNaturalist.

2.2 Field Surveys

The first of the seven site visits was used as a reconnaissance of the property to identify access points and locations to perform surveys. The reconnaissance visit was also used to gain a clearer understanding for the habitat types, and to initiate the floral and faunal species lists. The site was re-visited thereafter on a bi-weekly basis to perform alternating floral and faunal surveys (Table 1). Varied routes were taken through the site during each site visit (Figure 3). This field survey approach allowed for a comprehensive documentation of ecological communities throughout the entire property during the springtime season. Observations relating to public access, habitat enhancement opportunities, and land management issues were documented during each site visit. As a safety measure, the Vasquez Family was informed at least 24 hours prior to each field survey so that guard dogs protecting their avocado orchard could be temporarily removed from the premises.

Survey Route - Vasquez Property Azusa, California



Author: Hannah Craddock
Date: July 12, 2019
Data Source: Tidal Influence Trimble Geo 7x

Figure 3

Table 1. Surveys performed during each site visit

Date	Activities Performed	Personnel*
3/29/2019	Initial site visit	EZ, DN, MC
4/10/2019	First vegetation survey; herp arrays & wildlife cameras installed	EZ, DN, MC
4/24/2019	First wildlife survey	EZ, DN, MC
5/8/2019	Second vegetation survey	EZ, DN, MC
5/21/2019	Second wildlife survey	EZ, DN, MC
6/7/2019	Third vegetation survey and mapping	EZ, DN, MC
6/18/2019	Third wildlife survey and mapping	EZ, DN, MC, MH

*Personnel: EZ=Eric Zahn, DN=Daniel North, MC=Marcelo Ceballos, MH=Mark Hannaford

2.2.1 Vegetation Surveys

Three focused surveys for plant species were performed, however, newly encountered species were recorded during each of the seven site visits. Potential vegetation communities were identified during the reconnaissance visit and initial focused vegetation survey.

Mapping of the Vasquez Property's vegetation communities was performed during the second focused vegetation survey and refined during the third focused vegetation survey. This characterized the site's different vegetative alliances and determined their geographic locations. Determination of vegetation alliances was performed in accordance with the second edition of *A Manual of California Vegetation* (Sawyer, Keeler-Wolf & Evens, 2009). These vegetation alliances help to describe the patterns of plants across different landscapes and reflect the effects of local climate, soil, water, disturbance, as well as other ecological factors. Due to the limited accessibility of the site, vegetation community mapping was performed initially using hard-copy aerial maps.

The site was first divided into broad vegetation communities (e.g. coastal sage scrub) on site-wide aerial maps, and these data were brought back to the office where analysis of the site was then divided by slopes. A total of 14 aerial maps were printed to focus on the vegetation communities for each of the site's nine slopes. These printed maps divided the property's slopes in order to capture the vegetation alliances in greater detail, with larger slopes being divided into smaller, more manageable, segments. These focused maps were then used in the field to delineate the geographic boundaries of each vegetation alliance. A route was taken on the second vegetation survey that allowed for the surveyors to clearly view each slope and analyze the percent coverage of plant species. In some instances, binoculars were used for less accessible areas.

The geographic data collected on the aerial maps was transferred into Google Earth Pro utilizing the terrain database to clearly locate the site's ridges and slopes. Resulting KMZ files were converted into shapefiles using the KML to layer conversion tool. The shapefiles were added to the new map file on ArcMap 10.6.6 and projected into the WGS 1984 UTM Zone 11N coordinate system. Shapefile vertices

were edited to refine the boundaries. Acreages of each vegetation community and alliance were calculated, and cartographical maps were produced.

2.2.2 Wildlife Surveys

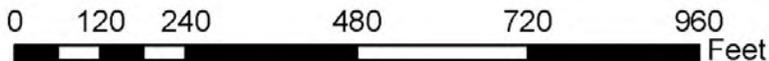
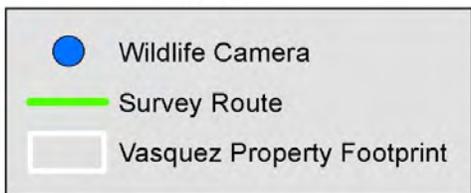
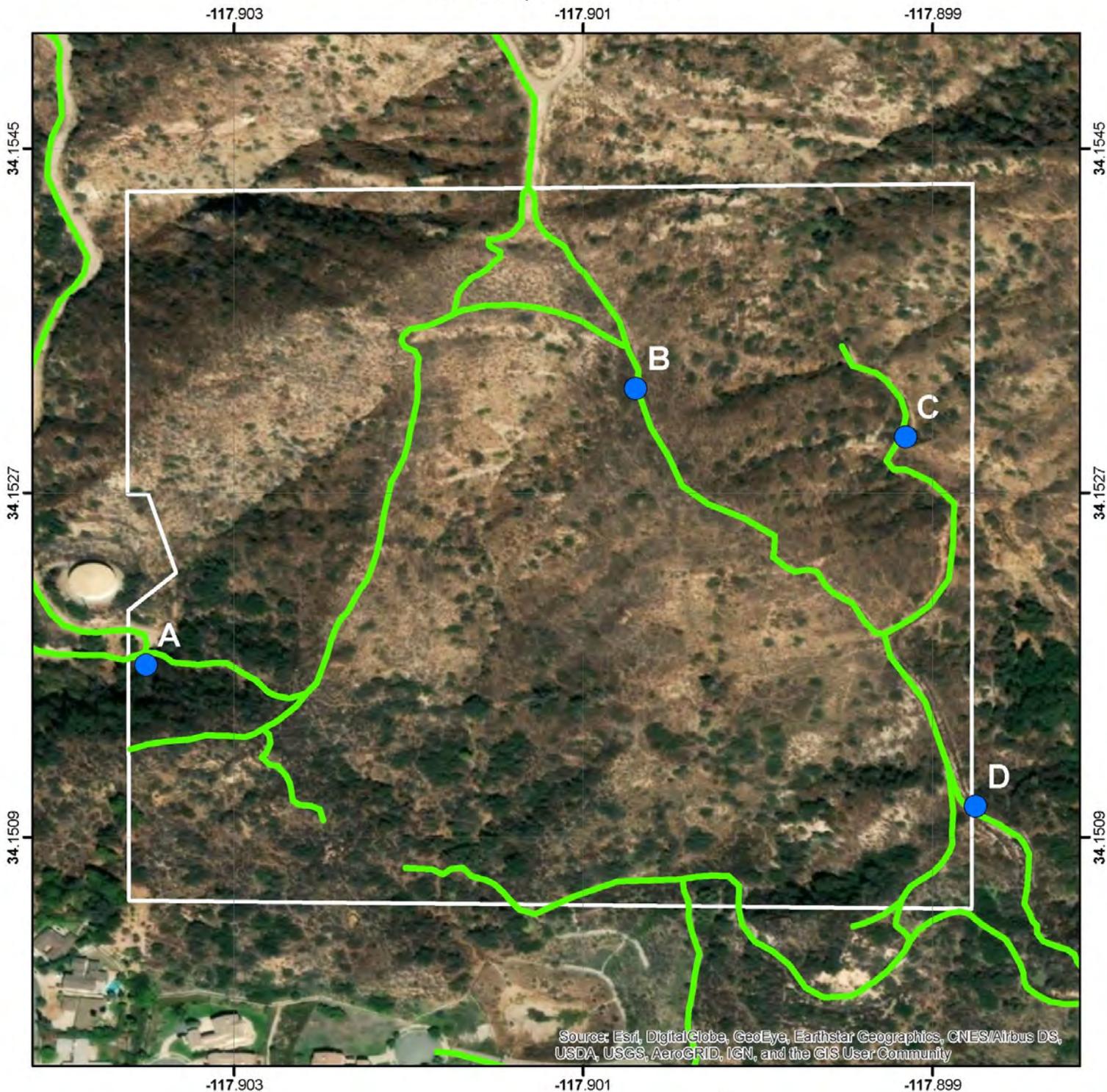
Three focused wildlife surveys were conducted to check for the presence of avifauna, herpetofauna, and mammalian species that were either active on site or that had the potential to benefit from the Vasquez Property. Outside of the focused wildlife surveys, any taxa encountered during vegetation surveys were also documented. Wildlife surveys included direct visual observations for the presence of individual species as well as signs of wildlife activity (e.g. scat and tracks). In addition to direct observations, wildlife cameras and coverboard arrays were installed to passively document wildlife. The locations of the passive survey equipment were determined during the initial site reconnaissance visit and then installed during the following site visit two weeks later.

Wildlife Cameras:

Four wildlife cameras (A, B, C, and D) were deployed for the purpose of continuously monitoring and capturing mammalian activity within the Vasquez Property (Figure 4). Camera deployment locations were selected based on their proximity to suspected game trails and were placed with the consideration of providing reasonable accessibility for the surveyor team. CamPark T45 wildlife cameras with 14-megapixel CMOS sensors and a capture speed of 0.3-0.5 seconds were installed at each designated camera location (Appendix G). Class ten memory cards were used to ensure data was recorded at the highest speed possible. These cameras provided a wide angle to maximize the area captured in each photo and video. Cameras were placed one to five meters from each trail utilizing natural attachment points whenever possible and placed in positions and heights with the greatest potential for capturing mammalian activity. Due to the dynamic nature of the site, cameras were set to capture images during both day and night. Capture sensitivity was set to medium during initial installation and later lowered to the lowest sensitivity setting due to winds regularly moving vegetation within the range of the sensor.

Cameras were inspected whenever possible during each visit following deployment to ensure proper functioning. Data captured by the cameras were downloaded directly onto a laptop in the field during specified wildlife survey visits. Memory cards were cleared and reinstalled after each download to ensure memory availability between each inspection. The data collected were briefly reviewed in the field during each download to determine the need for any camera adjustments. All photos and videos were reviewed in detail, analyzed for wildlife activity, and categorized by species and activity after being retrieved from the field. The results of the camera data review and analysis were used to further adjust camera settings and orientations to optimize the potential for capturing wildlife.

Wildlife Camera Locations - Vasquez Property Azusa, California



Author: Hannah Craddock
Date: July 12, 2019
Data Source: Tidal Influence Trimble Geo 7x

Figure 4

Herpetological Surveys:

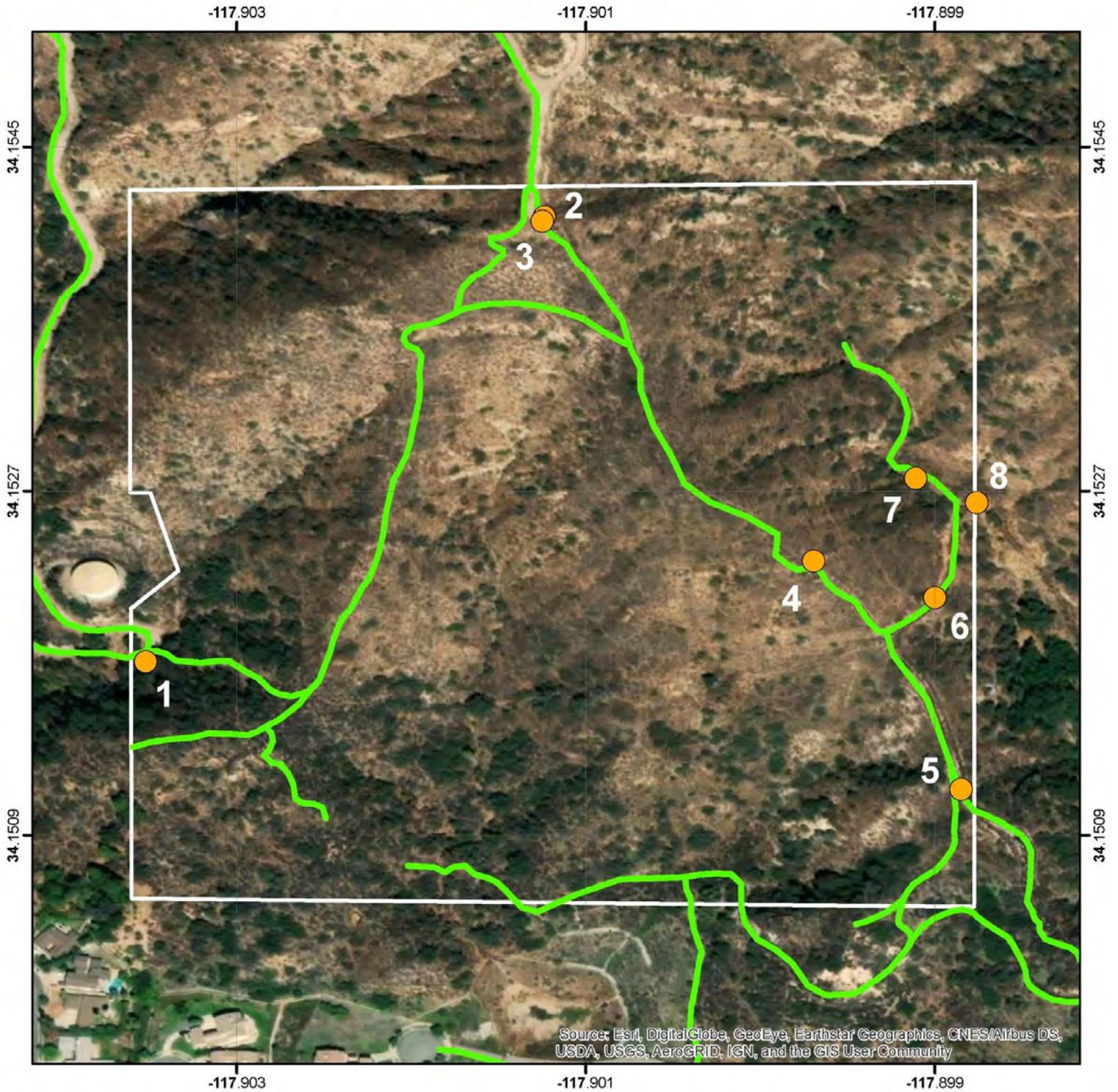
Herpetological surveys were actively conducted by staff biologists during each wildlife survey. These surveys involved the inspection of areas with high potential for occurrences such as basking surfaces, outcrops, underneath shrubs, canyon walls, and eight coverboard arrays that were deployed on the same day as the wildlife cameras. The locations for the eight coverboard arrays (1-8) were selected based on their proximity to areas with higher potential of serving as herpetofauna habitat (e.g. rock outcrops) and were placed with the consideration of providing easy accessibility to the surveyors (Figure 5).

Each of the coverboard arrays were composed of two rectangular plywood boards, which were half an inch thick and approximately 12 x 24 inches in dimensions, that were placed side by side and angled in a way to provide adequate spacing between the boards and the ground to serve as shelter for potential herpetofauna (Appendix G). Once deployed, the boards were allowed a month-long “settling” period, during which they were left undisturbed to allow nearby herpetofauna to adapt to the presence of the boards and to use them for refuge. After their settling period, coverboard arrays were inspected on a monthly basis by quickly lifting each board and inspecting the space underneath for the presence of any individuals that could be taking shelter. Each species observed using the coverboard arrays was documented alongside all other species that were identified between array locations and elsewhere within the Vasquez Property. Once inspected, boards were carefully replaced in the precise orientation they were originally deployed to minimize the risk of disturbance that could compromise the impression of safe shelter. Coverboard arrays were checked a total of three separate times throughout the survey period.

Bird Surveys:

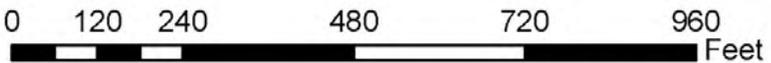
Focused bird surveys were conducted during the three wildlife survey site visits for the purpose of developing an avifaunal species list for the Vasquez Property and identifying how each species interacted with the habitat. Focused bird surveys took place during three specific site visits and the observance of any newly identified species were documented during all seven site visits. Bird species were actively identified visually with the use of binoculars and reference to *The Sibley Field Guild to Birds of Western North America* while walking through the site, or auditorily by identifying a species’ unique call or song (Sibley, 2016). Point surveys were often conducted while wildlife cameras or coverboard arrays were being inspected. Species abundance was not recorded; however, bird behaviors were documented with special attention given to the potential for breeding behaviors.

Herpetological Board Locations - Vasquez Property Azusa, California



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

-  Herptile Boards
-  Survey Route
-  Vasquez Property Footprint



Author: Hannah Craddock
Date: July 12, 2019
Data Source: Tidal Influence Trimble Geo 7x

Figure 5

2.2.3 Special Status Species

Special status plant species include all federal- and state-listed endangered and/or threatened species and those that have been identified by the California Native Plant Society (CNPS) as having a limited distribution in California and throughout their range. To identify special status species known or potentially occurring within the Vasquez Property, multiple data sources were investigated to augment field surveys. In particular, sensitive species were identified regionally through queries of the California Natural Diversity Data Base (CDFW, 2018). The CNDDDB record search was conducted within the Azusa Quadrangle (Quad Code 3411728). After conducting the CNDDDB record search, the list of identified species and recorded occurrences for the region were compiled. To augment CNDDDB records, biological reports from adjacent areas were reviewed and a prioritized list of potentially occurring species within the existing survey area’s habitats was prepared and brought into the field during surveys.

Furthermore, a review of the CNPS Electronic Inventory of Rare and Endangered Vascular Plants of California was conducted to expand upon the generated list of potential plant species occurring within the Property (CNPS, 2019).

The location and pertinent attribute data for all observed special status species were recorded on a Trimble Geo 7X handheld Global Positioning System (GPS) device with sub-meter accuracy. A rangefinder attachment was utilized to collect geographic location data for species located in inaccessible or sensitive habitat areas.

The Trimble Geo 7X handheld GPS device used to map specific features within the Vasquez Property was programmed with a data dictionary that would allow the handler to collect information such as: access routes, herpetofauna coverboard arrays, wildlife cameras, special status species, and miscellaneous points of interest. Attributes for each data point such as: array number, number of boards, camera number, camera direction, species name, point of interest description, or any additional notations about an entry were recorded in the device (Table 2).

Table 2. Trimble Data Dictionary Setup

Feature	Classification	Attributes
Access Routes	Line	Notes
Herpetology Board	Point	Array Number
		Number of Boards
		Notes
Wildlife Camera	Point	Camera Number
		Camera Direction
		Notes
Special Status	Point	Species Name
		Notes
Things of Interest	Point	What is it?
		Notes

3.0 Results

3.1 Site Characteristics and Land Use

The Vasquez Property consists of natural, developed, and formerly developed land. Almost the entire 40 acres of the property is natural open space. The natural landscape consists of a mixture of native and non-native vegetation growing along many steep and occasionally rocky slopes. Much of the property consists of dangerous terrain that is difficult to access, making residential development challenging. A 0.27-acre portion of this natural landscape was historically graded for what was once an old mining road leading to the Felix Mine. This dirt road runs north from the southeast corner of the property towards the arroyo, approximately midway along the eastern property boundary. Using figure 5 as a reference, the old mining road runs along the survey route passing through herptile boards 5, 6, and 8. This road is now completely overgrown with mature vegetation, suggesting it has been inactive for the past several decades.

Only 0.11 acres of the property are considered developed, a portion of which is the Glendora Ridge Motorway (GRM). This dirt road travels just outside of the property's western boundary and is maintained to access adjacent properties as well as a neighboring water tank owned by the City of Azusa (AIN #8684-024-273). As it navigates through the neighboring property, a small portion of the GRM enters the Vasquez Property for a short distance of approximately 38 meters. This road also provides access to the Vasquez Property's northern boundary, where another small developed area serves as a viewpoint over the City of Azusa. Aside from these two thoroughfares, no hiking trails or access paths currently exist on the property. Temporary access routes through the property were established by surveyors where paths did not already exist.

3.2 Soils

The entire property is composed of one type of soil, Caperton-Trigo granitic substratum (USDA, 2014; Appendix B). The Caperton series consists of shallow and somewhat excessively drained soils formed from materials that have been mainly weathered from coarse grained acid igneous rock, mainly in the form of granodiorite and quartz diorite. Caperton soils are an upland soil and have moderately rapid permeability. Within the property most slopes range from 50% to 85%. Vegetation in these soils consists of annual grasses and oaks, which correlates with the vegetation that was present throughout the majority of the site prior to the Colby fire. (USDA, 2014).

3.3 Vegetation

A total of 101 plant species were identified on the Vasquez Property, using resources such as the online version of the Jepson Manual and CalFlora. Of these 101 species, 71 are native to California and 30 species are considered non-native (Appendix C). Of the non-native species, 18 are classified as invasive by the California Invasive Plant Council (Cal-IPC), with 8 species listed as "*limited*" and 10 species listed

as having “*moderate*” invasive status (Cal-IPC, 2019). None of the observed non-native plant species are ranked as highly invasive by Cal-IPC. The most abundant invasive plant species on site is *Pennisetum setaceum* (crimson fountaingrass), which has established itself throughout the property, with certain areas consisting almost exclusively of this invasive plant species. *Bromus diandrus* (ripgut brome), another species of grass, and *Hirschfeldia incana* (shortpod mustard), were the other two most frequently occurring non-native invasive plants.

Of the 57 different genera of plants identified within the property, *Pseudognaphalium*, *Acmispon*, and *Lupinus* were the three most specious genera, each with three different recorded species. Plants from 34 different families were documented. The most specious family of native plants during the survey period was Asteraceae, with 14 individual species identified within the site boundaries. Overall, the diversity of native vegetation on this property is remarkable. The dynamic terrain and minimal disturbance likely play contributing roles in the floral diversity. Annual species make up 24% of the native plant species richness, which indicates the importance of performing springtime surveys to document vegetation communities that would have otherwise been unnoticed during different times of the year. Recent fire activity may contribute to the richness of annual plant species.

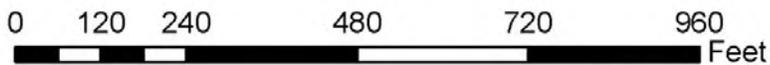
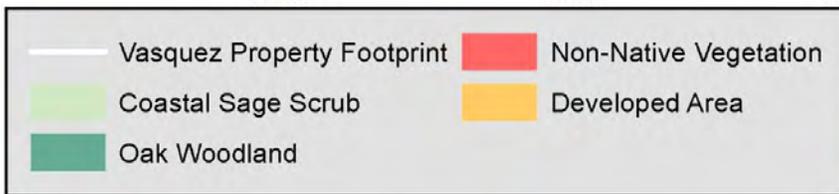
The plant species found onsite compose three distinct vegetation communities: coastal sage scrub, oak woodland, and non-native grassland. Coastal sage scrub covers 32.48 acres and is the most prevalent vegetation community, followed by 5.15 acres of oak woodland, and 4.00 acres of non-native grassland (Table 3; Figure 6).

Table 3. Acreage of Vasquez Property vegetation communities

Vegetation Community	Size (Acres)
Coastal Sage Scrub	32.48
Oak Woodland	5.15
Non-Native Grassland	4.00

Vegetation Communities - Vasquez Property

Azusa, California



Author: Hannah Craddock
Date: July 7, 2019
Data Source: Tidal Influence Trimble Geo 7x

Figure 6

The three existing vegetation communities can be further divided into six unique vegetation alliances, with each being dominant in one or more species. The *Malosma laurina* alliance covers 23.79 acres, followed by the *Encelia farinosa* alliance which covers 7.25 acres, the *Quercus agrifolia* alliance that covers 5.15 acres, the *Pennisetum setaceum* alliance that covers 3.31 acres, the *Artemisia californica* alliance that covers 1.44 acres, and the *Brassica* and other mustards alliance that covers 0.69 acres (Table 4; Figure 7). These six vegetation alliances are categorized into three different alliance types that include: Shrubland, Woodland, and Semi-Natural Herbaceous Stands. Vegetation alliances serve as a useful way of describing patterns of plants across different landscapes and reflect the effects of local climate, soil, water, disturbance (wildfires), as well as other ecological factors. The report uses three types of cover classes: vegetation alliances, vegetation stands, and other land cover types.

Table 4. Acreage of Vasquez Property vegetation alliances

Vegetation Alliance	Alliance Type	Size (Acres)
<i>Malosma laurina</i>	Shrubland	23.79
<i>Encelia farinosa</i>	Shrubland	7.25
<i>Artemisia californica</i>	Shrubland	1.44
<i>Quercus agrifolia</i>	Woodland	5.15
<i>Pennisetum setaceum</i>	Herbaceous Semi-Natural	3.31
<i>Brassica</i> alliance	Herbaceous Semi-Natural	0.69

While this site’s vegetation alliances consist primarily of native scrub species, they also contain other species of native and non-native herbaceous plants. Below is a description of the vegetation communities and associated alliances with information regarding the dominant species observed within each alliance as well as the associated species that could be incorporated for future enhancement of the vegetation community diversity.

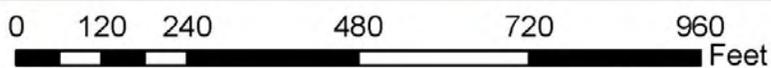
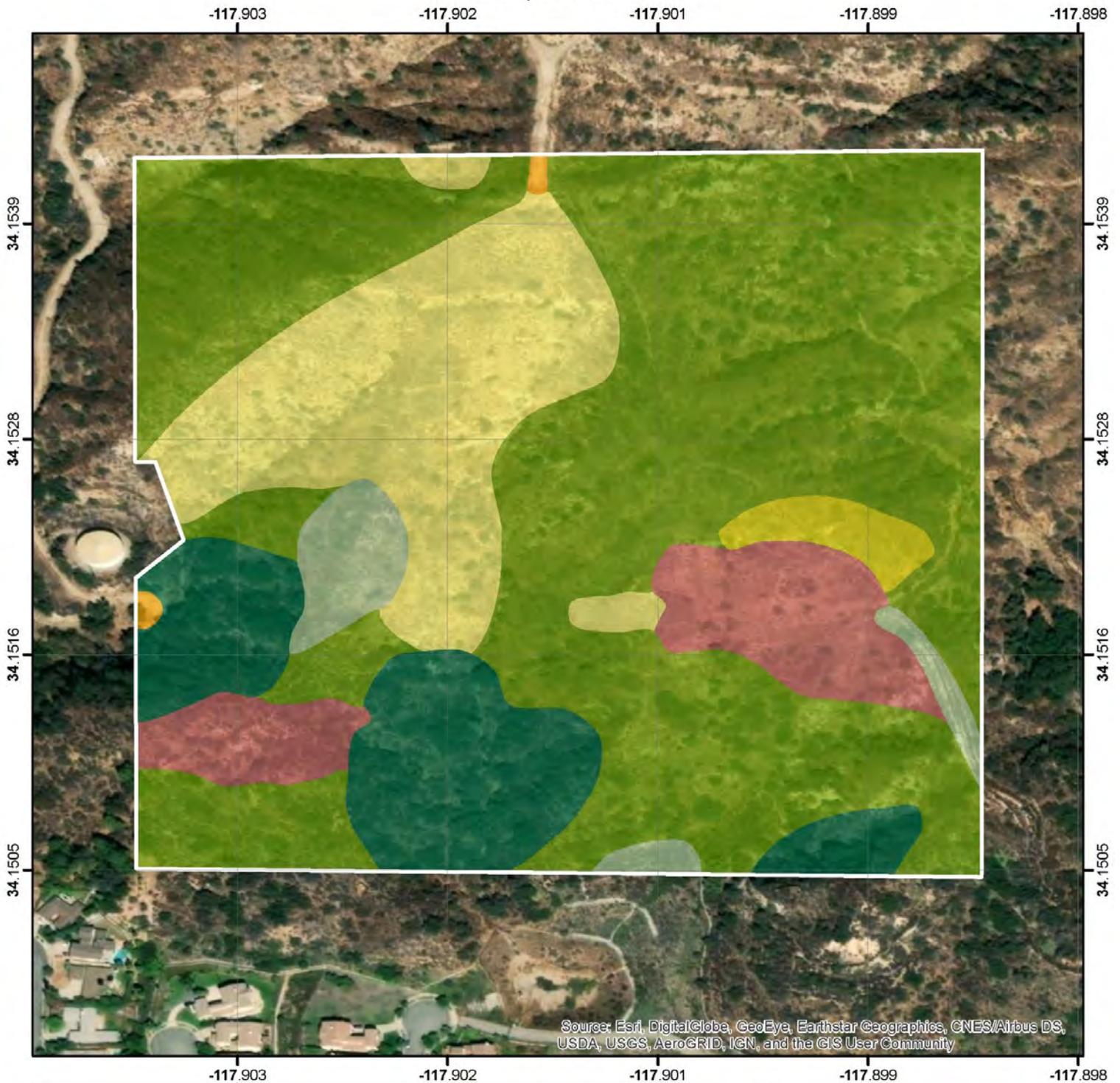
3.3.1 Coastal Sage Scrub

General Description:

This vegetation community is primarily found on west facing slopes in the coastal zone of southern California at elevations between sea level and 1,800 ft. This community is dominated by low-growing shrubs that regularly reach heights under six feet tall and are highly branched with multiple woody stems. Species within coastal sage scrub (CSS) communities are often drought-deciduous and lose their leaves in the summer months to retain moisture through the dry season. These plants will then regrow new leaves shortly after the first rains of winter and will continue vegetative growth through early spring before flowering. These species have evolved in a climate that seasonally experiences wildfires and therefore have adapted the ability to regrow from root crowns after a fire has disturbed their community.

Vegetation Alliances - Vasquez Property

Azusa, California



Author: Hannah Craddock
 Date: July 11, 2019
 Data Source: Tidal Influence Trimble Geo 7x

Figure 7

Characteristic Plant Species:

Artemisia californica (California sagebrush), *Eriogonum fasciculatum* (California buckwheat), *Encelia farinosa* (brittle bush), *Isocoma menziesii* (Menzie’s goldenbush), *Salvia mellifera* (black sage), *Acmispon glaber* (deerweed), *Malosma laurina* (laurel sumac), *Salvia leucophylla* (purple sage), *Baccharis pilularis* (coyote brush), *Rhus integrifolia* (lemonade berry), and *Salvia apiana* (white sage).

Site Specific Distribution:

This habitat type occurs along most of the slopes on the Vasquez Property, totaling approximately 32.48 acres. These areas have historically contained coastal sage scrub vegetation and within these areas, there are signs of this vegetation community recovering post fire. Within the Vasquez Property the coastal sage scrub community is composed of three unique shrubland alliances: *Malosma laurina*, *Encelia farinosa*, and *Artemisia californica*. Below are general and site-specific descriptions of each alliance that give insight into their post fire recovery.

Shrubland Alliances (*Encelia farinosa*, *Malosma laurina*, and *Artemisia californica*):

1) *Encelia farinosa* – Shrubland Alliance

Cover Class Description:

The *Encelia farinosa* alliance is dominant or co-dominant in the shrub canopy with *Ambrosia dumosa*, *Artemisia californica*, *Eriodictyon crassifolium*, *Eriogonum fasciculatum*, *Hesperoyucca whipplei*, *Mirabilis californica*, and *Salvia apiana*. This alliance occurs in rocky well drained soils and is open to seasonal annuals within the herbaceous layer. Sprouting weakly after fires, this alliance can rapidly colonize burned areas from off-site seed sources. When fires are frequent, *Encelia farinosa* stands can replace those of *Artemisia californica*, *Eriogonum fasciculatum* and *Salvia apiana*. Longer fire intervals help to prevent degradation of this alliance.

Site Specific Description:

Approximately 7.25 acres of the property currently consist of *Encelia farinosa* shrubland alliance. Within the site boundaries it was observed growing alongside *Eriogonum fasciculatum*, *Artemisia californica*, as well as various non-native grasses in the herbaceous layer. These populations were found over much of the property along the steep, rocky, southern facing slopes that dominate much of the property. The large areas dominated by this subshrub appear to be a natural progression following the 2014 Colby Fire, recolonizing many of the barren slopes that remained post fire. In order to prevent the degradation of this alliance on the property, it is recommended that efforts be made to prevent fires in the area for around ten years in order to allow for this alliance to recover and re-establish. Degradation of this alliance could result in the proliferation of non-native alliances in the future.

2) *Malosma laurina* – Shrubland Alliance

Cover Class Description:

The *Malosma laurina* alliance is dominant or co-dominant in the shrub canopy with *Artemisia californica*, *Ceanothus megacarpus*, *Diplacus aurantiacus*, *Encelia californica*, *Eriogonum*

cinereum, *Eriogonum fasciculatum*, *Heteromeles arbutifolia*, *Hesperoyucca whipplei*, *Keckiella antirrhinoides*, *Rhamnus ilicifolia*, *Rhus integrifolia*, *Rhus ovata*, *Salvia leucophylla*, *Salvia mellifera*, *Tetracoccus dioicus*, and *Toxicodendron diversilobum*. It often grows along steep slopes and in shallow fine textured soils. It produces lignotubers that sprout prodigiously after plants are top killed by fire. Seeds germinate after scarification occurs during fires, thus giving it an advantage over other non-fire stimulated species. More frequent fires and brush clearing are recommended for managing this alliance.

Site Specific Description:

Within the site approximately 23.79 acres consist of the *Malosma laurina* shrubland alliance. It was observed growing alongside *Artemisia californica*, *Encelia farinosa*, *Salvia mellifera*, *Hesperoyucca whipplei*, as well as various non-native grasses in the herbaceous layer. These populations cover most of the steep slopes that dominate the property. The recent and more frequent fires in the area will likely help to make this alliance dominant on the property as well as in neighboring areas. Re-establishment may be delayed due to increased competition with other non-native species on site including *Pennisetum setaceum*. It is recommended that non-native plant species control be included in a comprehensive land management plan in order to sustain and encourage the re-establishment of this alliance.

3) *Artemisia californica* – Shrubland Alliance

Cover Class Description:

The *Artemisia californica* alliance is dominant or co-dominant in the shrub canopy with *Adenostoma fasciculatum*, *Baccharis pilularis*, *Diplacus aurantiacus*, *Encelia californica*, *E. farinosa*, *Eriogonum fasciculatum*, *Hesperoyucca whipplei*, *Isocoma menziesii*, *Keckiella cordifolia*, *Lotus scoparius*, *Opuntia littoralis*, *Salvia apiana*, *Salvia leucophylla*, *Salvia mellifera*, and *Toxicodendron diversilobum*. It usually grows along steep slopes in shallow alluvial soils. This shallow rooted shrub produces chemicals in its leaves and shrub litter that inhibit the germination of other species. Depending on the age of the stand, this alliance can sprout moderately well after fires occur. Overall with increased fire frequency and competition with non-native grasses this species range is decreasing over time.

Site Specific Description:

Within the site approximately 1.44 acres consist of the *Artemisia californica* shrubland alliance. It was observed on site growing alongside *Encelia farinosa*, *Eriogonum fasciculatum*, *Hesperoyucca whipplei*, *Opuntia littoralis*, and *Salvia mellifera*. The alliance areas on site covered only a small portion of the site in areas that appeared to be less impacted by recent fires as well as along old roads. Given enough time and less frequent fires, this alliance may be able to expand in size on the property naturally. However, this alliance may be a good candidate to include in future restoration efforts on the property to combat the coverage of annual non-native species that increase the risk of more frequent wildfires once they are dried.

3.3.2 Coast Live Oak Woodland

General Description:

This vegetation community is dominated by only one species, *Quercus agrifolia* (coast live oak), an evergreen tree that can reach heights of 10-25 meters. This community is commonly found on north facing slopes in well-draining mesic foothills along the Pacific Coast. Strands of this community often establish in ravines between grassy hillsides where moisture levels are higher as water drains from the surrounding hills. Depending on the climate of the area in which the community occurs, oak trees will undergo a growth season ranging between 6 months and year-round. Coast live oaks have adapted to a climate that experiences both drought and wildfires. Deep taproots, hardening xylem, and thick cuticles allow this species to survive when annual precipitation is low. Thick bark enables this species to insulate its delicate tissues from less severe fires, however, if oak trees suffer fatal damage to their above ground tissues, they have the ability to regrow from their root crowns that survive beneath the burned soil. Oak trees then exploit post-fire conditions in which competing species and pests have been temporarily eliminated and the soil has been enriched by their added nutrients. The shrub layer in this community is often poorly developed, while the herbaceous layer is continuous but often dominated by non-native grasses. Coast live oak woodlands will integrate with coastal scrub and mixed chaparral on drier sites and usually occurs under 4,000 feet of elevation.

Characteristic Plant Species*:

Quercus agrifolia (coast live oak), *Juglans californica* (southern black walnut), *Umbellularia californica* (California bay), *Arbutus menziesii* (Pacific madrone), *Notholithocarpus densiflorus* (tanoak), *Quercus chrysolepis* (canyon live oak), *Rubus ursinus* (California blackberry), *Heteromeles arbutifolia* (toyon), *Arctostaphylos patula* (greenleaf manzanita), *Adenostoma fasciculatum* (chamise), *Artemisia californica* (California sagebrush), *Baccharis pilularis* (coyote brush), *Platanus racemosa* (western sycamore), *Malosma laurina* (laurel sumac), *Sambucus nigra* ssp. *caerulea* (blue elderberry), and *Toxicodendron diversilobum* (Pacific poison oak).

*Characteristic plant species vary widely and are influenced by the communities with which a coast live oak woodland is integrating and the climate of its location.

Site Specific Description:

This habitat type occurs in the canyons and ravines of the Vasquez Property, totaling approximately 5.15 acres. These areas have historically contained Oak Woodland vegetation, and within these areas there exists an abundant shrub and herbaceous layer. This abundance of vegetation layers is likely due in large part to the minimal fire damage that these areas received during the Colby Fire in 2014. In areas that were burned more intensely, there are signs of woodland recovery, but at a reduced rate. Within the Vasquez Property the Coast Live Oak Woodland Community is only composed of one vegetation alliance, the *Quercus agrifolia* alliance. Below are general and site-specific descriptions of this alliance as well as insight into its post fire recovery on the property.

Woodland Alliance (*Quercus agrifolia*):

Cover Class Description:

Quercus agrifolia is dominant or co-dominant in the tree canopy with *Acer macrophyllum*, *A. negundo*, *Arbutus menziesii*, *Juglans californica*, *Platanus racemosa*, *Populus fremontii*, *Quercus douglasii*, *Quercus lobata*, *Quercus engelmannii*, *Quercus kelloggii*, *Salix lasiolepis*, and *Umbellularia californica*. Canopy cover is open to continuous, over a sparse to intermittent shrub layer, with an herbaceous layer that can be sparse or grassy. This alliance grows in alluvial terraces, canyon bottoms, stream banks, slopes, and flats often in deep, sandy or loamy soils with high organic matter. Dispersed via wildlife or gravity, the seeds (acorns) of *Quercus agrifolia* are short lived and often cached by California ground squirrels or scrub jays. With the thickest bark of any California oak, this species is exceptionally fire resistant and can usually recover well from fires. Managing this alliance can be difficult due to several issues, including: residential development, sudden oak death syndrome, invasion from shrubland alliances, and frequent intense fires.

Site Specific Description:

Approximately 5.15 acres of the Vasquez Property consist of *Quercus agrifolia* woodland alliance. This alliance was observed growing onsite alongside *Juglans californica* and various plant species in the shrub and herbaceous layers. These stands are most prevalent in areas of the property that received little to no damage from the Colby Fire. This alliance does well to resist fire damage and can recover to pre-fire densities in about ten years. Natural expansion of this alliance will likely prove difficult due to the increased frequency of fires in the region. Expansion of this woodland alliance will likely require human intervention and restoration implementation.

3.3.3 Non-native Disturbed Grassland

General Description:

This vegetation community encompasses several different vegetation alliances and is dominated by non-native grass species. These non-native grass species opportunistically invade habitats that have recently been cleared of vegetation by wildfires, with native plant species revegetating more slowly than the competing non-native grass species. These non-native communities generally outperform native communities due to their limited resource demands, fast maturity rates, and superior ability to sequester water. Non-native grasslands can also increase fuel loads and frequency of fires in an area.

Characteristic Plant Species:

Erodium cicutarium (redstem storksbill), *Bromus diandrus* (ripgut brome), *Bromus madritensis* (foxtail brome), *Bromus madritensis* ssp. *rubens* (red brome), *Bromus tectorum* (downy brome), *Brassica nigra* (black mustard), *Hirschfeldia incana* (shortpod mustard), *Salsola tragus* (Russian thistle), and *Pennisetum setaceum* (crimson fountaingrass), *Polypogon monspeliensis* (rabbitsfoot grass), and *Ehrharta erecta* (panic veldtgrass).

Site Specific Description:

This habitat type occurs along the slopes of the Vasquez Property, totaling approximately 4.00 acres. These areas have historically contained coastal sage scrub plant communities, but due to more recent fires have been invaded and dominated by non-native plant species. The alliances included in this community include the *Pennisetum setaceum* alliance, as well as the *Brassica* & other Mustards alliance. Below are general and site-specific description of each alliance within this community along with insights on its potential impacts to the site and surrounding areas.

Semi Natural Herbaceous Stand:

1) *Pennisetum setaceum* (Fountain Grass Swards)

Cover Class Description:

The *Pennisetum setaceum* or other *Pennisetum* species alliance is dominant or co-dominant with other non-native species in the herbaceous layer. Originally from northern Africa, *Pennisetum setaceum* has become widely established throughout the United States. It reproduces by using either fertilized or apomictic seeds that can remain viable in soil for at least seven years (DiTomaso & Keyser et. al, 2013, Lovich, 2000). It grows along steep coastal cliffs, bluffs, road-cuts, coastal dunes, coastal scrub, desert scrub types in areas with mild, frost free winters. Adapted to fire, this species' population usually increases after fires which contributes to their spread. Establishing better than native vegetation post fire, *P. setaceum* increases fuel loads in areas it establishes (D'Antonio, Dudley & Lambert, 2010).

Site Specific Description:

The site consists of approximately 3.31 acres of *Pennisetum setaceum* herbaceous stands. It was observed growing alongside various non-native grasses throughout the property, with only certain areas showing signs of domination from *P. setaceum*. Well adapted to fires and re-establishing in areas where CSS communities existed pre-fire, this alliance may delay the re-establishment of other communities within the Vasquez Property. With the difficulty of removal along steep slopes, growth in population following fires, as well as the number of seed sources from neighboring properties, this species may have to become considered as "semi-naturalized" in the San Gabriel Foothills or require widespread synchronized restoration and control efforts in order to simultaneously control the non-native population and re-establish native vegetation. This increased fuel load and fire frequency could also pose an increased fire hazard for both wild and urban areas.

2) *Brassica* & Other Mustards

Cover Class Description:

The Brassica and other mustards alliance is dominant or co-dominant in the herbaceous layer with *Brassica nigra*, *Brassica rapa*, *Brassica tournefortii*, *Bromus diandrus*, *Centaurea melitensis*, *Hirschfeldia incana*, *Isatis tinctoria*, or *Raphanus sativus*. This alliance responds well to

disturbance that includes fire, flooding, and grazing. It increases fuel loads, especially in areas that have already been altered by non-native grasses.

Site Specific Description:

The Vasquez Property currently consists of approximately 0.69 acres of the *Brassica* and other mustards alliance. It was observed growing with *Bromus diandrus*, *Bromus madritensis*, and *Hirschfeldia incana*. Although this stand of non-native vegetation is invasive and does well with disturbance, it does not appear to pose as much of a threat to native vegetation re-establishment as *Pennisetum setaceum* stands. Therefore, it is recommended that control be selectively performed and occur in tandem with efforts to control *P. setaceum* and re-establishment of native vegetation.

3.3.4 Developed or Disturbed Areas

General Description:

Developed or disturbed areas are a land cover class used to indicate locations that have been disturbed by human development. These areas have low amounts of vegetation cover as a result of this development. Areas such as paved roads, dirt roads, buildings, or parking lots all qualify under this description.

Site Specific Description:

Only two areas were identified as developed or disturbed within the property boundaries. One of the disturbed areas is the GRM that traverses the ridgeline above the Vasquez Property. This road begins as it enters the foothills to the west through the Azusa neighborhood via North Hilltop Drive and travels approximately 5.6 miles east connecting to Glendora Mountain Road, an access road into the foothills and mountains above the city of Glendora on the north east side of the city. As the GRM passes through the parcel to the west, it loops into the Vasquez Property covering approximately 130 feet before continuing back through the adjacent land northward over the top of the Vasquez Property. This road has been significantly eroded and rutted following the Colby fire of 2014 and subsequent years of heavy rainfall. The westernmost stretches of this poorly maintained road are almost exclusively accessed by the neighboring landowners to the west of the Vasquez Property, who use the portion of the road on their property to manage their avocado orchard and travel through the foothills. The limited use of this passage has still impacted the dirt road's surface enough to render it sparse with vegetation that almost entirely occurs as low-growing plants. The other development within the property is a short spur that extends off the GRM and enters the property along the northern border forming a small outlook with a viewpoint over the City of Azusa and the entire Vasquez Property. The Felix Mine and its access road in the southeast corner of the property are historic disturbances on the land but have been inactive long enough for the road to have been converted back into native vegetation communities.

3.3.5 Vegetation Community Observations

This property was subject to the Colby Fire in 2014 which consumed about 75% of the 40 acres along with any vegetation growing in that affected area. In reviewing historical aerial maps, it appears that before the fire impacted the area, the coastal sage scrub vegetation throughout the site was quite dense with mature shrubs, especially on the north facing slopes and in ravines where larger shrub species

dominated. Based on our field survey observations, coastal sage scrub suffered the greatest impact from the fire, thus reducing the cover of native shrubs and allowing for the proliferation of grasses and herbs many of which were non-native species. Existing conditions show that larger shrub species like *Malosma laurina* and *Quercus berberidifolia* are resprouting from charred stumps, while smaller shrubs like *Artemisia californica* and *Hazardia squarrosa* do not show signs of resprouting but instead appear to be re-establishing via the existing seed bank. This is often the case with extremely hot fires.

The disturbance to the shrubland coverage has led to a competition against the non-native grassland alliances. While the larger shrubs are successfully competing, the smaller shrubs need more time to mature. Due to how robust the native shrubland was before the fire, it is expected that with time the non-native grasslands dominated by mustard and bromes will eventually get out competed and return to native shrubland without intervention. These non-native annual species will not be fully eliminated naturally and will persist in any advantageous setting such as gaps in native vegetation or along game trails, but they should be reduced to a point where they are no longer the dominant vegetation community. Furthermore, the period of time before the shrubs return to dominance will allow for numerous species of native annual wildflowers to establish their seed banks along the slopes.

Since the Colby fire of 2014, approximately 20 - 25% of the affected area has naturally returned to native shrubland. This recovery rate, one-fifth to one-quarter recovery every five years, can be extrapolated to estimate the number of years it may take to return the impacted area to a native coverage level similar to that observed before the fire. Based solely on this revegetation rate, the remaining impacted area could return to its former native coverage within 20 - 25 years. However, numerous uncontrolled variables (e.g. annual rainfall, slope angle and direction, seed bank) influence this revegetation rate which makes it challenging to accurately predict which areas will recover fastest. These areas should be monitored annual to document change over time.

Unfortunately, the areas that have been invaded by *Pennisetum setaceum* after the fire are unlikely to be outcompeted naturally. This species of invasive grass should be actively controlled wherever possible. Removal of *Pennisetum setaceum* occurrences is the top priority for vegetation management on the Vasquez Property.

The coast live oak woodland was less impacted by the fire as they are naturally better adapted to survive fire, the fire also appears to have been controlled along a perimeter that saved the majority of oak woodlands. Enhancing the oak woodland habitat areas and promoting their expansion up ravines and up the arroyo will be a beneficial management strategy to increase productivity of and within the existing ecosystem. Unlike the oaks, *Juglans californica* (southern black walnut) throughout the site were heavily impacted by the fire but are resprouting from charred stumps. While many of the surviving walnuts are now growing over 10 feet tall, the fire clearance reduced the walnut stand's density to a level at which the trees are no longer dense enough to be considered a walnut woodland. The southern black walnut offers a great opportunity for habitat enhancement, especially when taken into consideration that they are one of the only two special status plant species identified within the Vasquez Property.

3.3.6 Invasive Plant Species

The eight invasive species ranked as “limited” by Cal-IPC include *Erodium cicutarium* (redstem storksbill), *Helminthotheca echioides* (bristly ox tongue), *Hypochaeris glabra* (smooth cat’s ear), *Marrubium vulgare* (horehound), *Olea europaea* (olive), *Ricinus communis* (castor bean), *Salsola tragus* (Russian thistle), and *Silybum marianum* (milk thistle) (Cal-IPC, 2019; Appendix C). A limited rating for a species states that while the plant is considered invasive, its ecological impacts are minor on a statewide level or there simply was not enough data to justify a higher rating. Their ability to reproduce along with other attributes produce a low to moderate rate of invasiveness. Ecological amplitude and distribution of these species are generally limited but can be problematic and persistent locally.

Most of the invasive species found on site were annual species aside from *Marrubium vulgare*, *Olea europaea*, and *Ricinus communis* which can live for multiple years and generally grew much larger than the annual invasive species making them easier to identify from a distance. A larger portion of these limited invasive species were most often found growing in the disturbed areas of the property either on the dirt road or along the roadside and occasionally in the cleared portions of the arroyo, these species included *Erodium cicutarium*, *Helminthotheca echioides*, *Hypochaeris glabra*, *Ricinus communis*, *Salsola tragus*, and *Silybum marianum*. Growing in the disturbed areas of the property suggests that these species likely compete poorly with native plants and because they are associated with a specific habitat type, they can be more easily located than species with the ability to grow under a wider variety of condition. The most prevalent of these species include *Erodium cicutarium* and *Hypochaeris glabra* due to their small size compared to the disturb area in which they grew. Following those species, *Helminthotheca echioides*, *Marrubium vulgare*, *Ricinus communis*, *Salsola tragus* and *Silybum marianum* were of similar abundance, growing along roadsides or in the arroyo. The accessibility of roadside occurrences makes the management of these species lower in difficulty. Occurrences within the arroyo, however, will be more difficult to manage for the same reason of accessibility. *Olea europaea* was low in abundance but the individuals found on site were very mature. Located in the south east corner of the property along the Azusa-RMC JPA parcel. Management of these larger trees will require cutting equipment such as manual or power tool saws. Once cut, the option for leaving benign material that does not contain seed is possible. However, should this area of the property be used for a trailhead or stewardship activities, these mature trees can be left intact to benefit from the shade they provide. Management should then focus on the removal of newly sprouting individuals.

Ten invasive species within the Vasquez Property have a “moderate” rating by Cal-IPC. These species are *Avena barbata* (slender oat), *Bromus diandrus* (ripgut brome), *Carduus pycnocephalus* (Italian thistle), *Centaurea melitensis* (tocalote), *Cirsium vulgare* (bull thistle), *Ficus carica* (common fig), *Hirschfeldia incana* (shortpod mustard), *Nicotiana glauca* (tree tobacco), *Pennisetum setaceum* (crimson fountaingrass), and *Washingtonia robusta* (Mexican fan palm) (Cal-IPC, 2019). Species listed as moderate by Cal-IPC have substantial and apparent ecological impacts on physical processes, plant and animal communities, and vegetation structure though these impacts are generally not severe. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is usually dependent on ecological disturbances. Ecological amplitude and distribution may range from limited to widespread.

Of the ten moderately invasive species roughly a third belong to both the sunflower family (Asteraceae) and the grass family (Poaceae) each with three individual species. Two of the species in the grass family were annual species and one was perennial. The one perennial grass species, *Pennisetum setaceum*, is the most widespread invasive species on the property and poses the largest challenge for invasive species management and is even adapted to survive wildfires. This species will not be outcompeted by the selective pressures from the rival communities of native shrubs. The two annual grass species, *Bromus diandrus* and *Avena barbata* both contribute to the non-native grassland communities that have occurred within the property following the shrub clearance of the Colby fire with *Bromus diandrus* contributing a greater amount of coverage as the second most abundant species of invasive plant within the property. The two annual species of invasive grasses will likely naturally become outcompeted over time as native perennial shrubs from the recovering coastal sage scrub community continue to spread and replace the annual invasive grasses.

The three species of moderately invasive plants from the sunflower family are all types of thistles, *Carduus pycnocephalus*, *Centaurea melitensis*, and *Cirsium vulgare*. These species are successful in disturbed habitats such as the dirt roads or clearings within the property as well as within the non-native grasslands. These thistles produce large amounts of seed that are dispersed via wind. Their abundance within the Vasquez Property is low and occur randomly throughout the site where seeds found enough space to grow. These species can be actively managed via uprooting and must be taken off site if flowers have matured. Limiting the amount of disturbed habitat within the property will also limit the opportunity for these species to occur.

The third most abundant invasive plant species, *Hirschfeldia incana*, belongs to the mustard family Brassicaceae. This biennial species occurs in both the grasslands and coastal sage scrub habitats where it displaces native species. The seeds from this species are produced in large numbers and can remain viable for multiple years. Populations can be controlled overtime by regular pulling and cutting before seeds are developed. Management within the Vasquez Property will be difficult due to the steep slopes on which it occurs.

Nicotiana glauca from the nightshade family Solanaceae, was of relatively low abundance within the property, being documented in disturbed areas such as roadsides and within the arroyo. The limited habitat for this species will make it less difficult to manage with the accessibility of the arroyo posing the greatest challenge. The relatively large size of mature individuals will allow this species to be easily located.

The two remaining species, *Ficus carica* and *Washingtonia robusta*, from the fig (Moraceae) and palm (Arecaceae) families respectively, were of the lowest abundance of all moderately invasive plant species. Each species had only one individual recorded on the property. The large palm can be seen above the native canopy in the south east portion of the property and the large fig tree is growing in the ravine between the two western most ridges. Due to their size, it will be difficult to remove these species off the property. The palm can be cut down and left to serve as habitat and the fig can be cut up and left in the ravine with the fruits being taken from the area.

3.4 Wildlife

A total of 45 different faunal species were documented during the multiple site visits conducted during the surveying period. Of those 45 species, 44 are native to California, and only one species was introduced in the past 100 years. Avifaunal species accounted for 33 of the identified animals and six species each come from mammals and herpetofauna. The variety of documented species serves as an indication for how robust the natural resources are within the Vasquez Property and the adjacent landscape.

3.4.1 Herpetofauna

Six different species of herpetofauna were identified within the Vasquez Property. Five of these species were reptilian, and one was amphibian. Of the various reptilian families, the most specious was Iguanidae (American arboreal lizards, chuckwallas, iguanas, and iguanids), with two different species of lizards. Each of the other four species belong to their own taxonomic family. The diversity of herpetofauna identified suggests that the resources within the property are rich enough to accommodate multiple trophic levels along with the specific habitat requirements for each species. The different taxa of herpetofauna are further distinguished below.

Snakes:

Snakes are of ecological significance within a natural habitat. As strictly carnivorous animals, the presence of snakes indicates that a habitat contains enough prey species to support the trophic level shared by snakes and other predatory species. As they often prey on small mammals, snakes can help limit the population of species that potentially serve as vectors for bloodborne diseases. But because snakes are not apex predators within their wildlife communities, they are also an indication that higher trophic levels may be present, including predatory birds or mammals.

- 1) Viper Snakes: These snakes belong to the viper and pit viper family, Viperidae, characterized by vertical pupils and the heat sensing pits near the mouth of the snakes that are used to detect warm-blooded prey. One rattlesnake species, the southern Pacific rattlesnake (*Crotalus oreganus helleri*) was documented on multiple occasions over the course of the surveying period (Appendices D & G). Each time this species was recorded was within the same coastal sage scrub habitat area of the property, approximately 25 meters from herpetological board array number six (Figure 5). This likely indicates that the area had a suitable amount of resources such as a shelter, basking surfaces, and prey. This species consumes a wide variety of prey including birds, lizards, frogs, insects, and small mammals. The venom of this species is harmful to humans and bites require immediate medical attention. Rattlesnakes use biting as a last resort of defense, and these snakes primarily rely on their camouflage to go unnoticed and will use their rattle to communicate their presence and potential threat when harassed or approached too closely. Rattlesnake venom's primary purpose is to aid in the apprehension of prey, and it is not uncommon for a mature rattlesnake bite to contain no venom when biting defensively (Hammerson, Frost & Hollingsworth, 2007)

- 2) Colubrid Snakes: Colubrid snakes belong to the family Colubridae (colubrids), the most diverse family of all snakes, which account for nearly two-thirds of all species. Snakes from this family are rarely dangerous to humans. Unlike vipers, colubrid snakes have rounded pupils and occupy a greater number of habitat types. The San Diego gopher snake (*Pituophis catenifer annectens*) was the only colubrid species identified on the property over the course of the surveys (Appendices D & G). This species was observed among the disturbed grassland and coastal sage scrub habitats along the central ridge of the property. Gopher snakes are among the most common species encountered throughout California, with various subspecies in habitats throughout almost the entire state. Gopher snakes constrict their prey and do not have as diverse of a diet as rattlesnakes, eating primarily small mammals such as gophers, moles, rabbits, and mice, as well as birds and their eggs (Hammerson, 2007). This species is not dangerous to humans and uses escape as the primary mode of defense.

Lizards:

Lizards are often the most abundant reptile in accommodating habitats. This is strongly influenced by their food source, which is composed almost exclusively of insects and small arachnids. Because of their relative size compared to both their prey and their predators, they play a critical role in the transfer of energy between more distant trophic levels. They allow the large amount of nutrients within insect biomass to become available for higher trophic levels by being preyed on by larger animals like mammals or birds that would otherwise ignore smaller food sources like insects. Two different lizard families were identified on the Vasquez Property: the family Iguanidae, and the family Anguinae.

- 1) Iguanid Lizards: Iguanidae is a highly diversified family of lizards, containing between 700 and 1000 individual species. Ten different genera have been identified from this family within the United States alone. Iguanids have well developed limbs and short tongues that can barely be protruded from the mouth. Two species were identified on the Vasquez Property: the western fence lizard (*Sceloporus occidentalis*) and the side blotched lizard (*Uta stansburiana*). The western fence lizard was the most abundant species recorded on site and is one of the most common and widespread species in California. This species was observed near rock outcrops and throughout the arroyo where it was also recorded taking shelter beneath coverboard arrays (Table 5). Consuming a diet of small insect and arachnids like crickets, spiders, ticks, and scorpions, these lizards help to control the populations of some pest and vector species. Nymphal western black-legged ticks, which are the primary carrier of the bacterium responsible for Lyme disease, will attach to western fence lizards, where a protein in the blood of these lizards will kill the disease-causing bacterium in the ticks (Hammerson & Hollingsworth, 2007a). Thus, any human that is subsequently bitten by these ticks will not contract Lyme disease.

The side-blotched lizard was the second most documented species on the Vasquez Property. Primarily found near rock outcrops along the property ridges, this species was also recorded along the disturbed areas where the road's surface served as a basking site. One individual was observed under a coverboard array that was deployed in the cleared lookout area at the top of the property. This species is extremely common throughout the southern part of the state,

covering most of California south of the Bay Area. As with its relative, side-blotched lizards eat a diet of small insects, helping to control their populations in addition to become a food source for larger predators (Hammerson, Frost & Santos-Barrera, 2007).

- 2) Anguid Lizards: The Anguidae family contains alligator lizards, galliwasps, and glass lizards. With approximately 15 genera in this family, characteristics vary among species. The majority of Anguidae species have elongated bodies with reduced limbs (some being absent altogether), rectangular scales, and a fold in their integument along their sides. A single San Diego alligator lizard (*Elgaria multicarinata webbii*) was the only species from this family that was documented on site. This individual was already dead when it was located adjacent to a coverboard array along Glendora Ridge Motorway in the western edge of the property. The oak woodlands that are created in the ravines between the Vasquez Property's ridges, creates the ideal setting for this species with increased moisture levels and elevated canopy cover (Hammerson & Hollingsworth, 2007).

Table 5. Coverboard array observations

Date	Array Number	Observations
4/24/2019	1	No Observations (too early)
4/24/2019	2	No Observations (too early)
4/24/2019	3	No Observations (too early)
4/24/2019	4	No Observations (too early)
4/24/2019	5	No Observations (too early)
4/24/2019	6	No Observations (too early)
4/24/2019	7	No Observations (too early)
4/24/2019	8	No Observations (too early)
5/21/2019	1	No Observations (<i>Elgaria</i> nearby)
5/21/2019	2	No Observations
5/21/2019	3	<i>Uta stansburiana</i>
5/21/2019	4	No Observations
5/21/2019	5	No Observations
5/21/2019	6	No Observations
5/21/2019	7	<i>Uta stansburiana</i>
5/21/2019	8	<i>Sceloporus occidentalis</i>
6/18/2019	1	Wildlife Tampering Evidence
6/18/2019	2	No Observations (poor weather cond.)
6/18/2019	3	No Observations (poor weather cond.)
6/18/2019	4	No Observations (poor weather cond.)
6/18/2019	5	No Observations (poor weather cond.)
6/18/2019	6	No Observations (poor weather cond.)
6/18/2019	7	No Observations (poor weather cond.)
6/18/2019	8	No Observations (poor weather cond.)
*Refer to Figure 5 for coverboard array locations		

Amphibians:

Animals of this taxonomic class comprise the remaining species studied under the discipline of herpetology. While they share similarities with reptiles in terms of thermoregulation and having many quadruped species, amphibians have drastically different requirements that confine them to specific habitat types. Amphibians require a moist environment that prevents their integument from drying out. The animals have the ability to breathe through their skin and thus require a wet membrane to facilitate this respiration. Because of this direct metabolic exchange with their environment, amphibians can serve as indicator species for the presence of harmful substances or contaminants within the water or soils that they live. The presence of these species likely indicates that at least some of the Vasquez Property contains a supportive amount of clean water.

- 1) Bufo Toads: The only family of amphibian documented over the course of the springtime surveys was the toad family Bufonidae. The California toad (*Anaxyrus boreas halophilus*), was observed in the southeast area of the property within close distance of the artificial concrete drain that surrounds the water retention basin located on the Azusa-RMC JPA property directly south of the Vasquez Property. The presence of this species indicates that standing water is present in this basin for a long enough duration to support their aquatic larval phase, and that the surrounding habitat becomes moist enough for them to forage beyond it. These toads will help to control insect species in both terrestrial and aquatic habitats that are considered pests to humans, such as mosquitoes and ticks (IUCN, 2015). Should this species no longer be documented over time, it could serve as an indication that the pooling water or surrounding habitat have dissipated or become contaminated.

Other Potential Herpetofauna:

Several other species occupy habitat ranges that overlap with the Vasquez Property. Some of the snake species that could be found within the Vasquez Property include the two-striped garter snake (*Thamnophis hammondi*), California striped racer (*Coluber lateralis lateralis*), red coachwhip (*Coluber flagellum piceus*), California kingsnake (*Lampropeltis getula californiae*), and the San Bernardino ring-necked snake (*Diadophis punctatus modestus*). The Vasquez Property habitats are also suitable to a species of lizard called the San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*). Amphibians that could survive in the south east portion of the property adjacent to the Azusa-RMC JPA parcel with pooling water are the Baja California tree frog (*Pseudacris hypochondriaca*), California tree frog (*Pseudacris cadaverina*), and the American bullfrog (*Lithobates catesbeianus*). As the property continues to return to post-fire conditions, the recruitment of additional herpetofauna becomes a possibility.

3.4.2 Avifauna

A total of 33 bird species were observed on the Vasquez Property. All of these species are native to the region. The most specious family of bird observed during these surveys was Tyrannidae (Tyrant Flycatchers) followed by Emberizidae (Sparrows and Allies). Both of these families were predominantly found in the coastal sage scrub and non-native grassland portions of the property. They were often observed using charred shrub branches as perches for foraging and calling. The tyrant flycatchers could regularly be seen hunting from these perches, while spotted towhee often used them as a calling perch.

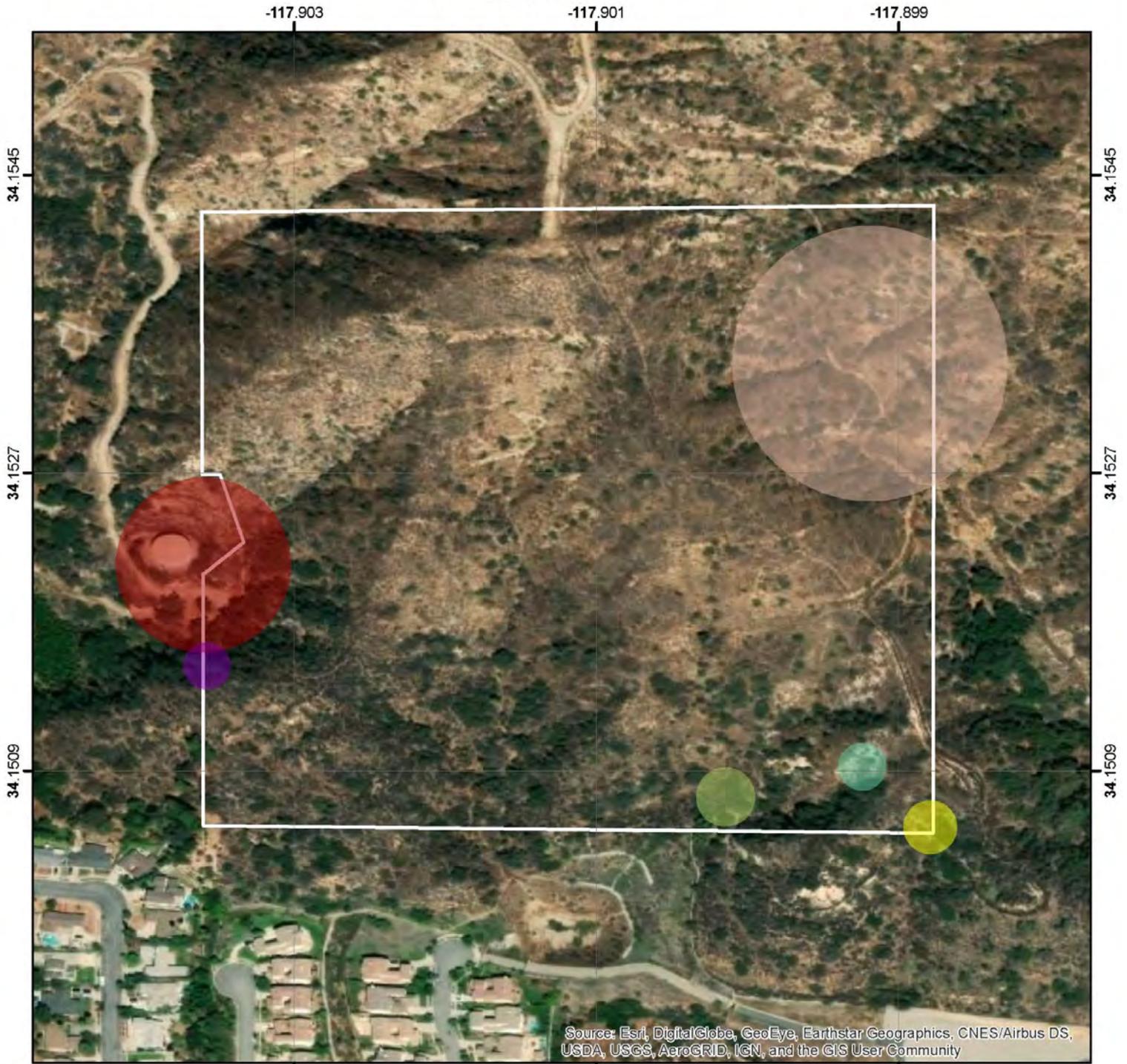
The use of these snags is indicative of the alterations to the habitat by the fire. These birds likely were not as dominant before the fire but are currently using gaps in the shrubland to proliferate. Flocks of lesser goldfinch (*Spinus psaltria*) were commonly observed throughout the property. This and other similar species are likely taking advantage of foraging opportunities provided by the shortpod mustard's seed source.

Breeding activities were most often observed in and around the oak woodlands. Two species of woodpeckers were observed nesting (Appendix G), phainopepla (*Phainopepla nitens*) were observed displaying mating behavior, and red-tailed hawk (*Buteo jamaicensis*) were observed training a juvenile (Figure 8). Bullock's oriole (*Icterus bullockii*) and California towhee (*Melospiza crissalis*) were observed carrying nest material (Figure 8).

A variety of commonly found urban-adapted bird species were observed including the Cooper's hawk (*Accipiter cooperii*), mourning dove (*Zenaidura macroura*), northern mockingbird (*Mimus polyglottos*), black phoebe (*Sayornis nigricans*), and house finch (*Haemorhous mexicanus*). The common raven was observed while the American crow was absent, which indicates the site is not majorly influenced by the nearby urbanization. Furthermore, regular observations of turkey vulture indicate this site's attachment to a much larger wilderness area. Other carnivorous birds like the red-tailed hawk and great horned owl (*Bubo virginianus*) indicate a healthy population of small prey species on the property. Lastly, the lack of house sparrow (*Passer domesticus*) and European starling (*Sturnus vulgaris*) indicates that the natural habitat areas have not been invaded by non-native bird species.

It is recommended that year-round monthly bird counts be initiated on the property to gain a better understanding of the abundance of certain species and to capture the full suite of winter migrant species, which were missed due to the springtime season in which these biological surveys were conducted. These surveys will provide information to best inform future restoration activities and track their success, as well as provide a baseline for the avian community as it continues to mature post-fire.

Avian Nesting Sites - Vasquez Property Azusa, California



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

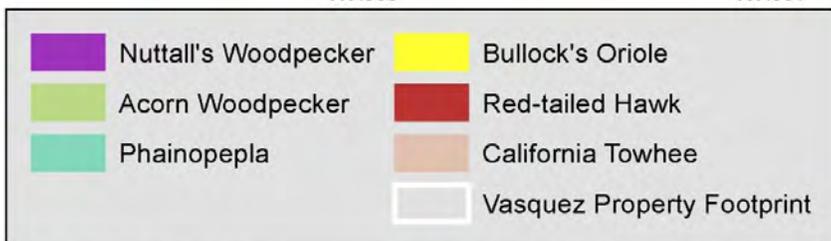


Figure 8



Author: Hannah Craddock
Date: July 18, 2019
Data Source: Tidal Influence Trimble Geo 7x

3.4.3 Mammals

A total of six different mammalian species were observed utilizing the site during the observation period. The six species observed were: mountain lion (*Puma concolor*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), mule deer (*Odocoileus hemionus*), striped skunk (*Mephitis mephitis*), and opossum (*Didelphis virginiana*). Each of these different species plays a unique role in the foothill ecosystem, with apex predators, herbivorous ungulates, and opportunistic feeders all represented. The fact that they were so easily observed in a short timeframe likely indicates a healthy ecosystem that provides resources across all trophic levels. Photographs of each mammal species are provided in Appendix G.

- 1) Mountain Lion (*Puma concolor*): A single mountain lion was observed on one of the four wildlife cameras (camera A) utilizing the developed dirt road as well as entering into the dense vegetation on the Vasquez Property. This carnivorous predator preys upon mule deer, coyotes, bobcats, racoons, opossums, rabbits, striped skunk, and birds, as well as other mountain lions. As a top predator, their only natural threat in this area would be bears and other mountain lions preying upon the young and ill. They act as population regulators for large ungulates but can mistake humans for prey if they are present during dawn, dusk, or nighttime (Nielsen, Thompson, Kelly & Lopez-Gonzalez, 2015). Males can have home ranges of more than 100 square miles and females typically have smaller ranges of about 20 to 60 square miles (Neal, Steger & Bertram, 1987).

The presence of a top predator like the mountain lion on and around the property is a good indication that this site is well connected into a larger regional wilderness area. The lion's use of the Glendora Ridge Motorway indicates that this path acts as a wildlife corridor allowing larger sized fauna to travel throughout the dense scrubland in order to efficiently traverse their range. Although human interaction with this species is rare, precautions should be taken into consideration when developing future public access plans in order to minimize human encounters with this species.

- 2) Coyote (*Canis latrans*): A coyote was observed on one of the four wildlife cameras (camera A). The presence of coyote in and around the property is an indication of the amount of biodiversity and resources available in the area. Being an omnivore, it likely does well in this urban wildland transition area. While this species can adapt to human impacts and assimilates to an urban environment, having a protected area free of human interference provides the coyote with necessary shelter and resources. Mountain lions are one of the few predators of the coyote in this area.

Interestingly, observations indicate that the local coyote and gray fox populations ranges overlap. Coyotes and gray foxes do not usually inhabit the same areas, due to coyotes preying upon gray foxes and utilizing similar resources (Kays, 2018). This may indicate that resource levels are high enough to sustain these two species.

- 3) Gray Fox (*Urocyon cinereoargenteus*): A gray fox was observed on two of the four wildlife cameras (camera A & B) several times over the observation period. While they are territorial with others of their own species, they have been known to share territories with that of the red fox (*Vulpes vulpes*), which is a species that not native to this region of the United States (Roemer, Cypher & List, 2016). Adapting well to living in close proximity to humans the grey fox is likely utilizing the resources of both the urban and wild areas that this property straddles. Being the only member of the Canidae family to be able to climb trees, it is likely that these individuals are utilizing the neighboring avocado orchard in order to hunt smaller rodents and other mammals in addition to hunting on the Vasquez site. This species is mainly preyed upon by coyotes and bobcats, but is also hunted by great horned owls, golden eagles, and mountain lions. The interconnection of this species with others higher in trophic level indicates the importance of this semi-wildland area.

- 4) Mule Deer (*Odocoileus hemionus*): Mule deer were observed firsthand, through scat and track identification, as well as on camera. A single young buck was observed on the southern ridge during one site visit. An additional 2 or more mule deer were observed on three of the four wildlife cameras (Cameras A, B, & D) that were spread across the entire site. Additionally, mule deer scat, impressions in the vegetation, game trails, and tracks were observed throughout the property. These observations indicate that mule deer are present on the property throughout the day and are utilizing almost all of the property as habitat.

Mule deer are very adaptable and usually confine their daily movement to distinct home ranges with new home ranges being established in response to changing environmental conditions. Due to limitations in their digestive ability, they depend on adequate supplies of digestible succulent forage in order to maintain healthy growth of individuals and the population. Being able to change its metabolic rate during different times of the year helps mule deer to survive during seasons when there is a lack of suitable vegetation. Some common predators of the mule deer include mountain lions, coyotes, bobcats, feral dogs, and black bears. While these animals do provide hunting opportunities for the public, they can impact local vegetation if populations are left unchecked.

- 5) Striped Skunk (*Mephitis mephitis*): A striped skunk was observed on one of the four wildlife cameras (camera A). They are omnivorous opportunistic feeders found in both wild and urbanized areas. While they can act as a control on insect populations they can also act as vectors for disease and parasites, including fleas, ticks, lice, mites, and parasitic worms. Due to their odorous defense systems, most mammalian predators avoid this species; however, some still prey upon this mammal, including: mountain lion, bobcat, coyote, foxes, and great horned owl (Helgen & Reid, 2016).

- 6) Opossum (*Didelphis virginiana*): An opossum was observed on one of the four wildlife cameras (camera A). Being an opportunistic omnivorous feeder, they are well adapted to inhabiting both natural and urbanized areas. Usually preyed upon by owls, coyote, red fox, raccoon, bobcat, and

large snakes, they act as a food source for higher trophic level species (Pérez-Hernandez, Lew & Solari, 2016).

Other Potential Mammal Species:

Other mammalian species that likely occur on the property but were not observed during wildlife surveys include but are not limited to raccoon, pocket gopher, squirrels, mice, rabbits, black bear, bats, chipmunks, and bobcat (Art Vasquez, personal communication).

3.4.4 Wildlife Community Observations

The diversity and abundance of vegetation on the property has allowed for several tiers of trophic levels to exist within the wildlife community documented on the property. The most abundant species from each category (herpetofauna, avifauna, etc.) of wildlife either consume vegetation directly, like the mule deer and lesser gold finch, or exploit the large number of invertebrates that directly result from such abundant vegetation, as with the side blotched and western fence lizard. These basal trophic levels benefit from the limited development on the property that allows the remaining acreage to be covered in vegetation. While these trophic levels will persist over time, they may change in composition with the maturing vegetation communities.

In addition to the resources available within the property, there is an avocado orchard on the adjacent property to west, which reportedly attracts smaller rodents such as rats (Art Vasquez, personal communication). The location of the property also provides another unique opportunity for resources from the nearby residential community to the south. This allows for a potential overlap in the species that have adapted to use urban resources and those that remain in the foothills.

Not only are there enough resources within the area to support primary and secondary trophic levels but the species within these tiers are so abundant that they are able to support larger predatory species. The complexity of upper tier trophic levels observed in the Vasquez Property can only exist when being supported by a highly productive and diverse ecosystem. The assemblage of reptilian, avifaunal, and mammalian predator species that was documented suggests that there are enough prey species to be simultaneously exploited without risking ecosystem collapse or severe resource scarcity. If the property suffers a large disturbance that removes a significant amount of vegetation, the highest trophic levels will be forced to relocate. Should the site be properly managed and remain unaffected by future wildfires or grazing, the recovering shrub communities will produce a trophic cascade that will eventually support larger populations of species in the top trophic levels.

3.5 Special Status Species

Each of the potentially present special status species were analyzed to identify their potential to occur on the Vasquez Property (Appendix E & F). Each special status species was categorized based on the following criteria:

Present: Species was observed on the project site at the time of the surveys or recently outside of the survey period.

High: Both a historical record exists of the species within the project site or its immediate vicinity (approximately 5 miles) and the habitat requirements associated with the species occur on the project site;

Moderate: Either a historical record exists for the species within the immediate vicinity of the project site (approximately 5 miles) or the habitat requirements associated with the species occur on the project site;

Low: No records exist of the species occurring within the project site or its immediate vicinity and/or habitats needed to support the species are of poor quality; and

Absent: No records exist of the species occurring within the project site or its immediate vicinity and the habitats needed to support the species are absent.

In addition to the above-listed criteria, potential for occurrence is also based on levels of disturbance to a site, proximity to existing developments, age of historical records, and the amount of development and disturbance that has occurred during the time subsequent to the latest record.

3.5.1 Special Status Floral Species

Special status plant species include all federal- and state-listed endangered and/or threatened species and those that have been identified by the CNPS as having a limited distribution in California and throughout their range.

The literature review and surveys resulted in a list of 27 special status plant species that have records of occurrence within the same quadrangle as the survey site (Appendix E). Only two of these plant species, *Astragalus brauntonii* (Braunton's milk-vetch) and *Calochortus clavatus* var. *gracilis* (slender mariposa lily) are federal- and/or state-listed as endangered, threatened, or candidate species. However, these species were neither documented on site during visits nor were they previously documented on the property. *Juglans californica* (black walnut) and *Calochortus plummerae* (Plummer's mariposa lily) were the only two special status plant species identified on the property (Figure 9). Both species are on the CNPS watch list and considered to be moderately threatened (CNPS, 2019). Two special status species of oak have high potential of being located on site, but neither were found. Those two oak species are *Quercus durata* var. *gabrielensis* (San Gabriel oak), *Quercus engelmannii* (Engelmann oak). Eleven out of the list of 27 special status plant species are rated as having a moderate potential of occurring within the Vasquez Property, and the remainder are rated as either low or absent.

- 1) *Juglans californica* (black walnut): This special status species of tree is endemic to California and is predominantly found in the bottom half of the state among the Coastal, Transverse, and Peninsular Ranges as well as the Central Valley. The largest threat to this species is the over-

development of its natural habitat. Black walnuts are found in mixed woodlands as well as favorable slopes and valleys. This species is ecologically valuable as the fruit provides a food source for many different types of animals including several species of birds, which also nest in its branches. Approximately 32 trees were individually mapped within the Vasquez Property and there are likely several more within the less accessible slopes of the property's ravines. Most of the black walnuts were observed near the base of foothills in the southeast corner of the property. This species offers habitat enhancement potential and is highly recommended in restorative plant palettes.

- 2) *Calochortus plummerae* (Plummer's mariposa lily): *Calochortus plummerae* is a perennial bulb belonging to the lily family, Liliaceae. It is endemic to southern California where it grows along the coast, on inland hillsides, and less frequently in the Transverse and Peninsular Ranges. This species is recorded in chaparral, coastal scrub, grasslands, and lower montane plant communities. It is not known to provide any direct benefit to local wildlife and has no recorded species of dependent insects. Only one individual was documented in the Vasquez Property and was located atop the eastern ridge along the former mining road that is now coastal sage scrub habitat. This species can be grown in a nursery setting, should supplemental plantings be considered.

3.5.2 Special Status Faunal Species

Special status animal species include all those federal- and state-listed endangered and/or threatened species and those that have been identified as Species of Special Concern (SSC) by CDFW.

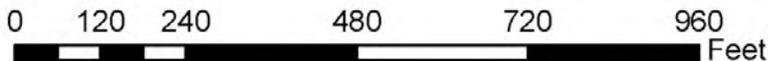
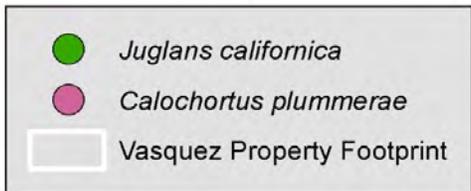
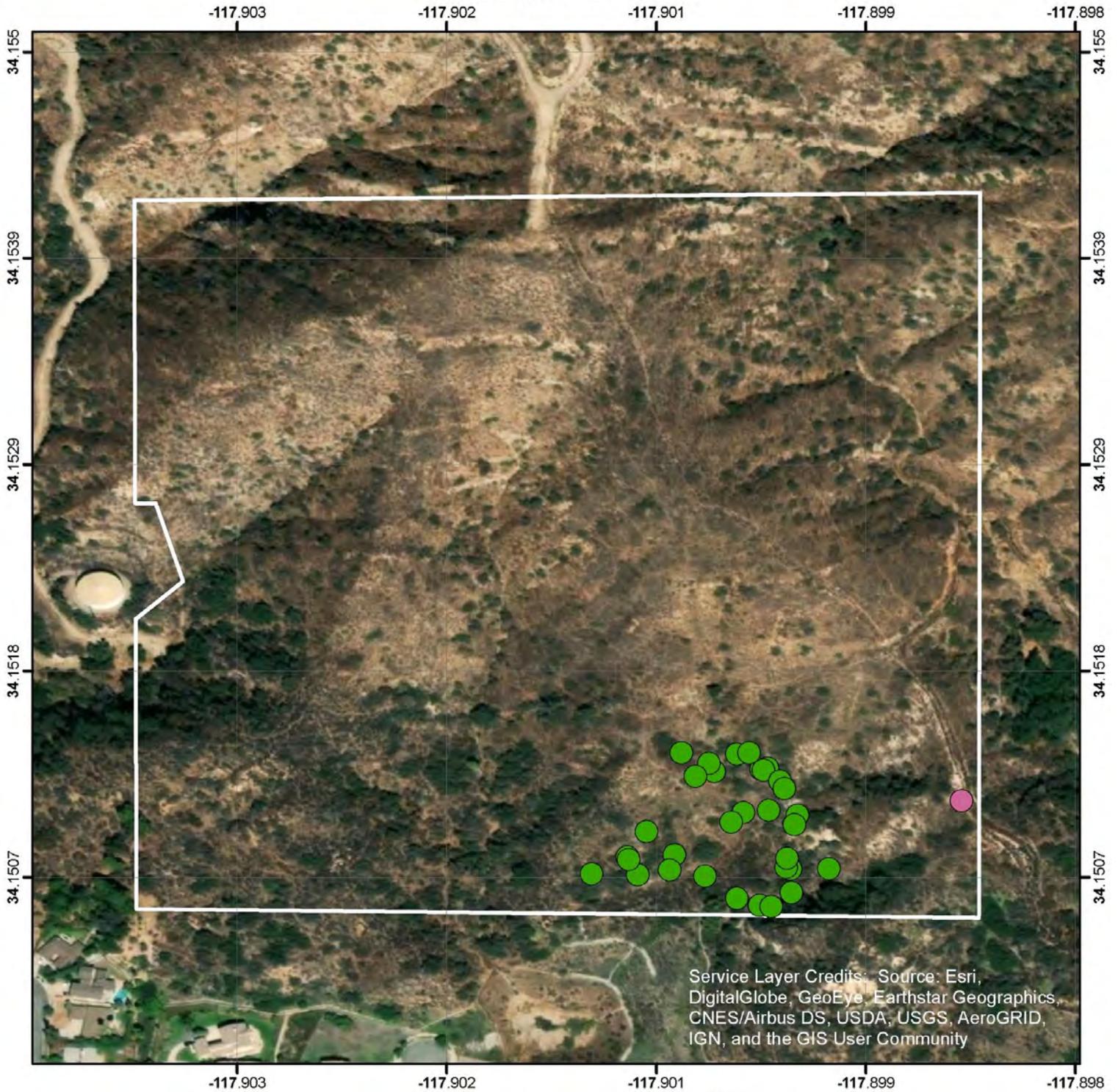
The literature review and surveys resulted in a list of 38 sensitive animal species that have records of occurrence within the same quadrangle of the Vasquez Property and were reasonable to be analyzed for their potential to occur. A total of 8 animals that are federal- or state-listed have a potential to occur on the site. Of these 8 listed, 2 species have a high potential to occur on site, 1 species has a moderate potential to occur on site, and 3 have a low potential to occur on site. The remaining 2 species have been presumed absent from the site due to a lack of suitable habitat that exists on site as well as no historic populations occurring within a five-mile radius of the site. Only one of the 38 sensitive animal species identified in the literature search, the Cooper's hawk (*Accipiter cooperii*), was observed on site.

- 1) Cooper's hawk (*Accipiter cooperii*): While the Cooper's hawk is not listed on the state or federal level, it is included on the California species watch list by the California Department of Fish and Game. Its nests are protected by the Migratory Bird Treaty Act of 1918. This species nests in woodland areas, but it is now commonly found in suburban neighborhoods, parks, and golf courses. They prey primarily on smaller birds as well as small mammals. Given the characteristics of the site and its proximity to urbanized areas, this property likely provides abundant resources for this local population.

Other sensitive animal species that had a potential to occur on site but were not observed by the survey team can be found in Appendix F.

Special Status Species - Vasquez Property

Azusa, California



Author: Hannah Craddock
Date: July 15, 2019
Data Source: Tidal Influence Trimble Geo 7x

Figure 9

4.0 Recommendations for Ecological Restoration

Three months of site investigations have provided the first data for the biological resources of the Vasquez Property. These data provide insight into the potential for ecological restoration and highlight specific opportunities and constraints. One of the most daunting constraints is the accessibility of the site, which makes the implementation of large-scale ecological restoration activities challenging and potentially costly. Therefore, efforts to enhance the ecological resources of this property should be prioritized for those that will 1) lead to the greatest increase in biological productivity, 2) are most affordable, 3) are least likely to impact existing resources, and 4) will require the least long-term maintenance.

Three potential ecological restoration programs have been identified. They include:

- 1) Control of *Pennisetum setaceum* infestations (Figure 10)
- 2) Oak woodland enhancements (Figure 10)
- 3) Walnut woodland creation (Figure 10)

All of these programs are located in the southern portion of the property and would require a new access route to be developed from East Viewcrest Drive in order to be feasible. The following descriptions introduce these programs, which will require focused restoration plans in order to be properly planned and implemented.

4.1 *Pennisetum setaceum* Control

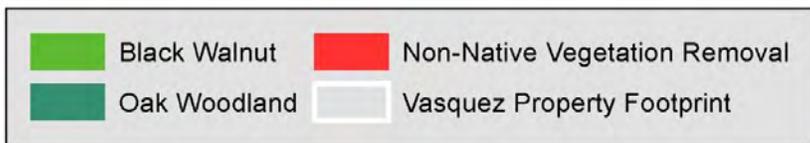
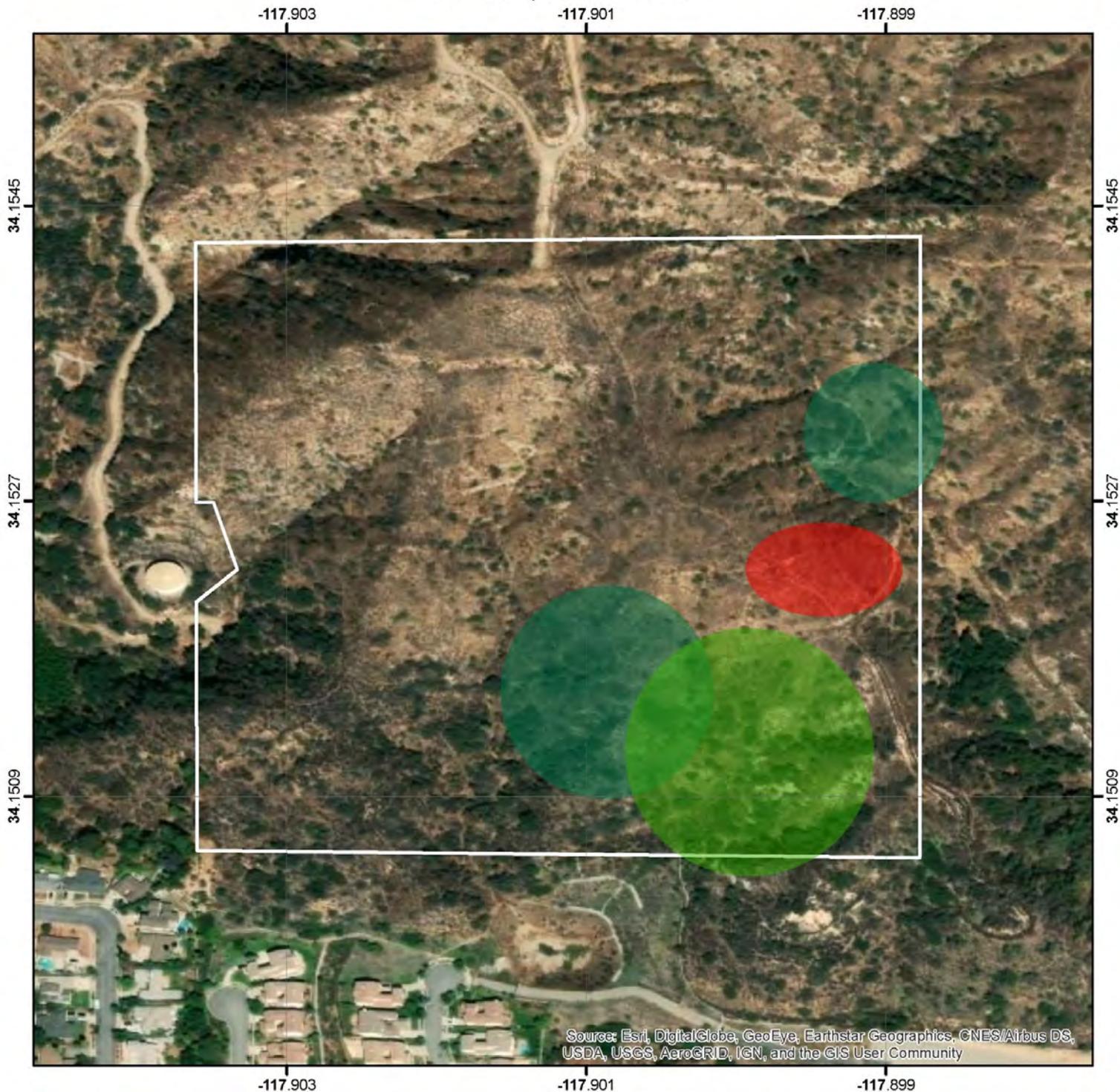
The Colby Fire has allowed for an aggressive invasion of the fire-adapted *P. setaceum* to establish, and efforts to control this plant are recommended (Cal-IPC, 2019a). Unfortunately, this bunch grass species is trending towards becoming naturalized in many of our coastal sage scrub habitat areas in southern California and eradication is likely an unachievable goal (ASLA, 2014). Instead, the objective should be to control the infestation in areas that can be safely and easily accessed in an effort to prevent the spread of this plant into new areas. Without this control effort it is possible that this invasive species will continue to take over disturbed areas on the property, further displacing native shrubs.

Currently there are approximately 3.31 acres of *P. setaceum* dominated plant community present on the Vasquez Property and a majority of this is located on slopes that are too steep to reasonably be accessed. The remaining accessible areas are ideal to be controlled and this effort should be a high priority for ecological enhancement. This acreage is ripe to be converted back into coastal sage scrub, which will provide an increase in the ecological services it provides.

Before any control work is done, a mapping exercise focused on *P. setaceum* should be implemented and repeated annually. The flowering season for *P. setaceum* is year-round, therefore control efforts must be done so as to not promote the spread of seeds. Furthermore, hand removal is far too laborious

Potential Restoration Areas - Vasquez Property

Azusa, California



Author: Hannah Craddock
 Date: July 18, 2019
 Data Source: Tidal Influence Trimble Geo 7x

Figure 11

and mechanical removal is extremely challenging given the setting. It is recommended that the plants are first dead-headed in a manner that collects a large percentage of the inflorescences and disposes of them off site. The deadheading makes the plants much more susceptible to herbicide treatment. A monocot specific post-emergent herbicide is recommended for use so that integrated dicots are not victimized and can quickly take over the sprayed area. The post-emergent application will help to control the *P. setaceum* seed bank. Lastly, it is recommended that the site be planted with larger fast-growing shrubs that can quickly consume the area and outcompete the *P. setaceum* in its attempt to re-invade the area. All plantings should occur between November 15th and February 15th to take advantage of natural precipitation and shorter days.

4.2 Oak Woodland Enhancement

This vegetation community offers the best opportunity for functional lift on the property and there are several locations totaling approximately 5.15 acres where it can be enhanced and expanded. This acreage is concentrated in a wide ravine in the southeast corner of the property and the small arroyo located in the northeastern corner. If an access point from East Viewcrest Drive is created, the southeast corner would become quite accessible and offer potential for a great initial restoration project.

Based on historic aerial maps, it appears that this oak woodland was more extensive in these areas before the Colby Fire and the oaks do not appear to be recolonizing these impacted areas very rapidly. Instead, non-native species like tree tobacco and castor bean are competing for vegetative cover with native shrubs in these created gaps. Attempts should first be made to remove these and other non-native species before oak trees are installed. After an initial effort to remove non-native vegetation, larger oaks, in three to five-gallon containers can be installed in the less remote locations, while more remote locations are likely limited to one-gallon container sizes. Oaks should be installed in drainages during the peak of the wet season and should be provided with supplemental irrigation potentially in the form of slow release gel packs. The native shrub understory should be allowed to naturally succeed amongst the oaks with limited maintenance to control larger non-native species. It should be expected that non-native grasses and herbs will persist in the herbaceous layer.

4.3 Walnut Woodland Creation

Approximately 32 walnut trees are currently scattered throughout the southern half of the property. Walnuts are intermingled with both coastal sage scrub on the lower portions of the slopes and oak woodland in the ravines. As mentioned, walnuts on the property were impacted by fire in 2014 and previously may have formed denser stands. There is an opportunity to enhance the walnut population in the ravines in and around the oak woodland.

To enhance the walnut population, it is recommended that a walnut fruit collection program be initiated. The largest most accessible walnut trees should be targeted, and fruits should be collected in

the summer when they are ripe. A local native plant nursery with demonstrated success in growing black walnut trees should be engaged and a grow contract developed. Walnuts should be installed in a similar manner to the oak trees described above. Areas around oak woodland should be prioritized for black walnut planting.

4.4 Consideration of a Mitigation Bank

The Vasquez Property alone does not have enough area in need of significant functional lift to make it worthwhile to pursue as a mitigation bank. Most of the property would only qualify for preservation or enhancement credits which are not as valuable as rehabilitation credits for instance. Furthermore, the site does not appear to contain any aquatic resources (e.g. wetlands or stream banks) which make a potential bank less marketable. Lastly, endangered species' habitat appears to be limited, thus making the property less feasible as a conservation bank designed to offset impacts to species regulated by USFWS. The costs associated with mobilizing a bank prospectus are considerable and even if a bank was approved, the restoration effort to earn the credits in inaccessible portions of the property might outweigh the value of the credits that would be earned. However, the attractiveness of a mitigation bank increases if this property were coupled with adjoining parcels owned by the Azusa-RMC JPA that may contain other resources more amenable to mitigation banking.

5.0 Land Management

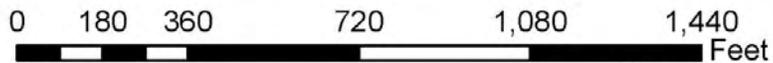
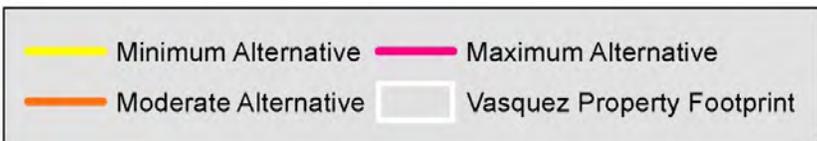
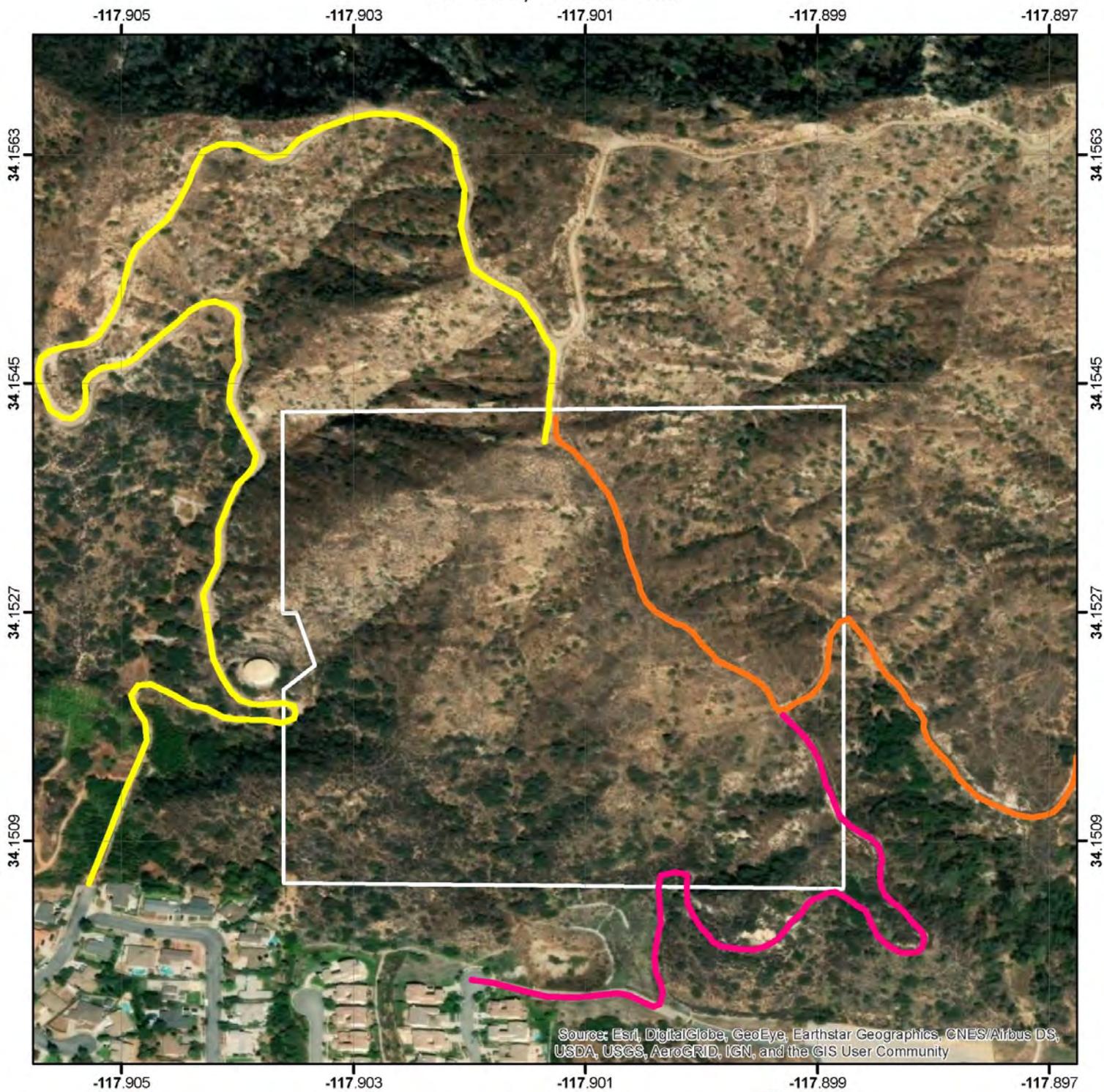
The results of the biological surveys indicate that the Vasquez property boasts an intact and thriving ecosystem with limited disturbances despite its relatively close proximity to the urban edge. This lack of disturbance has much to do with the site's inaccessibility resulting from the steep slopes, dense vegetation, and connection to vast contiguous natural open space on all edges and formerly private ownership. Much of the property's vegetation is recovering from a fire that occurred just five years ago, but this natural disturbance was far from devastating, and the ecological communities are clearly recovering at a promising rate. While the succession of the ecological communities should be monitored, as discussed previously, the need for intensive intervention through habitat restoration is limited.

Given its current condition, the property does not necessitate much land management activity if the WCA wishes to maintain status quo. Management activities are likely to be limited to continued monitoring of the site for human use, continued ecological investigations, and coordination with easement holders and neighboring landowners. Future coordination with fire authorities may be necessary when the shrubland vegetation reaches full maturity. The WCA might consider using goats to control the non-native mustards and grasses, but this activity could cause unwanted disturbances to the natural vegetation and wildlife communities. An interim land management plan should be developed to help direct the landowner in advance of any improvements being made to the property.

The implementation of ecological restoration activities will result in additional land management needs as the restoration sites will need to be regularly monitored and maintained to prevent issues like erosion, introduction of non-native plants, native plant mortality, and unauthorized trail establishment. As mentioned above, creation of access trails will be required to allow for the restoration activities to occur and these trails will require maintenance once established. While there is currently some human activity on the established maintenance road along the western boundary of the property, an increase in public access will also increase the likelihood of non-beneficial uses from the public such as vandalism/graffiti, trespassing, littering/dumping, and the creation of encampments by people experiencing homelessness (Appendix G). Ongoing coordination with permitting and regulatory agencies may be required as part of the restoration process.

Provision of public access will certainly introduce the need for amplified land management activity. Increased access to open space and recreational opportunities is part of the WCA's mission, and the introduction of more human use will result in the need for concerted management of the land to limit liabilities and protect biological resources. Therefore, three potential public access scenarios (Minimum, Moderate, and Maximum) are presented (Figure 11). The anticipated land management requirements for each access alternative are discussed. The implementation of one of these access alternatives does not necessarily preclude the others and, if desired, they could all be implemented in a phased manner. These access alternatives are not ranked, and a preferred alternative is not offered. Instead, an analysis is presented in a manner to provide the WCA with options to consider, discuss with stakeholders, and further analyze in a public access plan.

Alternative Public Access Routes - Vasquez Property Azusa, California



Author: Hannah Craddock
Date: July 16, 2019
Data Source: Tidal Influence Trimble Geo 7x

Figure 10

5.1 Public Access Alternatives

5.1.1 Minimum Access Alternative

Small portions of the site are currently accessible to hikers via the Glendora Ridge Motorway which connects to a small spur of road that overlooks the property. However, this is currently only accessible from the Colby Trail since the Garcia Trail has been closed, requiring an approximately 6-mile one-way hike to reach the Vasquez Property. The Minimum Access Alternative considers the option of making improvements to this existing access route by working with neighboring landowners to allow the public to access the Vasquez Property from the western end of the Glendora Ridge Motorway that begins in the Azusa neighborhood where North Hilltop Drive dead-ends. Outside of minor improvements to the overlook, no other trail improvements are considered by the Minimum Access Alternative; trail maintenance and required security measures would also be part of this alternative.

5.1.2 Moderate Access Alternative

There is an opportunity to connect the property's overlook with the historic mining road that ran along the southeast corner of the Vasquez Property up towards the arroyo. This would necessitate the establishment of an approximately 1,000-foot trail down a steep ridge as well as 300-400 feet of vegetation clearance along the path of the old mining road. The steep portion of the trail will likely require switchbacks to limit the severity of the slope. Currently there is an approximately 15-foot drop from the ridge trail to the former mining road which would need to be amended through the creation of a switchback, ramp, or staircase. If achieved, this access route could provide a new connection from the Glendora Ridge Motorway down to the Garcia Trailhead through public land owned by the Azusa-RMC JPA. This new access would be especially beneficial if public access through North Hilltop Drive and the adjacent property is not achieved.

5.1.3 Maximum Access Alternative

There is an opportunity to create a new access point into the property from East Viewcrest Drive. This would first require coordination with the Azusa-RMC JPA to access the base of the old mining road, followed by the clearance of 2,100 feet of vegetation along its former path. Furthermore, the creation of a trail between an existing fence line and a rocky slope would be required to allow ingress and egress through the Azusa-RMC land onto the Vasquez Property. This would likely necessitate the conversion of the existing drainage ditch currently along this path into a walkable trail using grates, or some alternative method to allow access into a proposed trailhead area with leveled soils in the shade of an old olive tree grove. This proposed trailhead would serve as a gathering area for public stewardship programs and an excellent staging area for ecological enhancement projects.

5.2 Public Access Alternatives Analysis

5.2.1 Feasibility

Since the Vasquez Property does not have any frontage with public rights-of-way, the feasibility of each of these alternatives depends ultimately on cooperation from neighboring landowners to provide easements for public access through their property. In this regard, the moderate and maximum alternatives are more feasible since they propose access through public land owned by the Azusa-RMC JPA. As the RMC is a member of both the WCA and Azusa-RMC JPA, it seems highly likely that an agreement could be reached which would benefit the mission of both entities.

The minimum alternative appears less feasible in this regard as it depends on the willingness of a private landowner to allow public access through their agricultural land. This may prove challenging to negotiate as they have already expressed concern pertaining to the increase in theft, vandalism, and possible contamination of their avocado orchard as a result of the general public passing through their property (Art Vasquez, personal communication). Due to the presence of guard dogs on the premises, additional coordination with this landowner would be necessary to ensure visitor safety. Possible solutions to this concern include building a fence or similar barrier around the agricultural land to protect it from passing hikers or creating regular docent-led tours in order to safely bring groups of visitors through the agricultural land towards the Vasquez Property. Both options bring with them cost and benefits that need to be weighed prior to their pursuit.

If an agreement could be reached with the private landowner, the construction of trails for the minimum alternative are more feasible than the moderate and maximum alternatives. The minimum alternative only requires repairs to an existing road (GRM), while the moderate and maximum alternatives require creation of new trails that each would require significant clearing and grubbing of mature vegetation. Creation of the trail for the maximum alternative poses the biggest feasibility challenge as access from East Viewcrest Drive is limited and narrow, however, the feasibility of constructing the maximum alternative is aided by the close proximity to the driveway from the adjacent neighborhood.

5.2.2 Land Management Considerations

The land management requirements increase with the size of the footprint of the proposed alternatives. The minimum alternative would require annual erosion repair to the existing Glendora Ridge Motorway as well as regular vegetation maintenance, but erosion would be minimal and could be managed with larger equipment in partnership with other landowners. The moderate and maximum alternatives would necessitate a sizeable upfront construction effort in order to create a new facility which would then need to be managed perpetually. The maximum alternative would require the largest construction effort as it includes a new connection to a public right-of-way and a trailhead.

Of all the proposed access routes, managing the steep ridge trail proposed by the moderate alternative will require the largest recurring maintenance effort to control the impacts of erosion and keep the trail clear of vegetation. This proposed trail is not accessible to equipment and would require maintenance with hand tools. Maintenance of the old mining road as a trail would be required for both the moderate and maximum alternatives and should be achievable using small equipment like a skid steer or trimmer mower.

Installation of informational and trail signage is advised for each alternative in order to increase visitor safety, reduce liability, and increase public awareness of how to properly interact with local wildlife and vegetation. Signage should include language designed to deter visitors from engaging in any non-beneficial use activities that would include vandalism, littering, unauthorized camping, and activities that would increase the likelihood of a fire. Introduction of more public access also invites the potential for people experiencing homelessness to set up encampments on the property. The amount of signage on the property increases with the amount of access provided, as does the need to maintain the signage.

Regular coordination and cooperation with neighboring landowners and easement holders would be a general land management consideration for each of the three alternatives.

5.2.3 Potential for Stewardship Activities

The greatest opportunity for potential stewardship activities is presented by the maximum alternative, as it provides the most convenient option for getting the public onto the Vasquez Property and includes the creation of amenities that would help host the public. This alternative would best allow for the development of community-based restoration programs that could help implement and maintain potential ecological enhancement projects. Meanwhile, potential stewardship activities are limited by the minimum alternative as this option would require a relatively long uphill hike to eventually reach the Vasquez Property, and the only location that may benefit from volunteer labor would be the overlook. A few more opportunities for stewardship activities, like trail maintenance and habitat enhancement, are provided by the moderate alternative. However, these activities would still require a sizeable hike in from either North Hilltop Drive or from the Garcia Trail.

5.2.4 Ecological Hazards and Liabilities

The potential for exposure of the public to potential ecological hazards increases as the amount of access provided increases; this is the same trend for the WCA's liability exposure. Ecological hazards include but are not limited to: steep unstable slopes, irritating or poisonous plants, venomous animals, large predatory animals, and vectors for disease. Other issues that could arise are impacts to sensitive habitat and increased potential for wildfires caused by human activity.

The minimum alternative proposes keeping the public on the GRM. This wide access route prevents the public from hiking on steep trails through vegetated areas, however, the public would still be exposed to the threat of predatory species like mountain lions, especially during the evening. The steep trail

proposed by the moderate alternative introduces a significant hazard for visitors and increases the WCA's liabilities. This trail could include sections as steep as 85% grade along a rocky and sometimes unstable slope. This trail would also be narrow and could expose visitors to vegetation that could irritate their skin, and contain venomous snakes, and disease bearing ticks. Both the moderate and maximum alternatives propose access along the historic mining road where rattlesnake activity was regularly observed during biological surveys and yucca and prickly pear cacti are also abundant. Both of these alternatives also propose a route that leads to the arroyo where the greatest abundance of mosquitos was observed thereby increasing the likelihood of being exposed to that vector.

More public access also leads to a higher potential for impacting sensitive habitat and more potential for anthropogenically initiated fires to occur. However, the maximum alternative would potentially provide a new way for emergency vehicles to access the property and combat fire along the urban edge.

To reduce liabilities, all trails should be closed from sundown to sunrise, regardless of the chosen alternative. A sign-in kiosk should also be considered to track visitor use.

6.0 Conclusions

The richness and diversity of plant and wildlife on the Vasquez property indicates that the ecosystem is healthy and functioning. The 71 native plant species documented shows that the plant communities are thriving and swiftly overcoming impacts from the Colby Fire. The three different plant communities support a variety of wildlife including snakes, lizards, deer, fox, coyote, mountain lion and 33 species of native birds. With all the trophic levels being represented it is clear that ecological resources are rich, and the property is well connected to wildlife corridors of a larger wilderness area. Furthermore, breeding activity was observed onsite for several species of birds. However, these surveys only captured a small window of time from March through June of 2019 and it is recommended that similar biological investigations be continued to document other seasons, especially the winter (November – February) for migratory bird activity. Continuous data collection from wildlife cameras and cover boards will also prove beneficial.

While numerous special status species have potential to occur on the Vasquez Property, only two plants and one animal from that list were documented on site. This does not mean that others are not present and more long-term surveys may capture more species. Of note, the presence of *Juglans californica* offers the opportunity to restore walnut woodlands on the property and conserve a special status species and its vegetation alliance.

Enhancement of oak woodland areas offers the greatest opportunity for functional lift. The majority of breeding activity was observed in oak woodlands and this plant community could feasibly be enhanced in several locations on the property. Meanwhile, *Pennisetum setaceum* is the invasive plant that poses the greatest threat to functioning habitat area. A program should be developed and prioritized to control this species onsite and replace it with coastal sage scrub wherever it is safe and accessible to do so. In most instances the coastal sage scrub plant community is recovering nicely on its own and therefore active enhancement is not recommended. Overall, the implementation of ecological restoration activities on the site is constrained by access. It is recommended that a restoration plan be developed for the property that takes into consideration all of these opportunities and constraints. This restoration plan could potentially be expanded to include neighboring properties owned by the Azusa-RMC JPA and be designed to consider mitigation banking as a funding source.

Since the property is challenging to access, there are limited land management tasks that are needed if the property is to be kept at status quo. An interim land management program could be developed to help direct the landowner with how to manage the property in the interim before any efforts are made to improve habitat quality or public access opportunities. The introduction of ecological restoration projects will increase the intensity of future land management activities and these should be documented in the restoration plan.

There are several opportunities for improving public access to the property, but each alternative comes with its own set of constraints and considerations. Providing public access and stewardship programs is positive but comes with certain obligations and risks. The way forward will entail weighing the benefits

and risks, pros and cons of the described alternatives. The transfer of adjacent lands into public ownership for conservation will open up other possible alternatives and opportunities. A public access plan should be developed by the WCA in concert with the Azusa-RMC JPA. This plan should make an effort to engage local stakeholders like the San Gabriel Mountains Regional Conservancy and look holistically at what is desired and what is feasible for future public interaction with this property. This land does provide an incredible resource for recreation and nature immersion, but this must be approached prudently to avoid exposing the WCA to future liabilities.

Overall, the acquisition of this property is just the beginning, but represents a great achievement towards the mission and vision of the WCA and the eventual completion of the San Gabriel Mountains Foothills Open Space Acquisition Master Plan. This report establishes a precedent for WCA's science-based management with any future acquisitions and provides initial insight into the exceptional opportunity that exists to blur the lines between urbanization and wilderness by conserving a thriving natural area while creating new recreational facilities. The Vasquez Property is a piece of the puzzle uniquely located near the urban edge that can help further connect both wildlife and humans to the vast resources of the San Gabriel Mountains.

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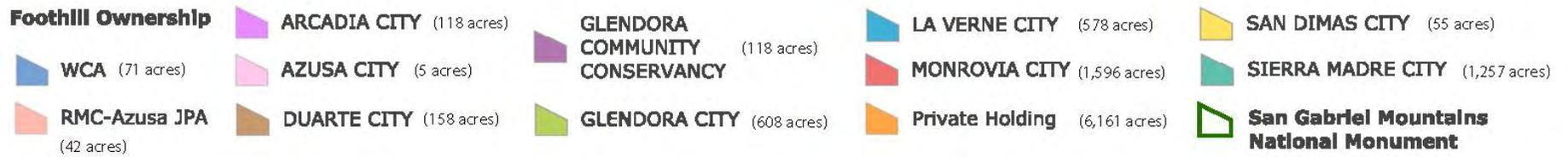
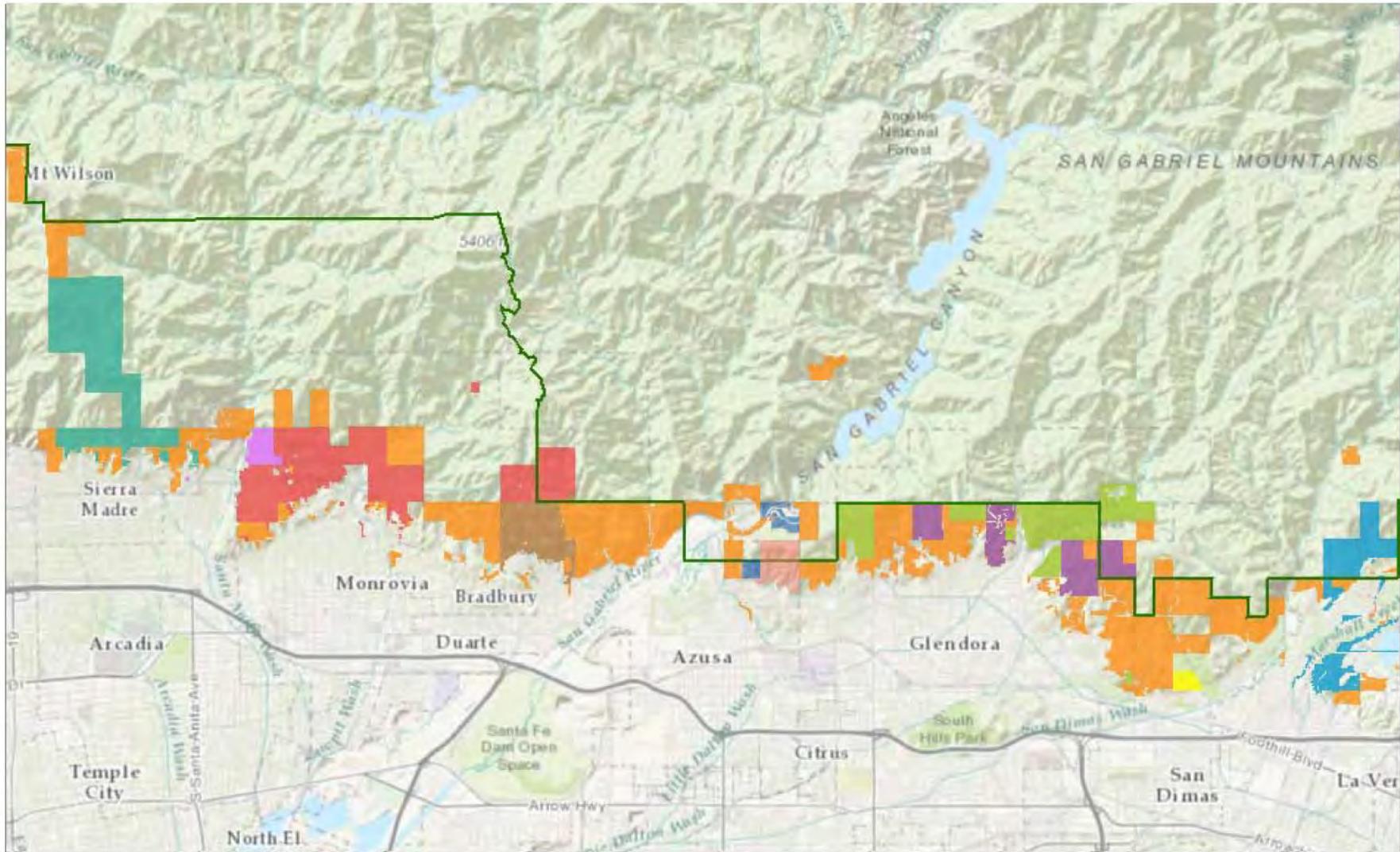
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Appendix A-

San Gabriel Mountains Foothills Open Space
Acquisition Master Plan Project Map

Ownership Map of Parcels along San Gabriel Mountain Foothills

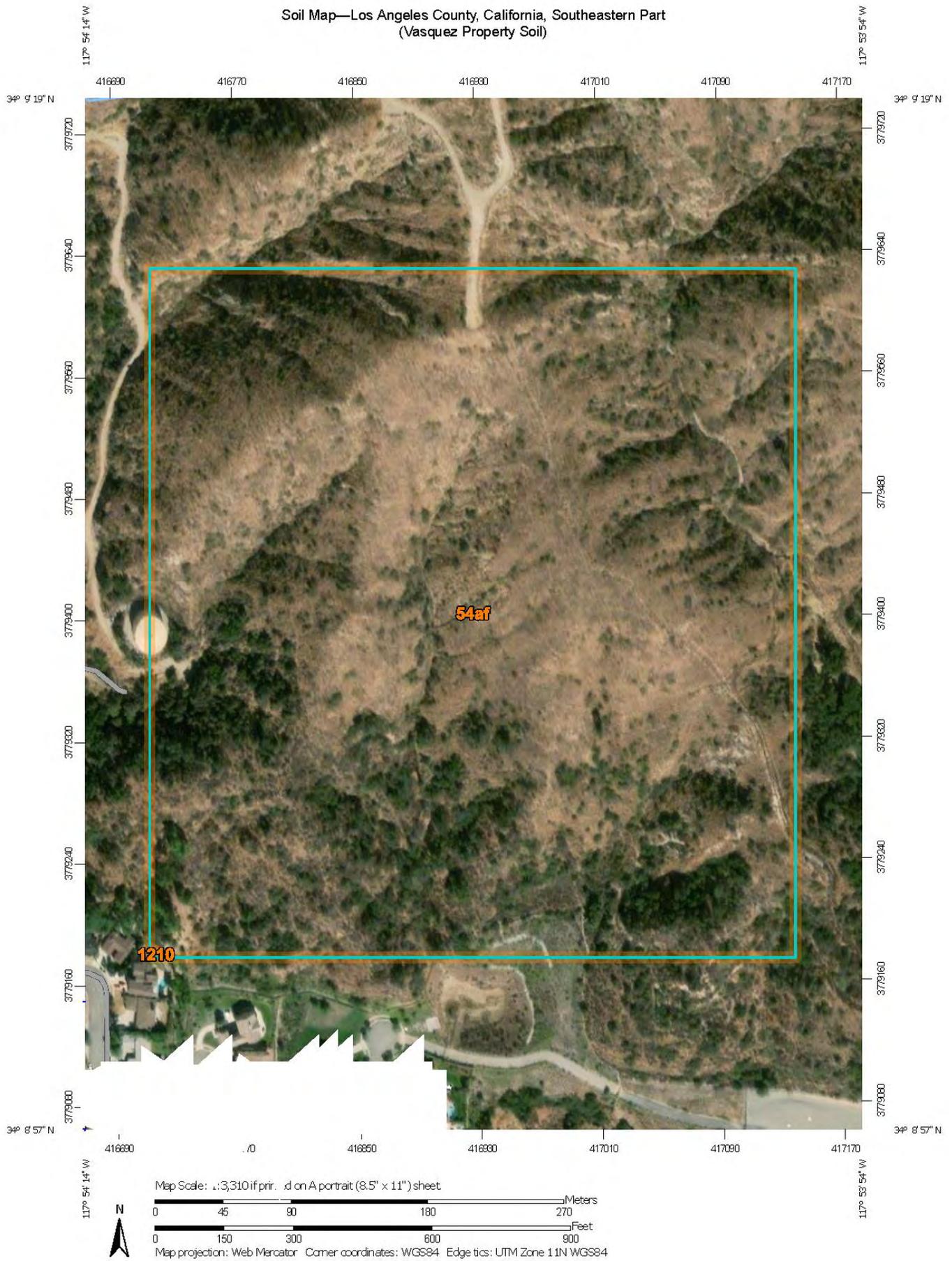


County of Los Angeles, Bureau of Land Management, Esri, HERE, Garmin, Intermap, USGS, NGA, EPA, USDA, NPS

Appendix B-

Vasquez Property Soil Map

Soil Map—Los Angeles County, California, Southeastern Part
(Vasquez Property Soil)



Map Scale: 1:3,310 if printed on A portrait (8.5" x 11") sheet

0 45 90 180 270 Meters

0 150 300 600 900 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

Appendix C-

Floral Species Observed on the Vasquez Property

Native Plant Species							
Family	Genus	Species	Common Name	Perennial	Blooming Period	Habitat	Communities
Dennstaedtiaceae	<i>Pteridium</i>	<i>aquilinum</i>	Western Brakenfern	X	June - August	Coastal	C, CS, CSS, F, FW, VG
Adoxaceae	<i>Sambucus</i>	<i>mexicana</i>	Blue Elderberry	X	March - May	Canyons	F, W
Anacardiaceae	<i>Malosma</i>	<i>laurina</i>	Laurel Sumac	X	February - May	Bluffs, Canyons, Slopes	C, CSS
Anacardiaceae	<i>Rhus</i>	<i>aromatica</i>	Fragrant Sumac	X	March - May	Canyons	C, FW
Anacardiaceae	<i>Rhus</i>	<i>integrifolia</i>	Lemonade Berry	X	February - May	Canyons, Slopes, Foothills	C, CSS
Anacardiaceae	<i>Toxicodendron</i>	<i>diversilobum</i>	Poison Oak	X	March - June	Slopes	C, F, FW, VG
Apocynaceae	<i>Funastrum</i>	<i>cynanchoides var. hartwegii</i>	Hartweg's Climbing Milkweed	X	April - July	Canyons, Slopes	C, CSS, WR
Asteraceae	<i>Artemisia</i>	<i>californica</i>	Sage Brush	X	April - October	Coastal	CS, CSS
Asteraceae	<i>Baccharis</i>	<i>pilularis</i>	Coyote Bush	X	September - January	Canyons, Coastal	C, CS, CSS, FW
Asteraceae	<i>Baccharis</i>	<i>salicifolia</i>	Mulefat	X	January - December	Streambanks	CSS, FW, VG, WR
Asteraceae	<i>Brickellia</i>	<i>californica</i>	California Brickellbush	X	August - November	Slopes	C, CSS, FW, VG
Asteraceae	<i>Chaenactis</i>	<i>artemisiifolia</i>	Artemisia-leaved <i>Chaenactis</i>		April - June	Slopes	C, CSS
Asteraceae	<i>Encelia</i>	<i>farinosa</i>	Desert Bush Sunflower	X	January - May	Slopes, Desert Wash	CBS, CSS
Asteraceae	<i>Erigeron</i>	<i>canadensis</i>	Canada Horseweed		June - September	Disturbed	AW, WR
Asteraceae	<i>Hazardia</i>	<i>squarrosa</i>	Saw-toothed Goldenbush	X	June - October	Canyons	C, CSS, FW
Asteraceae	<i>Helianthus</i>	<i>annuus</i>	Western Sunflower		June - August	Disturbed	AW, WR
Asteraceae	<i>Isocoma</i>	<i>menziesii</i>	Coast Goldenbush	X	April - November	Coastal, Salt Marsh	CS, CSM, CSS, WR
Asteraceae	<i>Malacothrix</i>	<i>saxatilis</i>	Cliff Aster	X	June - December	Coastal, Slopes, Ridges	C, CS, CSS, FW, MEF
Asteraceae	<i>Pseudognaphalium</i>	<i>biolettii</i>	Two-color Rabbit Tobacco	X	January - May	Canyons, Slopes	C, CSS, MEF
Asteraceae	<i>Pseudognaphalium</i>	<i>californicum</i>	California Cudweed		January - July	Coastal, Disturbed	C, CSS, FW, MEF
Asteraceae	<i>Pseudognaphalium</i>	<i>microcephalum</i>	Wright's Cudweed	X	July - October	Coastal, Disturbed	C, CSS, FW
Boraginaceae	<i>Cryptantha</i>	<i>intermedia</i>	Clearwater <i>Cryptantha</i>		March - July	Slopes	C, CSS, FW, NOW
Boraginaceae	<i>Phacelia</i>	<i>cicutaria</i>	Caterpillar Phacelia		March - May	Disturbed, Slopes	C, CSS, FW, VG
Boraginaceae	<i>Phacelia</i>	<i>minor</i>	California Bluebells		March - June	Disturbed, Dry	C, CSS
Cactaceae	<i>Opuntia</i>	<i>littoralis</i>	Coastal Pricklypear	X	May - June	Coastal	CSS
Caprifoliaceae	<i>Lonicera</i>	<i>subspicata</i>	Southern Honeysuckle	X	May - August	Slopes	C
Cistaceae	<i>Helianthemum</i>	<i>scoparium</i>	Peak Rushrose	X	March - June	Slopes, Ridges	C, CSS
Convolvulaceae	<i>Calystegia</i>	<i>macrostegia</i>	Island Morning Glory	X	February - July	Coastal	C, CS, CSS
Convolvulaceae	<i>Cuscuta</i>	<i>californica</i>	California Dodder		February - August	Slopes	C, F, VG
Cucurbitaceae	<i>Marah</i>	<i>macrocarpa</i>	Chilicothe	X	January - April	Dry, Washes	C, CSS
Euphorbiaceae	<i>Euphorbia</i>	<i>albomarginata</i>	Rattlesnake Spurge	X	April - November	Disturbed, Slopes	C, CBS, CSS
Fabaceae	<i>Acmispon</i>	<i>glaber</i>	Deerweed	X	March - August	Coastal, Slopes	C, CS, CSS
Fabaceae	<i>Acmispon</i>	<i>maritimus var. maritimus</i>	Coastal Bird's-foot Trefoil		March - June	Slopes	C, CSS, FW
Fabaceae	<i>Acmispon</i>	<i>strigosus</i>	Strigose Lotus		February - June	Disturbed	C, CBS, VG
Fabaceae	<i>Lupinus</i>	<i>bicolor</i>	Miniature lupine		March - June	Coastal	CS, CSS, F, FW, NCS
Fabaceae	<i>Lupinus</i>	<i>truncatus</i>	Collar Lupine		March - May	Slopes	C, CSS, VG

Fabaceae	<i>Lupinus</i>	<i>hirsutissimus</i>	Stinging Lupine		March - May	Slopes	C, CSS
Fagaceae	<i>Quercus</i>	<i>agrifolia</i>	Coast Live Oak	X	February - April	Coastal	FW, MEF, SOW
Fagaceae	<i>Quercus</i>	<i>berberidifolia</i>	California Scrub Oak	X	February - March	Coastal, Slopes	C, CSS
Grossulariaceae	<i>Ribes</i>	<i>speciosum</i>	Fuchsia Flowered Gooseberry	X	January - May	Slopes	C, CSS
Juglandaceae	<i>Juglans</i>	<i>californica</i>	Southern Black Walnut	X	March - June	Canyons, Slopes	SOW, WR
Lamiaceae	<i>Salvia</i>	<i>columbariae</i>	Chia Sage		March - June	Disturbed	C, CBS, CSS, FW
Lamiaceae	<i>Salvia</i>	<i>mellifera</i>	Black Sage	X	March - July	Slopes	C, CSS
Nyctaginaceae	<i>Mirabilis</i>	<i>laevis</i>	Wishbone Bush	X	February - May	Slopes	C, CSS, FW
Onagraceae	<i>Epilobium</i>	<i>canum</i>	California Fuchsia	X	August- October	Slopes, Ridges	C, CSS, F
Papaveraceae	<i>Eschscholzia</i>	<i>californica</i>	California Poppy		February - September	Disturbed, Open, Valleys	C, CS, CP, F, FW, VG,
Papaveraceae	<i>Romneya</i>	<i>coulteri</i>	Coulter's Matilija Poppy	X	March - July	Slopes	C, CSS
Phrymaceae	<i>Diplacus</i>	<i>aurantiacus</i>	Sticky Monkeyflower	X	March - August	Coastal, Disturbed	C, CSS, FW, MEF, NOW
Plantaginaceae	<i>Antirrhinum</i>	<i>coulterianum</i>	Coulter's Snapdragon		April - June	Slopes	C, CSS
Plantaginaceae	<i>Keckiella</i>	<i>cordifolia</i>	Climbing Penstemon	X	March - August	Coastal	C
Plantaginaceae	<i>Penstemon</i>	<i>spectabilis</i>	Showy Penstemon	X	April - June	Slopes	C, CSS
Platanaceae	<i>Platanus</i>	<i>racemosa</i>	Western Sycamore	X	February - May	Streambanks	C, F, FW, VG, WR
Polygonaceae	<i>Eriogonum</i>	<i>elongatum</i>	Long-stemmed Buckwheat	X	August - November	Slopes	C, CSS, FW
Polygonaceae	<i>Eriogonum</i>	<i>fasciculatum</i>	California Buckwheat	X	April - September	Slopes	CBS, CSS, VG
Polygonaceae	<i>Persicaria</i>	<i>lapathifolia</i>	Common Knotweed		August - November	Disturbed, Slopes, Valleys	C, CS, CSS, CP, FW, VG, WR
Ranunculaceae	<i>Clematis</i>	<i>ligusticifolia</i>	Creek Clematis	X	June - August	Streambanks	C, F, FW, VG, WR
Ranunculaceae	<i>Delphinium</i>	<i>cardinale</i>	Scarlet Larkspur	X	April - July	Slopes	C, CSS, FW
Rhamnaceae	<i>Rhamnus</i>	<i>crocea</i>	Redberry Buckthorn	X	February - March	Slopes	C, CSS, FW, MEF, NOW, SOW
Rhamnaceae	<i>Rhamnus</i>	<i>ilicifolia</i>	Hollyleaf Redberry	X	April - June	Canyons, Slopes	C, F, SOW
Rosaceae	<i>Adenostoma</i>	<i>fasciculatum</i>	Chamise	X	June - August	Ridges, Slopes	C
Rosaceae	<i>Cercocarpus</i>	<i>betuloides</i>	Mountain Mahogany	X	March - May	Slopes	C, NOW
Rosaceae	<i>Heteromeles</i>	<i>arbutifolia</i>	Toyon	X	June - August	Canyons, Slopes	C
Rubiaceae	<i>Galium</i>	<i>angustifolium</i>	Narrow-leaved Bedstraw	X	March - July	Canyons, Cliffs	C, F
Salicaceae	<i>Salix</i>	<i>gooddingii</i>	Black Willow	X	February - March	Streambanks	CBS, CSS, FW, VG, WR
Solanaceae	<i>Datura</i>	<i>wrightii</i>	Jimsonweed	X	February - October	Disturbed, Sand Washes	CSS, VG
Agavaceae	<i>Hesperoyucca</i>	<i>whipplei</i>	Chaparral Yucca	X	April - June	Slopes	C, CSS
Liliaceae	<i>Calochortus</i>	<i>plummerae</i>	Plummer's Mariposa Lily	X	May - July	Slopes, Ridges	C, CSS, FW, VG
Liliaceae	<i>Calochortus</i>	<i>splendens</i>	Mariposa Lily	X	April - June	Slopes	C, FW
Poaceae	<i>Elymus</i>	<i>condensatus</i>	Giant Wild Rye	X	May - August	Canyons, Slopes, Ridges	C, CSS, FW, SOW
Poaceae	<i>Melica</i>	<i>californica</i>	California Melicgrass	X	June - August	Ridges, Slopes	FW, MEF
Themidaceae	<i>Dichelostemma</i>	<i>capitatum</i>	Blue Dicks	X	February - April	Meadows, Valley	CBS, F, VG, WR

Key:

AW= Annual Weed, C= Chapparral, CBS= Creosote Bush Scrub, CP= Coastal Prairie, CS= Coastal Strand, F= Forest, FW= Foothill Woodland, MEF= Mixed Evergreen Forest, NOW= SOW= Southern Oak Woodland, CG= Valley Grassland, W= Woodland, WR= Wetland-Riparian

Non-Native Plant Species						
Family	Genus	Species	Common Name	Perennial	Blooming Period	Cal-IPC Rating
Amaranthaceae	<i>Salsola</i>	<i>tragus</i>	Russian Thistle		July - October	Limited
Asteraceae	<i>Bidens</i>	<i>pilosa</i>	Common Beggar Ticks		January - December	
Asteraceae	<i>Carduus</i>	<i>pycnocephalus</i>	Italian Thistle		February - July	Moderate
Asteraceae	<i>Centaurea</i>	<i>melitensis</i>	Tocalote		April - August	Moderate
Asteraceae	<i>Cirsium</i>	<i>vulgare</i>	Bull Thistle	X	June - September	Moderate
Asteraceae	<i>Helminthotheca</i>	<i>echioides</i>	Bristly Ox Tongue		June - December	Limited
Asteraceae	<i>Hypochaeris</i>	<i>glabra</i>	Smooth Cat's Ear		March - June	Limited
Asteraceae	<i>Senecio</i>	<i>vulgaris</i>	Common Groundsel		January - December	
Asteraceae	<i>Silybum</i>	<i>marianum</i>	Milk Thistle		April - July	Limited
Asteraceae	<i>Sonchus</i>	<i>asper</i>	Spiny Sowthistle		February - October	
Asteraceae	<i>Sonchus</i>	<i>oleraceus</i>	Common Sowthistle		January - December	
Brassicaceae	<i>Capsella</i>	<i>bursa-pastoris</i>	Sheperd's Purse		January - December	
Brassicaceae	<i>Hirschfeldia</i>	<i>incana</i>	Shortpod Mustard	X	January - December	Moderate
Brassicaceae	<i>Sisymbrium</i>	<i>erysimoides</i>	Wallflower Tumble Mustard		January - October	
Euphorbiaceae	<i>Ricinus</i>	<i>communis</i>	Castor Bean	X	January - December	Limited
Fabaceae	<i>Calliandra</i>	<i>haematocephala</i>	Red Powder Puff	X	October - February	
Geraniaceae	<i>Erodium</i>	<i>cicutarium</i>	Redstem Storksbill		February - June	Limited
Lamiaceae	<i>Marrubium</i>	<i>vulgare</i>	Horehound	X	May - August	Limited
Moraceae	<i>Ficus</i>	<i>carica</i>	Common Fig	X	March - April	Moderate
Oleaceae	<i>Olea</i>	<i>europaea</i>	Olive	X	April - June	Limited
Solanaceae	<i>Nicotiana</i>	<i>glauca</i>	Tree Tobacco	X	March - September	Moderate
Solanaceae	<i>Solanum</i>	<i>nigrum</i>	Black Nightshade		March - October	
Verbenaceae	<i>Lantana</i>	<i>montevidensis</i>	Trailing Lantana	X	January - December	
Arecaceae	<i>Washingtonia</i>	<i>robusta</i>	Mexican Fan Palm	X	April - June	Moderate
Poaceae	<i>Avena</i>	<i>barbata</i>	Slender Oat		March - June	Moderate
Poaceae	<i>Bromus</i>	<i>diandrus</i>	Ripgut Brome		April - June	Moderate
Poaceae	<i>Bromus</i>	<i>madritensis</i>	Foxtail Brome		February - March	
Poaceae	<i>Lamarckia</i>	<i>aurea</i>	Goldentop		February - May	
Poaceae	<i>Pennisetum</i>	<i>setaceum</i>	Crimson Fountaingrass	X	July - August	Moderate
Poaceae	<i>Stipa</i>	<i>miliacea</i>	Smilo Grass	X	March - September	

Appendix D- Faunal Species Observed on the Vasquez Property

Herpetofauna										
Order	Family	Genus	Species	Common Name	Native/ Non-native	Behavior	Habitat	Conservation Status	Population Trend	Photo Documented
Anura	Bufo	<i>Anaxyrus</i>	<i>boreas halophilus</i>	California Toad	Native	Foraging	A	Near Threatened	Decreasing	Yes
Squamata	Anguillidae	<i>Elgaria</i>	<i>multicarinata</i>	San Diego Alligator Lizard	Native	n/a	OW	Least Concern	Decreasing	Yes
Squamata	Colubridae	<i>Pituophis</i>	<i>catenifer</i>	San Diego Gopher Snake	Native	Traveling	NNG	Least Concern	Stable	Yes
Squamata	Iguanidae	<i>Uta</i>	<i>stansburiana</i>	Side Blotched Lizard	Native	Foraging/Hiding	CSS	Least Concern	Stable	Yes
Squamata	Iguanidae	<i>Sceloporus</i>	<i>occidentalis</i>	Western Fence Lizard	Native	Foraging/Hiding	CSS	Least Concern	Stable	Yes
Squamata	Viperidae	<i>Crotalus</i>	<i>oreganus helleri</i>	Southern Pacific Rattlesnake	Native	Waiting	CSS	Least Concern	Stable	Yes

Key:
A= Artificial, CSS= Coastal Sage Scrub, NNG= Non-native Grassland, OW= Oak Woodland

Avifauna												
						Behaviors				Habitat		
Family	Family	Genus	Species	Common Name	Native/ Non-native	Breeding	Foraging	Perching	Fly- over	CSS	OW	NNG
Ducks and Geese	Anatidae	<i>Branta</i>	<i>canadensis</i>	Canada Goose	Native				X	X		
Hawks and Eagles	Accipitridae	<i>Buteo</i>	<i>jamaicensis</i>	Red-tailed Hawk	Native	X					X	
Hawks and Eagles	Accipitridae	<i>Accipiter</i>	<i>cooperii</i>	Coopers Hawk	Native				X	X		
New World Vultures	Cathartidae	<i>Cathartes</i>	<i>aura</i>	Turkey Vulture	Native				X	X		
Pigeons and Doves	Columbidae	<i>Zenaidra</i>	<i>macroura</i>	Mourning Dove	Native				X	X		
Owls	Strigidae	<i>Bubo</i>	<i>virginianus</i>	Great Horned Owl	Native			X			X	
Hummingbirds	Trochilidae	<i>Calypte</i>	<i>anna</i>	Anna's Hummingbird	Native		X				X	
Hummingbirds	Trochilidae	<i>Selasphorus</i>	<i>sasin</i>	Allen's Hummingbird	Native		X				X	
Woodpeckers	Picidae	<i>Melanerpes</i>	<i>formicivorus</i>	Acorn Woodpecker	Native	X						
Woodpeckers	Picidae	<i>Dryobates</i>	<i>nuttallii</i>	Nuttall's Woodpecker	Native	X					X	
Tyrant Flycatchers	Tyrannidae	<i>Tyrannus</i>	<i>vociferans</i>	Cassin's Kingbird	Native		X			X		
Tyrant Flycatchers	Tyrannidae	<i>Myiarchus</i>	<i>cinerascens</i>	Ash-throated Flycatcher	Native			X		X		
Tyrant Flycatchers	Tyrannidae	<i>Empidonax</i>	<i>difficilis</i>	Pacific-slope Flycatcher	Native		X			X		
Tyrant Flycatchers	Tyrannidae	<i>Sayornis</i>	<i>saya</i>	Say's Phoebe	Native		X			X		
Tyrant Flycatchers	Tyrannidae	<i>Sayornis</i>	<i>nigricans</i>	Black Phoebe	Native		X			X		
Crows, Magpies and Jays	Corvidae	<i>Aphelocoma</i>	<i>californica</i>	Scrub Jay	Native		X			X		
Crows, Magpies and Jays	Corvidae	<i>Corvus</i>	<i>corax</i>	Common Raven	Native		X				X	
Swallows	Hirundinidae	<i>Tachycineta</i>	<i>thalassina</i>	Violet-green Swallow	Native		X			X		
Swallows	Hirundinidae	<i>Stelgidopteryx</i>	<i>serripennis</i>	Northern Rough-winged Swallow	Native				X	X		
Bushtits	Aegithalidae	<i>Psaltriparus</i>	<i>minimus</i>	Bushtit	Native		X			X		
Wrens	Troglodytidae	<i>Catherpes</i>	<i>mexicanus</i>	Canyon Wren	Native		X			X		
Wrens	Troglodytidae	<i>Thryomanes</i>	<i>bewickii</i>	Bewick's Wren	Native		X			X		
Gnatcatchers	Poliopitidae	<i>Poliopitila</i>	<i>caerulea</i>	Blue-gray Gnatcatcher	Native							
Mockingbirds and Thrashers	Mimidae	<i>Mimus</i>	<i>polyglottos</i>	Northern Mockingbird	Native			X		X		
Silky-flycatchers	Ptiliogonidae	<i>Phainopepla</i>	<i>nitens</i>	Phainopepla	Native	X						
Cardinals, Grosbeaks and Buntings	Cardinalidae	<i>Passerina</i>	<i>amoena</i>	Lazuli Bunting	Native			X		X		
New World Sparrows	Passerellidae	<i>Junco</i>	<i>hyemalis</i>	Dark-eyed Junco	Native			X			X	
New World Sparrows	Passerellidae	<i>Melospiza</i>	<i>crissalis</i>	California towhee	Native	X					X	
New World Sparrows	Passerellidae	<i>Pipilo</i>	<i>maculatus</i>	Spotted Towhee	Native				X	X		
Blackbirds and Orioles	Icteridae	<i>Icterus</i>	<i>bullockii</i>	Bullock's Oriole	Native	X				X		
Finches	Fringillidae	<i>Spinus</i>	<i>psaltria</i>	Lesser Goldfinch	Native		X					X
Finches	Fringillidae	<i>Haemorhous</i>	<i>mexicanus</i>	House Finch	Native		X					X
Finches	Fringillidae	<i>Spinus</i>	<i>tristis</i>	American Goldfinch	Native		X					X

Mammals								
Order	Family	Genus	Species	Common Name	Native/ Non-native	Conservation Status	Population Trend	Photo Documented
Artiodactyla	Cervidae	<i>Odocoileus</i>	<i>hemionus</i>	Mule Deer	Native	Least Concern	Stable	Yes
Carnivora	Canidae	<i>Urocyon</i>	<i>cinereoargenteus</i>	Grey Fox	Native	Least Concern	Stable	Yes
Carnivora	Canidae	<i>Canis</i>	<i>latrans</i>	Coyote	Native	Least Concern	Increasing	Yes
Carnivora	Felidae	<i>Puma</i>	<i>concolor</i>	Puma (Mountain Lion)	Native	Least Concern	Declining	Yes
Carnivora	Mephitidae	<i>Mephitis</i>	<i>mephitis</i>	Striped Skunk	Native	Least Concern	Stable	Yes
Didelphimorphia	Didelphidae	<i>Didelphis</i>	<i>virginiana</i>	Virginia Opossum	Non-native	Least Concern	Increasing	Yes

Appendix E-
Special Status Flora with Potential for
Occurrence on the Vasquez Property

Special Status Floral Species Potential for Occurrence – Vasquez Property

	Special Status Species	Status	Habitat	Potential to Occur on Site
1	Western Spleenwort <i>Asplenium vespertinum</i>	Fed: None State: None CNPS: 4.2	Perennial rhizomatous herb. Bloom: Feb - June Occurs in chaparral, coastal sage scrub, and Southern oak woodland communities at elevations of 200 to 1000 meters.	Moderate: This species has a moderate potential to occur due to its historic range limiting recruitment onto the site from nearby source populations, but suitable habitat areas are present on site.
2	White Rabbit-Tobacco <i>Pseudognaphalium leucocephalum</i>	Fed: None State: None CNPS: 2B.2	Perennial herb. Bloom: Aug – Nov Occurs in coastal sage scrub in sandy/gravelly benches, dry stream bottoms, and canyon bottoms at elevations below 500 meters.	Moderate: This species has a moderate potential for occurrence due to its historic range limiting recruitment opportunities onto the site but having suitable habitats present on site.
3	Greata’s Aster <i>Symphyotrichum greatae</i>	Fed: None State: None CNPS: 1B.3	Perennial rhizomatous herb. Bloom: Jun – Oct Occurs in chaparral communities in damp areas of canyons at elevations of 300 to 2000 meters.	Moderate: This species has a moderate potential for occurrence due to its historic range limiting recruitment opportunities onto the site but having limited amount of suitable habitat present on the site.
4	Robinson's Pepper-Grass <i>Lepidium virginicum var. robinsonii</i>	Fed: None State: None CNPS: 4.3	Perennial herb. Bloom: Jan – July Occurs in chaparral and coastal sage scrub communities usually in non-wetland areas but occasionally in wetlands.	Moderate: This species has a moderate potential to occur on site due to a limited amount of suitable habitat for this species present on site.
5	San Gabriel River Dudleya <i>Dudleya cymosa ssp. Crebrifolia</i>	Fed: None State: None CNPS:1B.2	Perennial herb. Bloom: Mar – June Occurs in Chaparral communities growing along granitic slopes at elevations up to 400 meters.	Low: This species has a low potential to occur on site due to the limited amount of suitable elevations and habitat available on site as well as is historic range limiting the amount of recruitment onto the site.

6	San Gabriel Mountains Dudley <i>Dudleya densiflora</i>	Fed: None State: None CNPS: 1B.1	Perennial herb. Bloom: Mar – June Occurs in chaparral, yellow pine forest, and coastal sage scrub communities growing along cliffs at elevations between 300 and 520 meters	Moderate: This species has a moderate potential to occur on site due to its historical distribution and its limited amount of suitable elevations and habitat found on site.
7	Many-stemmed Dudleya <i>Dudleya multicaulis</i>	Fed: None State: None CNPS: 1B.2	Perennial herb. Bloom: April – July Occurs in chaparral, valley grassland, and coastal sage scrub communities. Growing in heavy, clay soils, coastal plains, and sandstone outcrops at elevations below 600 meters.	Low: This species has a low potential for occurrence due to its historical distribution and the limited amount of habitat found on site to sustain a population.
8	California Saw-grass <i>Cladium californicum</i>	Fed: None State: None CNPS: 2B.2	Perennial herb. Bloom: Jun – Sept Occurs in freshwater wetlands, alkali sinks, and wetland-riparian communities in alkaline marshes and swamps at elevations below 2150 meters.	Absent: This species does not occur on site due to absence of suitable habitat to sustain a population on site as well its historical distribution limiting its ability to recruit onto the site.
9	Braunton's Milk-vetch <i>Astragalus brauntonii</i>	Fed: Endangered State: None CNPS: 1B.1	Perennial herb. Bloom: Jan – Aug Occurs in chaparral, valley grassland, coastal sage scrub, and closed-cone pine forests. Growing in disturbed areas at elevations below 650 meters.	Low: This species has a low potential to occur on site due to its lack of suitable elevations and historical distributions limiting its ability to recruit onto the site.

10	San Gabriel Oak <i>Quercus durata</i> var. <i>gabrielensis</i>	Fed: None State: None CNPS: 4.2	Perennial shrub. Bloom: Apr – May Occurs in chaparral and foothill communities along slopes, woodlands, and foothills at between 450 and 1000 meters in elevation.	High: This species has a high potential to occur on site due to the presence of suitable habitat and elevations. Other similar species were documented on site and potential for introduction is high.
11	Engelmann Oak <i>Quercus engelmannii</i>	Fed: None State: None CNPS: 4.2	Perennial tree. Bloom: Mar – June Occurs in chaparral, valley grassland, and foothill woodland communities. Growing along slopes, foothills, and woodlands at elevations below 1300 meters.	Moderate: This species has a moderate potential to occur on site due to the presence of suitable habitat and elevations on the site, but narrow range. Other similar species were documented on site and potential for introduction is high.
12	Southern California Black Walnut <i>Juglans californica</i>	Fed: None State: None CNPS: 4.2	Perennial tree. Bloom: Mar – June Occurs in Southern oak woodland and wetland-riparian communities along hillsides and canyons at elevations between 30 and 900 meters.	Present: This species was found on site growing in scrubland and woodland communities on site.
13	Fragrant Pitcher Sage <i>Lepechinia fragrans</i>	Fed: None State: None CNPS: 4.2	Perennial shrub. Bloom: Mar – Oct Occurs in chaparral communities at elevations below 1300 meters.	Moderate: This species has a moderate potential to occur on site due to a lack of ability to recruit from other areas onto the site as well as limited suitable elevations and habitat.
14	Club-haired Mariposa-lily <i>Calochortus clavatus</i> var. <i>clavatus</i>	Fed: None State: None CNPS: 4.3	Perennial herb. Bloom: May – June Occurs in chaparral, valley grassland, and foothill woodland communities. Growing in serpentine soils at elevations below 1300 meters.	Moderate: This species has a moderate potential to occur on site due to its historic range limiting the possible amount of recruitment onto the site but having limited amounts of suitable habitat found on the site.

15	Slender Mariposa-lily <i>Calochortus clavatus</i> var. <i>gracilis</i>	Fed: Endangered State: Endangered CNPS: 1B.2	Perennial herb. Bloom: Mar – June Occurs in chaparral communities, growing along shaded foothill canyons at elevations below 1000 meters.	Moderate: This species has a moderate potential to occur on site due to the limited amount of suitable habitat and elevations found on the site.
16	Plummer's Mariposa-lily <i>Calochortus plummerae</i>	Fed: None State: None CNPS: 4.2	Perennial herb (bulb). Bloom: May – July Occurs in chaparral, foothill woodland, yellow pine forest, coastal sage scrub, and valley grassland communities. Growing in dry, rocky chaparral environments at elevations below 1700 meters.	Present: This species was found growing along the ridge in the Southeast portion of the property.
17	Intermediate Mariposa-lily <i>Calochortus weedii</i> var. <i>intermedius</i>	Fed: None State: None CNPS: 1B.2	Perennial herb. Bloom: May – July Occurs in chaparral, valley grassland, and coastal sage scrub communities. Growing in dry, rocky, open slopes at elevations below 680 meters.	Moderate: This species has a moderate potential to occur on site due to its historic range and limited amount of suitable elevations present on site.
18	Ocellated Humboldt-lily <i>Lilium humboldtii</i> ssp. <i>ocellatum</i>	Fed: None State: None CNPS: 4.2	Perennial herb. Bloom: Mar – July Occurs in chaparral, foothill woodland, and yellow pine forest communities at elevations below 1800 meters.	Moderate: This species has a moderate potential to occur on site due to its historic range limiting recruitment onto the site and the limited amount of suitable habitat found on site.
19	Rock Creek Broomrape <i>Orobanche valida</i> ssp. <i>valida</i> (now: <i>Aphyllon</i> <i>validum</i> (Jeps.) A.C. Schneid. subsp. <i>validum</i>)	Fed: None State: None CNPS: 1B.2	Perennial herb. Bloom: May – Sept Occurs in Chaparral and pinyon-juniper woodland communities. Growing in decomposed granite and on <i>Garrya fremontii</i> between 1250 and 2000 meter in elevation.	Absent: This species does not occur on the site due the lack of suitable elevation on site.

20	California Satintail <i>Imperata brevifolia</i>	Fed: None State: None CNPS: 2B.1	Perennial herb. Bloom: Sept – May Occurs in chaparral, coastal sage scrub, creosote bush scrub, and wetland-riparian communities. Growing in wet springs, meadows, streambanks, floodplains, and wetlands at elevations below 500 meters.	Low: This species has a very low potential to occur on site due to its historic range limiting recruitment opportunities onto the site as well as the lack of appropriate elevations and habitat present on site.
21	Parry's Spineflower <i>Chorizanthe parryi</i> var. <i>parryi</i>	Fed: None State: None CNPS: 1B.1	Annual herb. Bloom: Apr - June Occurs in chaparral and coastal sage scrub communities, growing in sandy openings at elevations between 90 and 800 meters.	Low: This species has a low potential to occur on site due to its historic range limiting recruitment opportunities onto the site, as well as the limited amounts of suitable elevations and habitat on site.
22	Slender-horned Spineflower <i>Dodecahema leptoceras</i>	Fed: None State: None CNPS: 1B.1	Annual herb. Bloom: Apr – June Occurs in chaparral and coastal sage scrub communities, growing in sand or gravel at elevations between 200 and 700 meters.	Low: This species has a low potential to occur on site due to its historic range limiting recruitment opportunities onto the site as well as the lack of suitable elevations on the site.
23	Mesa Horkelia <i>Horkelia cuneata</i> var. <i>puberula</i>	Fed: None State: None CNPS: 1B.1	Perennial herb. Bloom: Feb - July Occurs in coastal chaparral, growing in dry sandy soils at elevations between 70 and 870 meters.	Low: This species has a very low potential to occur on site due to its historic range limiting recruitment opportunities onto the site and the lack of suitable elevations and habitat on site.
24	San Antonio Canyon Bedstraw <i>Galium angustifolium</i> ssp. <i>gabrielense</i>	Fed: None State: None CNPS: 4.3	Perennial herb. Bloom: Apr – Aug Occurs in yellow pine forest, red fir forest and chaparral communities. Growing along slopes, ridges, and open forests at elevations between 1200 and 2650 meters.	Absent: This species does not to occur on site due to the lack of suitable habitat and elevations, as well as the historic range limiting recruitment opportunities onto the site.

25	San Gabriel Bedstraw <i>Galium grande</i>	Fed: None State: None CNPS: 1B.2	Perennial shrub. Bloom: Jan-Jul Occurs in chaparral, foothill woodland, yellow pine forest, and mixed evergreen forest communities. Growing at elevations between 425 and 1220 meters.	Moderate: This species has a moderate potential to occur on site due to the presence of limited amount of foothill woodland habitat within the site but is limited by historic range recruitment opportunities.
26	Urn-flowered Alumroot <i>Heuchera caespitosa</i>	Fed: None State: None CNPS: 4.3	Perennial herb. Bloom: May – Aug Occurs in red fir forest and yellow pine forest communities, growing in rocky areas at elevations between 1990 and 2300 meters	Absent: This species does not occur on site due to its historic range limiting the recruitment opportunities onto the site and as well the lack of suitable elevations and habitat on the site.
27	Sonora Maiden Fern <i>Thelypteris puberula var. sonorensis</i>	Fed: None State: None CNPS: 2B.2	Perennial herb. Bloom: Jan – Sept Occurs in meadows, seeps, and wetland-riparian areas. Growing along streams and seepage areas at elevations between 50 and 800 meters.	Absent: This species does not occur on site due to its historic range limiting the recruitment opportunities onto the site as well as a lack of suitable habitat on site.

Appendix F-

Special Status Fauna with Potential for Occurrence on the Vasquez Property

Special Status Faunal Species Potential for Occurrence – Vasquez Property

	Special Status Species	Status	Habitat	Potential to Occur on Site
	Fish			
1	Santa Ana Sucker <i>Catostomus santaanae</i>	Fed: Threatened State: None CDFW: --	Endemic to the Los Angeles basin. Found in small to medium sized streams that flow year-round, favoring cool flowing water where gravel, rubble, or boulder substrates are present.	Absent: This species does not occur on site due to a lack of suitable habitat and no historical occurrences being present on site.
2	Arroyo Chub <i>Gila orcuttii</i>	Fed: None State: None CDFW: SSC*	San Gabriel River Inhabits sandy and muddy bottoms of flowing pools and runs of headwaters creeks and small to medium rivers. Often found in intermittent streams.	Absent: This species does not occur on site due to the lack of suitable habitat and no historical occurrences being present on site.
3	Santa Ana Speckled Dace <i>Rhinichthys osculus ssp. 3</i>	Fed: None State: None CDFW: SSC	Have a wide distribution due to ability to adapt to different environments. Found mainly in perennial streams fed by cool springs.	Absent: This species does not occur on site due to the lack of suitable habitat and no historical occurrences being present on site.
4	Steelhead – Southern California DPS <i>Oncorhynchus mykiss irideus pop. 10</i>	Fed: Endangered State: None CDFW: --	Native to Pacific coast streams. Ability to ascend streams depends on location of impassible barriers.	Absent: This species does not occur on site due to the lack of suitable habitat and no historical occurrences being present on site.
	Amphibians			
5	San Gabriel Slender Salamander <i>Batrachoseps gabrieli</i>	Fed: None State: None CDFW: --	Known only from the San Gabriel Mountains. Found under rocks, wood, fern fronds, and on soil at the base of talus slopes. Usually near streams.	Low: This species has a low potential to occur on site due to the lack of suitable habitat found on site. But has been historically observed within the vicinity of the property.
6	Foothill Yellow-legged Frog <i>Rana boylei</i>	Fed: None State: Candidate Threatened CDFW: SSC	Found in rocky streams and rivers with rocky substrate in forests, chaparral, and woodlands. Sometimes found in isolated springtime pools.	Low: This species has a low potential to occur on site due to the minimal amount of suitable habitat that exists on site, however suitable habitat is present within the vicinity.

7	California Red-legged Frog <i>Rana draytonii</i>	Fed: Threatened State: None CDFW: SSC	Found near ponds in woodlands, grasslands, coastal scrub, and streamside's. Common in foothills and lowlands.	Low: The species has a very low potential to occur on site due to the minimal amount of suitable habitat that is available on the property, however, suitable habitat is present in the vicinity.
8	Southern Mountain Yellow-legged Frog <i>Rana muscosa</i>	Fed: Endangered State: Endangered CDFW: WL*	Endangered populations located in the San Gabriel, San Jacinto & San Bernardino mountains. Inhabits lakes, ponds, meadow streams, isolated pools, and sunny riverbanks	Low: This species has a very low potential to occur on site due the lack of suitable habitat that exists on site. Suitable habitat is present in the vicinity.
9	Coast Range Newt <i>Taricha torosa</i>	Fed: None State: None CDFW: SSC	Found in oak forests, chaparral, and rolling grasslands from Mendocino County to San Diego County. Live in moist to dry habitats under wood or leafy debris, in rock crevices, and burrows during terrestrial phase. Found in ponds, reservoirs, lakes and slow-moving streams during aquatic phase.	Moderate: The species has a moderate potential to occur on site due to the presence of suitable habitat for its terrestrial phase found on site. Suitable habitat for its aquatic phase is also found in the vicinity.
10	Western Spadefoot <i>Spea hammondi</i>	Fed: None State: None CDFW: SSC	Found in open areas with sandy or gravelly soils in mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, alluvial fans, foothills, and mountains.	Moderate: This species has a moderate potential to occur on the property due to the presence of some suitable habitat as well as the presence of suitable habitat within the vicinity.
	Reptiles			
11	San Bernardino Ringneck Snake <i>Diadophis punctatus modestus</i>	Fed: None State: None CDFW: --	Endemic to California this species can be found in the San Bernardino mountains. They prefer moist habitats that include wet meadows, rocky hillsides, gardens, farmland, grassland, chaparral, mixed coniferous forests, and woodlands.	Moderate: This species has a moderate potential to occur on site due the minimal areas that contain moisture on site. Historical occurrences are documented within the vicinity of the property boundaries.

12	California mountain Kingsnake (San Bernardino population) <i>Lampropeltis zonata (parvirubra)</i>	Fed: None State: None CDFW: WL	Occurs in the San Bernardino, San Gabriel, San Jacinto, Santa Monica, and Santa Ana mountains of southern California. This habitat generalist is found in diverse habitats including coniferous forest, oak pine woodlands, riparian woodland, chaparral manzanita, and coastal sage scrub.	High: This species has a high potential to occur on site due to the presence of suitable habitat on the property as well as the historical occurrences documented within the vicinity of the property boundaries.
13	Western Pond Turtle <i>Emys marmorata</i>	Fed: None State: None CDFW: SSC	Occur in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches. In areas that contain abundant vegetation and rocky or muddy bottoms in woodlands, forests, and grasslands.	Absent: This species does not occur on site due to the lack of suitable habitat and no historical occurrences being present on site.
14	Two-striped Gartersnake <i>Thamnophis hammondi</i>	Fed: None State: None CDFW: SSC	Southern California ranges extend east through to the Transverse Ranges and South to Baja California. Generally found around pools, creeks, cattle tanks, and other water sources. Utilizing rocky areas in woodland, chaparral, brushland, and coniferous forests.	Low: This species has a low potential to occur on site due to the lack of suitable habitat on site as well as the historical observations within the vicinity of the property boundaries.
15	Coast Horned Lizard <i>Phrynosoma blainvillii</i>	Fed: None State: None CDFW: SSC	Prefers habitats such as scrubland, grassland, coniferous woods, and broadleaf woodlands. Highly associated with native ant colonies in areas containing sandy soils and scattered shrubs.	Moderate: This species has a moderate potential to occur on site due to the presence of suitable habitat existing on site as well as the historical observations made within the vicinity of the property.
16	Coastal Whiptail <i>Aspidoscelis tigris stejnegeri</i>	Fed: None State: None CDFW: SSC	Found in deserts & semi-arid areas with sparse vegetation and open areas. Also found in woodland & riparian areas.	Absent: This species is presumed absent due to occur on site due to the lack of suitable habitat that exists on site and the distance of historical observations from the property.

	Birds			
17	Cooper's Hawk <i>Accipiter cooperii</i>	Fed: None State: None CDFW: WL	Found year round throughout California, occurring in woodland and suburban areas. Preying primarily upon songbirds.	Present: Individual observed on site. Likely utilizing both wild and urbanized areas for resources.
18	Sharp-shinned Hawk <i>Accipiter striatus</i>	Fed: None State: None CDFW: WL	Migratory, breeding in Alaska and wintering South to Panama. Highest chance of observing during migration at favored points along mountain ridges, coast, and lakes. Preferring to ambush prey, generally staying out of site.	High: This species has a high potential to occur on site due to the presence of suitable habitat within the property as well as historical observations. Observation on site may depend on migration patterns and observers' ability to differentiate with the Cooper's hawk.
19	Great Egret <i>Ardea alba</i>	Fed: None State: None CDFW: --	Inhabits marshes, ponds, shores, mudflats and nesting in trees and shrubs near water. Usually nesting in colonies and occasionally in isolated pairs.	Moderate: This species has a moderate potential to occur on site due to the lack of suitable habitat on the property, but it has been observed within the vicinity of the site boundaries.
20	Great Blue Heron <i>Ardea herodias</i>	Fed: None State: None CDFW: --	Inhabiting marshes, swamps, shores, and tide flats. This adaptable species forages in calm fresh waters and nests in trees and shrubs near water.	Moderate: This species has a moderate potential to occur due to the lack of suitable habitat on the property, but it has been historically observed within the vicinity of the property.
21	Black-crowned Night Heron <i>Nycticorax nycticorax</i>	Fed: None State: None CDFW: --	Found in both fresh and saltwater habitats. Nesting in trees, thickets, or on ground usually on islands.	Moderate: This species has a moderate potential to occur due to the lack of suitable habitat on the property, but it has been historically observed within the vicinity of the property.

22	Yellow-breasted Chat <i>Icteria virens</i>	Fed: None State: None CDFW: SSC	Summer resident that inhabits riparian thickets of willow & other brushy tangles near water. Forages and nests within 10 ft of ground in low, dense riparian shrub and tangled vines.	Moderate: This species has a moderate potential to occur on site due to the proximity of suitable habitat and historical occurrences within the vicinity of the property.
23	Loggerhead Shrike <i>Lanius ludovicianus</i>	Fed: None State: None CDFW: SSC	A predatory songbird that inhabits semi-open areas with available predator perches during all seasons. Nests are placed in dense often thorny trees and shrubs, well-hidden foliage 5 to 30 ft high.	High: This species has a high potential to occur on site due to the suitable habitat that exists on site as well as its historical range that overlaps with the property.
24	California Gull <i>Larus californicus</i>	Fed: None State: None CDFW: WL	Inhabits lakes, farms, urban centers, and seacoasts they often forage around farms and fields. Nests on ground near lakes or marshes.	Moderate: This species has a moderate potential to occur on site due to historical observations and the suitable habitat that exists within the vicinity of the property boundaries.
25	Osprey <i>Pandion haliaetus</i>	Fed: None State: None CDFW: WL	Found near rivers, lakes, and coastlines and mountain ridges. Usually migratory but some permanent residents exist. Nests usually on top of large trees or similar structures not far from water.	Moderate: This species has a moderate potential of occurring on site due to the vicinity of suitable habitat and historical observations to the property boundaries.
26	Yellow Warbler <i>Setophaga petechia</i>	Fed: None State: None CDFW: SSC	Inhabits streamside thickets, foraging from low to high treetops. Nests in shrubs, small trees, and briars from 2 to 60 feet in height.	Low: This species has low potential to occur on the property due to historical observations made within the vicinity of the site as well as the lack of suitable habitat that exists on the site.

27	Double-crested Cormorant <i>Phalacrocorax auritus</i>	Fed: None State: None CDFW: WL	Found in coasts, bays, lakes, rivers, and most aquatic habitats. Nests in trees near or over water, on sea cliffs, or ground.	Low: This species has a low potential to occur on site due to the lack of available habitat within the property boundary and the lack of historical observations within a reasonable vicinity of the site.
28	Coastal California Gnatcatcher <i>Polioptila californica californica</i>	Fed: None State: Threatened CDFW: SSC	Permanent resident of Southern California utilizing coastal sage scrub habitat. Nests usually less than 4 ft above ground. Population threatened by development and cowbird parasitism.	High: Species has a high potential to occur on site due to the presence of suitable habitat as well as historical observations being made within the vicinity of the property.
29	Costa's Hummingbird <i>Calypte costae</i>	Fed: None State: None CDFW: --	Inhabits deserts, washes, sage scrub. Mostly in dry open habitats, rarely moving into mountain meadows after breeding season. Nesting in open or sparsely leaved shrubs or small trees during the late winter and spring.	Moderate: This species has a moderate potential to occur on site. While some areas within the property could act as suitable habitat, this would be considered rare and there are not historical observations made within the vicinity of the property boundaries.
30	Olive-sided Flycatcher <i>Contopus cooperi</i>	Fed: None State: None CDFW: SSC	Migratory, inhabits conifer forests, burns, and clearing. Nesting in taller trees in foothill canyons.	Moderate: This species has moderate potential of occurring on site due to the reduced amount of suitable habitat on the property and lack of historical observations in the vicinity of the property. A lower chance of observation is expected due to migratory patterns.
31	Willow Flycatcher <i>Empidonax traillii</i>	Fed: None State: Endangered CDFW: --	Migrating North in mid to late May. Inhabiting bushes, willow thickets, shrubs, or along woodland edges. Often found near streams and marshes, this species can also utilize drier habitats.	High: This species has a high potential to occur on site due to the presence of suitable habitat on site as well as the historical observations made within the vicinity of the property boundary.

32	Least Bell's Vireo <i>Vireo bellii pusillus</i>	Fed: Endangered State: Endangered CDFW: --	With a range that spans from Coastal Southern California to Sacramento, they mostly inhabit riparian habitats, but can be found in isolated and disturbed riparian habitats. Nesting below 2000 ft in elevation in the vicinity of water or dry river bottoms.	Moderate: This species has a moderate potential to occur on site due to the minimal amount of suitable habitat that exists on site as well as the suitable habitat that exists is within the vicinity of the property.
	Mammals			
33	Desert Bighorn Sheep <i>Ovis canadensis nelsoni</i>	Fed: None State: None CDFW: FP*	Widely distributed from the white mountains in mono county to the chocolate mountains in imperial county and a range elevation of 800 to 2500 meters. Require drier slopes, inhabiting alpine meadows, grassy mountain slopes, and foothill country in proximity to rugged rocky cliffs and bluffs.	Low: This species has a low potential to occur on site due to the presence in the SG Mountains, but likelihood is reduced due to impacts from fire, presence of mountain lion and proximity to urban areas.
34	Western Mastiff Bat <i>Eumops perotis californicus</i>	Fed: None State: None CDFW: SSC	Inhabits open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub, grasslands, and chaparral. Day roosts are established in crevices in rocky canyons and cliffs that are vertical to nearly vertical.	Low: This species has low potential to occur onsite due to impacts from fire to suitable habitat as well as the lack of historical observations.
35	Big Free-tailed Bat <i>Nyctinomops macrotis</i>	Fed: None State: None CDFW: SSC	A migratory species that inhabits low-lying arid, rugged and rocky terrain in southern California. Also discovered roosting in buildings and terrestrial trees and shrubs.	Low: This species has a very low potential to occur on site due the lack of suitable habitat on the property, as well as the lack of historical occurrences within the vicinity of the property.

36	Pallid Bat <i>Antrozous pallidus</i>	Fed: None State: None CDFW: SSC	With a large range this species occurs in desert habitats and roosts in rocky outcrops but is adaptable and can roost in a variety of places.	Absent: This species is presumed absent from the site due to the lack of suitable habitat on the property as well as a lack of historical observations within the vicinity of the property.
37	Hoary Bat <i>Lasiurus cinereus</i>	Fed: None State: None CDFW: --	Widespread throughout the United States. Utilizing a wide variety of habitats ranging from temperate to tropical, deserts, chaparral, forests, and rainforests. They are found in wild and urban areas alike.	Moderate: This species has a moderate potential to occur on site due to its large geographic range and limited amounts of suitable habitat that exists within the project boundary and local vicinity.
38	Western Yellow Bat <i>Lasiurus xanthinus</i>	Fed: None State: None CDFW: SSC	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosting in trees, commonly in the skirt of dead fronds of native and non-native palm trees.	Low: This species has a low potential to occur on site due to the minimal amount of suitable habitat present on site and the lack of historical observations within the vicinity of the property boundaries.

*SSC- species of special concern; WL- watch list; FP- fully protected; -- - no information

Appendix G- Photo Log



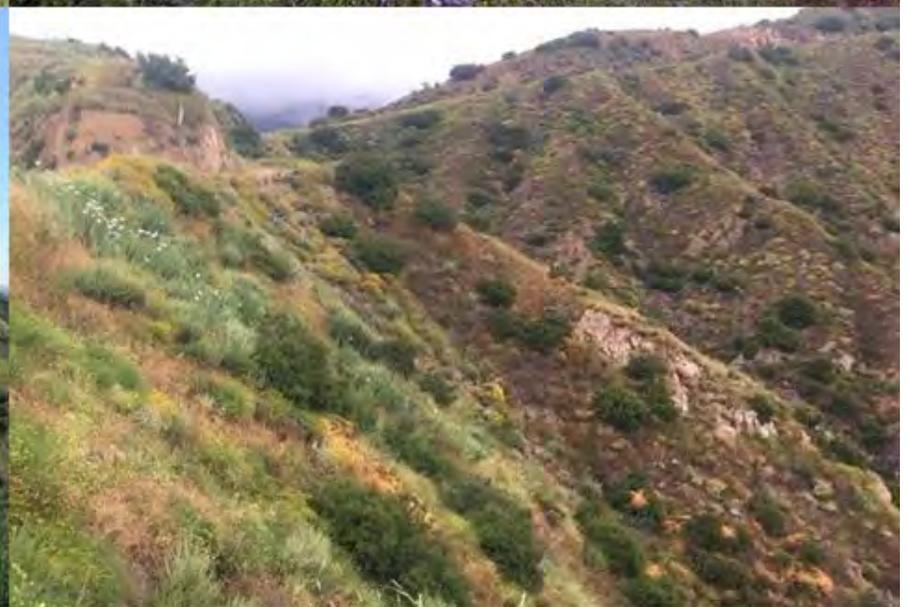
Site overview, eastern portion of property



Site overview, western portion of property



Malosma laurina dominated habitat, northern slope



Malosma laurina dominated habitat, northeastern slope



Encelia farinosa dominated habitat, western slope



Encelia farinosa dominated habitat, western slope



Artemisia californica dominated habitat, eastern ridge



Artemisia californica dominated area, southern boundary



Oak woodland dominated habitat, southern boundary



Oak woodland leading up to Arroyo, eastern boundary



Pennisetum setaceum dominated habitat, southwest slope



Pennisetum setaceum dominated habitat, southern slope



Brassica dominated habitat, eastern slope



Brassica dominated habitat, eastern slope



Arroyo wash area, eastern boundary



View from GRM of the San Gabriel River, west of property



Glendora Ridge Motorway leading from Vasquez avocado orchard



Path through Vasquez avocado orchard from North Hilltop Drive



Steep slope separating property overlook area to potential trails



Steep slope separating property overlook area to potential trails



Herpetological cover board installed on site



Wildlife camera B, installed utilizing native vegetation on site



Installation of herpetological cover board on site



Wildlife camera D, installed utilizing native vegetation on site



Mountain Lion walking along Glendora Ridge Motorway , camera A

○ 14 °C 57 °F 07/05/2019 22:21:58 0105



Mountain Lion walking into Vasquez Property vegetation, camera A

○ 12 °C 53 °F 03/05/2019 03:34:46 0675



Coyote walking along Glendora Ridge Motorway, camera A

○ 15 °C 59 °F 04/06/2019 05:39:12 0727



Coyote exiting Vasquez Property vegetation onto GRM, camera A

● 17 °C 62 °F 21/05/2019 12:28:09 0009



Mule Deer captured along eastern portion of property, camera B

☾ 11 °C 51 °F 26/05/2019 07:45:33 002



Mule Deer captured along old mining road, camera D

☉ 22 °C 71 °F 03/06/2019 20:01:55 0363



Gray Fox captured entering Vasquez Property vegetation, camera A

☉ 15 °C 59 °F 01/06/2019 04:33:12 0672



Gray Fox captured along eastern portion of property, camera B

☉ 13 °C 55 °F 29/05/2019 03:16:07



Opossum walking along Glendora Ridge Motorway, camera A

🌙 🌡️ 17 °C 62 °F 14/05/2019 01:20:44 0307



Striped Skunk entering Vasquez Property from GRM, camera A

🌙 🌡️ 20 °C 68 °F 12/06/2019 02:00:39 0350



Off-road vehicle descending GRM towards avocado orchard

🌙 🌡️ 29 °C 84 °F 14/06/2019 18:17:57 0670



Mountain bikers descending GRM towards avocado orchard

🌙 🌡️ 29 °C 84 °F 12/05/2019 14:13:20 0164



Work crews descending GRM towards North Hilltop Drive entrance

○ 15 °C 59 °F 15/01/2018 07:53:56 0315



Family ascending GRM from North Hilltop Drive entrance

○ 19 °C 66 °F 12/01/2018 08:36:37 0159



Plastic Debris found along old mining road, southern boundary



Trash found along old mining road, southern boundary



Gopher Snake encountered on site along eastern ridge



Gopher Snake ventral surface, eastern ridge



Rattlesnake encountered near cover board six, eastern slope



Rattlesnake traveling through vegetation, eastern slope



Western Fence Lizard found under cover board array



Western Fence Lizard clinging to canyon wall, eastern boundary



San Diego Alligator Lizard remains found along western boundary



California Toad found along southern property boundary



Great Horned Owl perched along southeast slope of property



Great Horned Owl perched among CSS, western boundary



Lesser American Finches gathering, western boundary



Nuttall's woodpecker tending to young in nest, western boundary



Calochortus plummerae flowering along eastern boundary



Juglans californica fruiting, southern boundary



Juglans californica found along southern ridges of property



Juglans californica near potential stewardship area, southern boundary



Datura wrightii growing along western boundary



Helianthus annuus being pollinated on property, northeast ridge



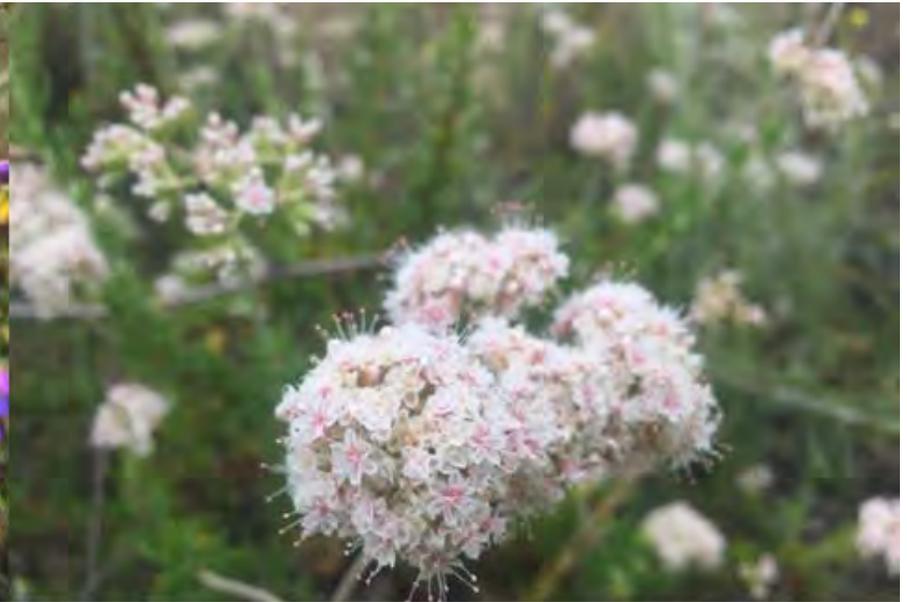
Romneya coulteri flowering along eastern ridge of property



Phacelia minor growing along arroyo corridor, eastern boundary



Penstemon spectabilis flowering on site, eastern ridge



Eriogonum fasciculatum flowering on site, northern ridge



Calochortus splendens flowering on site, eastern ridge



Encelia farinosa flowering on site, northern ridge



Principal ecologist Eric Zahn surveying avifauna, eastern ridge



Downloading and reviewing wildlife camera data, eastern ridge



Tidal Influence biological survey team, Vasquez Property overlook from Glendora Ridge Motorway