

Stenner Springs Natural Reserve

Draft
Conservation
Plan



Natural Resources Protection Program
City of San Luis Obispo
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City of San Luis Obispo



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Stenner Springs Natural Reserve Draft Conservation Plan

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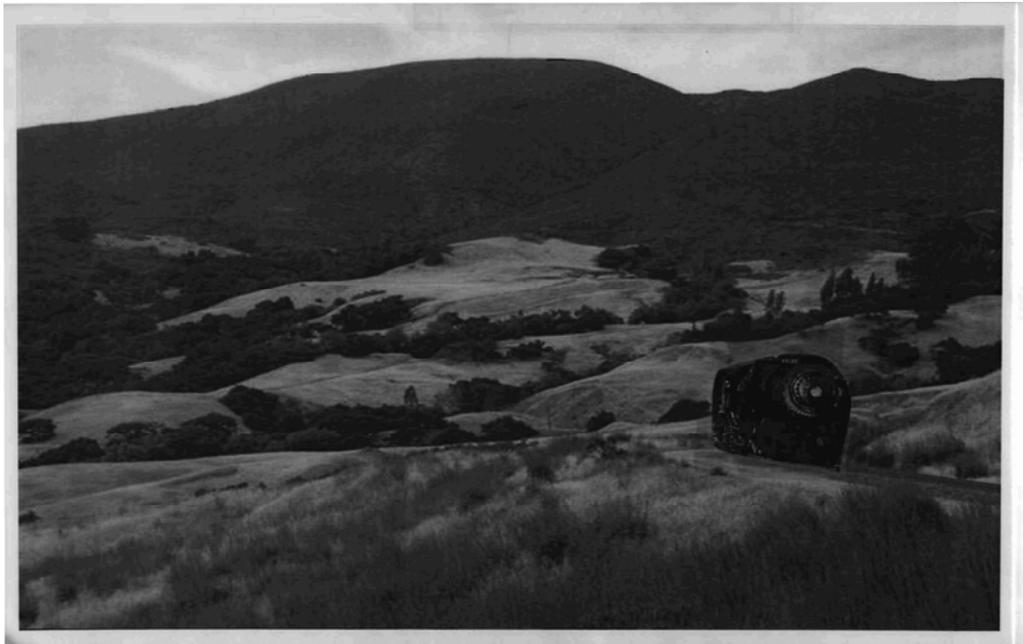
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View of Southern Pacific Railroad tracks, Stenner Springs area in background, summer 1939.
Photo by Robert H. McFarland



Same view as above (engine patched in for appearance), May, 2009.

Stenner Springs Natural Reserve Draft Conservation Plan

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Executive Summary

Stenner Springs Natural Reserve (SSNR) lies partially within and partially adjacent to Los Padres National Forest, in Stenner Creek Canyon, about four miles north of the City of San Luis Obispo. It is bordered by lands of the United States Forest Service, Cal Poly, Camp San Luis Obispo, and private property commonly known as Stenner Ranch. Elevations range from 900 to 2200 feet above sea level (Figure 1.)

The property occupies four legal parcels which were acquired by the City of San Luis Obispo at different times and which have some important differences among them. Therefore, reference will be made at times to one or more of the parcels where some feature or issue applies to that parcel or parcels and not to others. Parcels 1, 2, and 3 have long been enjoyed for their hiking, biking, outdoor education, and research opportunities. In contrast, parcel 4 lies within the boundaries of Camp San Luis Obispo and has historically not been accessible for public recreational use.

Important Natural Features

SSNR contains largely serpentine soils and the unique plant communities associated therewith. The property is generally rugged, steep and covered with dense brush and is used primarily for watershed protection, and limited recreation.

SSNR contains several natural habitat types and multiple sensitive and rare plant and animal species located on the property. Serpentine bunchgrass, rock outcrops, annual grasslands, wetland seeps (both natural and artificial) and several small perennial waterways are found on the property.

Management Issues and Concerns Associated with SSNR

Management issues facing the SSNR include: proper level of public access and use level for recreation; possible inclusion of a constructed “skills area” for mountain bicyclists; erosion problems associated with the existing access roads and improperly constructed trails; protection and enhancement of sensitive species and habitats located on the property; encroachment of non-native vegetation, (primarily eucalyptus and non-native thistles); and planning for mitigation from the impacts of the Nacimiento pipeline installation.

How the Conservation Plan Addresses These Issues

The main activities in the Conservation Plan include:

1. Controlling erosion problems resulting from the causes stated above, including closing or rerouting certain trails;
2. Establishing a designated use program to include a defined “mountain bike skills area” adjacent to the main trail (“Shooters”);
3. Discouraging access to Parcel 4 as required by the 2007 donation agreement with the Land Conservancy, except as may be permitted for a single proposed trail by Camp San Luis Obispo by agreement;
4. Establishing a mitigation program to compensate for losses of oak trees and other features resulting from the Nacimiento pipeline installation;
5. Converting the current livestock grazing operation to a seasonal, vegetation management driven program;
6. Undertaking a variety of habitat improvements, especially at the seeps and wetlands;
7. Controlling non-native vegetation which is spreading in some areas;
8. Establishing a series of photo-monitoring points to document baseline conditions and changes over time.

1. Introduction

The Stenner Springs Natural Reserve is a moderately-sized (363 acre) area in four parcels situated among the Los Padres National Forest, lands of Camp San Luis Obispo National Guard Reservation, lands of California State Polytechnic University and the privately owned Stenner Ranch. The property lies 4 miles north of the City of San Luis Obispo (Fig. 1).

The land is referred to as Stenner Springs because of the numerous springs on the property which flow into Stenner Creek, a perennial stream that flows from this site through the Cal Poly campus and several ranch properties into the City of San Luis Obispo.

The property occupies four legal parcels which were acquired by the City of San Luis Obispo at two different times and which have some important differences among them. Therefore, in this plan, reference will be made at times to one or more of the parcels where some feature or issue applies to that parcel or parcels and not to others. The parcels are:

- Parcel 1.* 49 acres acquired in 2000, and consisting of mostly grassland and the highest recreational activity levels;
- Parcel 2.* 77 acres acquired in 2007, and consisting of brush and some woodland, as well as the west portal of several water supply pipelines cutting through Cuesta Ridge at that point;
- Parcel 3.* 86 acres acquired in 2007 and consisting of serpentine chaparral with scattered small groves and individuals of the native Sargent cypress tree; and
- Parcel 4.* 151 acres acquired in 2007, consisting of some grassland but mostly

brush and several Sargent cypress groves. This parcel lies within the boundaries of Camp San Luis Obispo and is jointly owned by the City and the Camp. It is not currently accessible to the public due to its inclusion within the confines of the Camp.

The parcels are shown in Figure 2. It should be noted that the four parcels lie in rugged, brushy terrain, and different maps show different boundaries for them, especially Parcels 3 and 4. This is due perhaps to difficulties in actual survey work that has been conducted in the area over the years by different parties. However, since the intervening lands are also publicly owned, the differences do not appear to be significant from a land management standpoint, except at the easterly boundary of Parcel 4, where Camp San Luis Obispo abuts Los Padres National Forest. It is uncertain whether Hill 1640, which features attractive views, is within the Camp or not. However, in the interest of proper land management, all areas proposed for public use and thought to possibly lie within the boundaries of either the Camp or the National Forest will be addressed through agreements with both of those agencies.

1.1 History and Use

Stenner Springs Natural Reserve was formerly owned by Southern Pacific Railroad Company. The property was important to the railroad company as a reliable water supply for the steam engines that used the tracks in this area until the 1960's. In 1998 Southern Pacific Railroad Company was purchased in its entirety by the Union Pacific Railroad Company, including the

Figure 1. Location of Stenner Springs

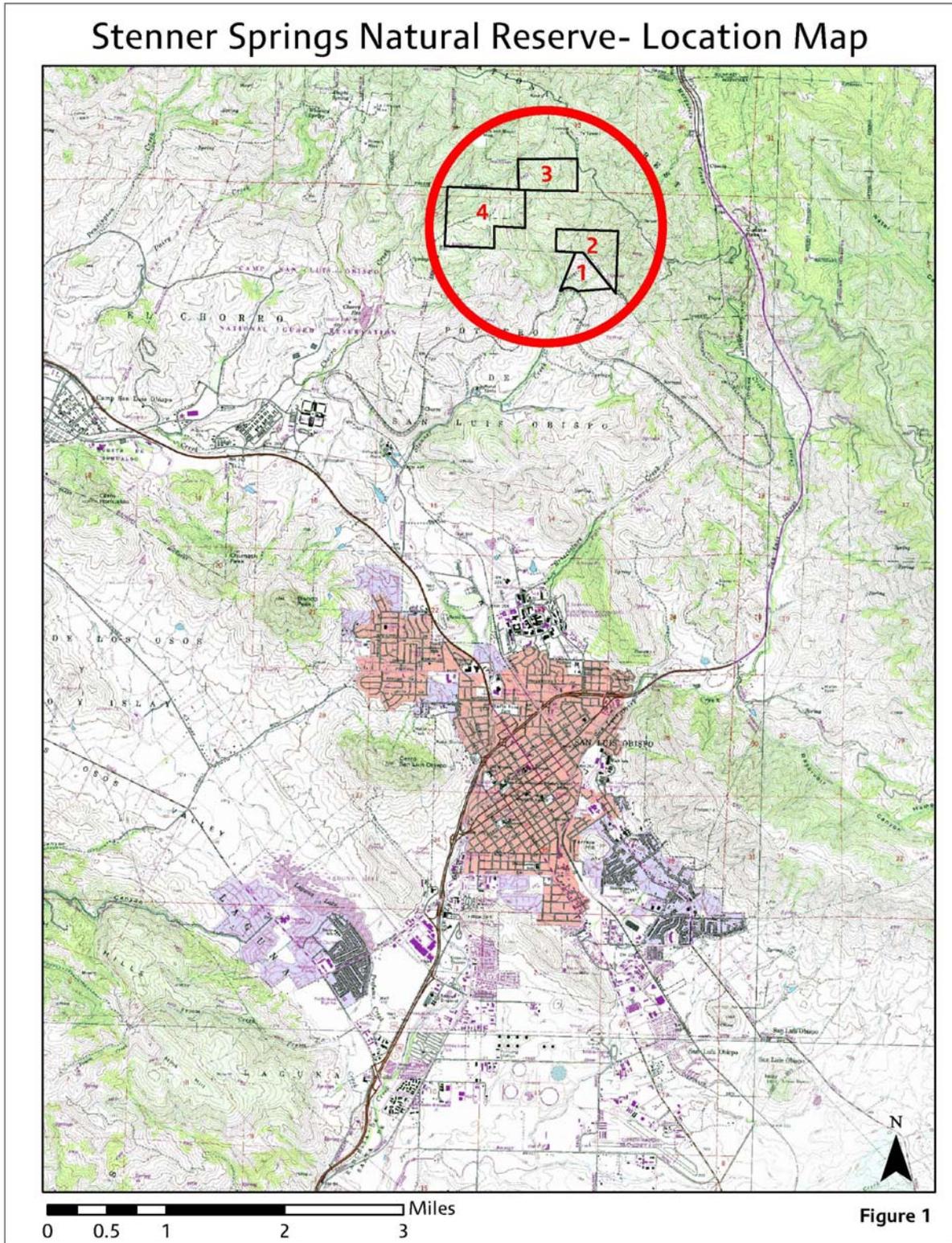


Figure 2. Parcel Map

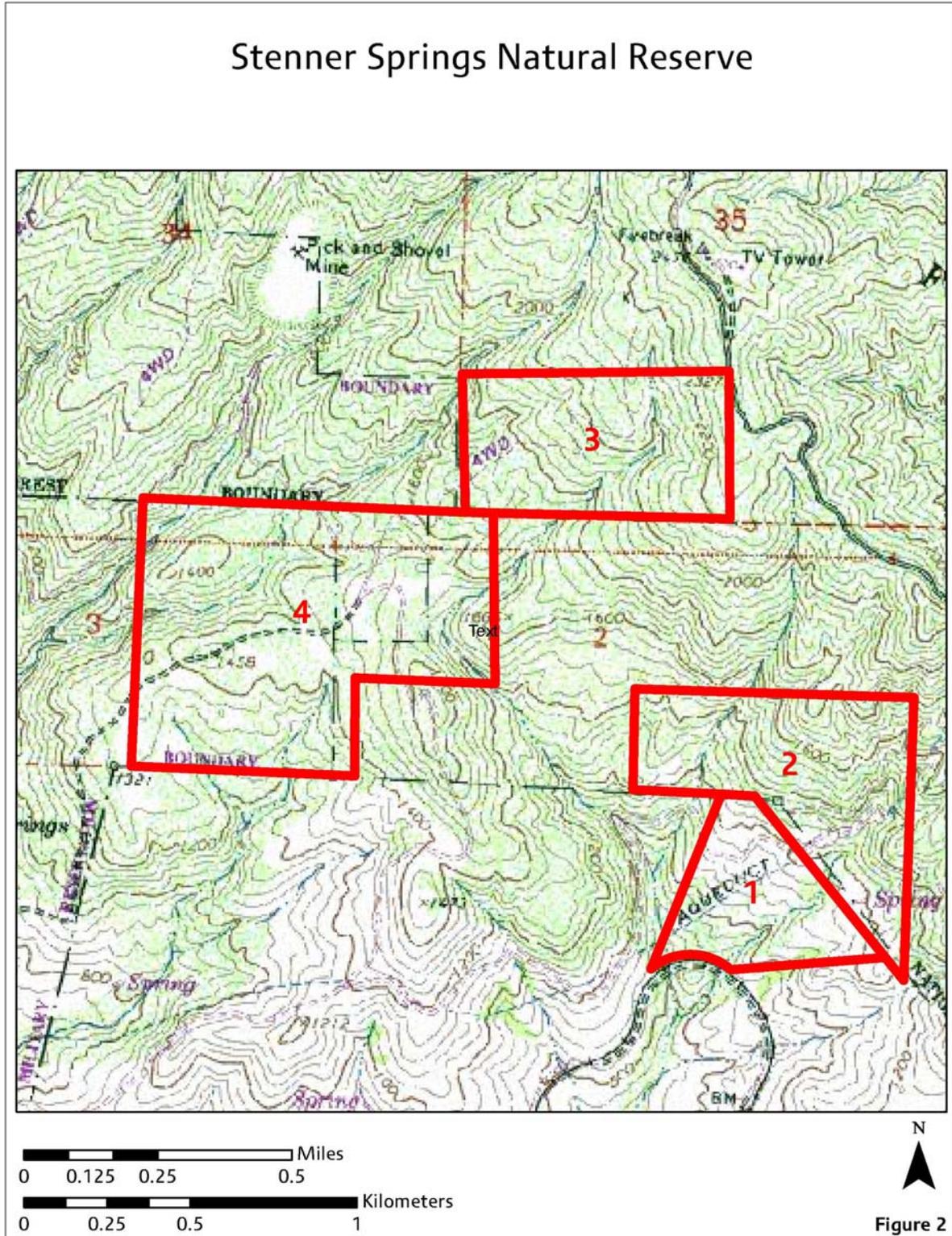
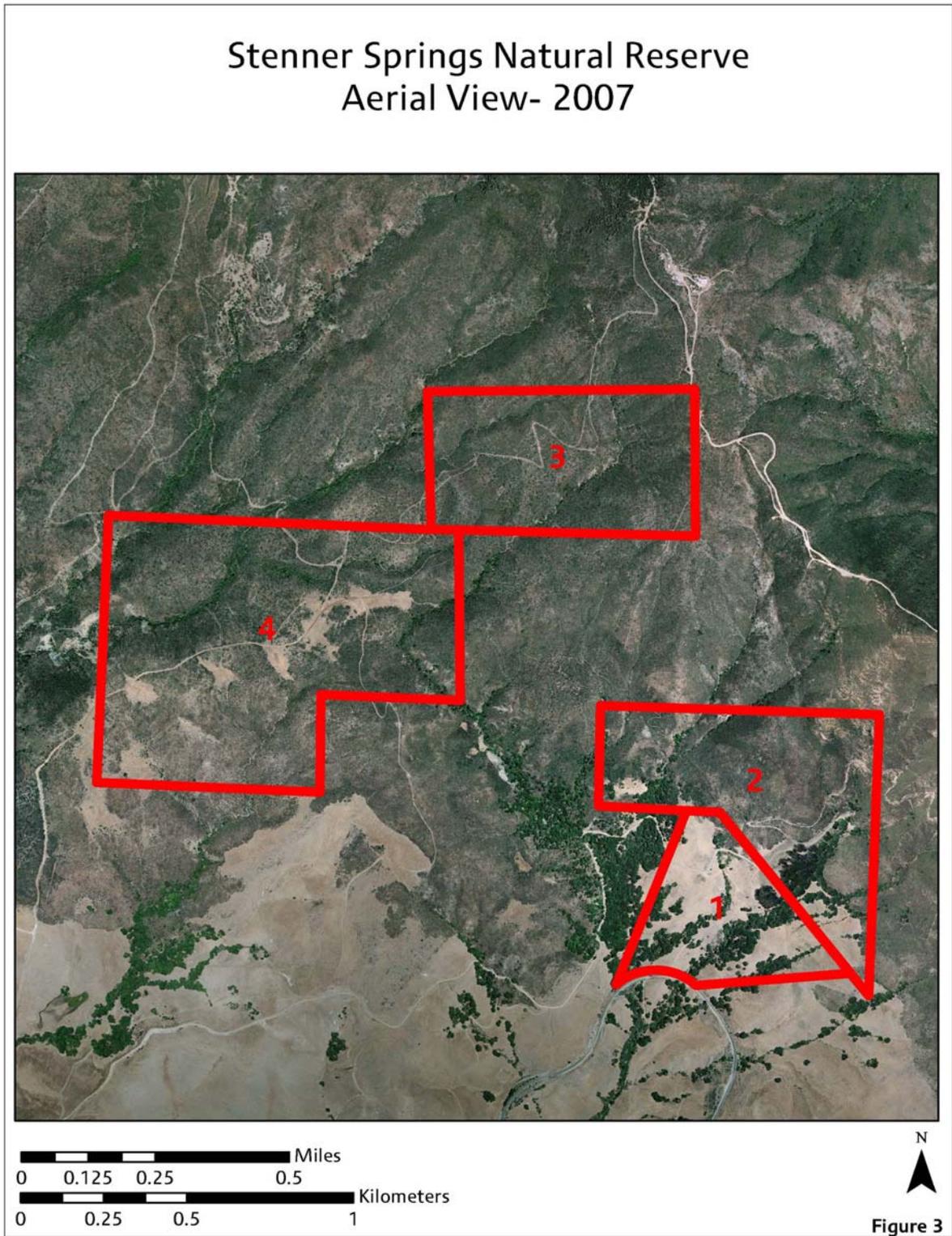


Figure 3. Aerial View



Stenner Springs parcels. The property consisted (and still consists today) of the four separate parcels described above. Parcels 1, 2, and 3 have long been enjoyed for their hiking, biking, and outdoor education opportunities. Parcel 4 lies within the boundaries of Camp San Luis Obispo and has generally not been available for legal public access.

In 2000, the City of San Luis Obispo purchased parcel 1. The three other parcels were purchased by the Land Conservancy in 2006, and donated to the City of San Luis Obispo in 2007. Parcels 2 and 3 lie within the boundaries of Los Padres National Forest, and Parcel 4 lies within the boundaries of Camp San Luis Obispo.

The property contains three popular bike trails, "Shooters" Trail, which was formerly a fire road, "Elevator" Trail, a continuation of the fire road; and "Morning Glory", a mostly hand-constructed trail which got its name after the fire that swept through the property in 1994. Following the fire, thousands of morning glory plants re-sprouted and covered the area with their twining stems and flowers clambering over the burned stalks of trees and shrubs there. Thousands of acres were extensively burned, and the evidence of that event is still apparent today.

The properties also have several other unnamed trails, some of which are very steep and causing erosion and gully problems; others appear to be benign in that regard. Over time there has been an incremental increase in such trails, and action is needed to control or direct further impacts of this type.

1.2 Background of the Conservation Plan

As previously noted, the City of San Luis Obispo purchased Parcel 1 from the Union Pacific Railroad in 2000. The Land Conservancy of San Luis Obispo County purchased the remaining parcels in 2006 and in June 2007 donated them to the City of San Luis Obispo on the condition that they would remain as open space in perpetuity. To that end, a conservation easement was placed over parcels 2 and 3, which restricted activities there to recreational, educational, environmental enhancement, and research activities compatible with the environment.

Parcel 4, which is a 50% undivided ownership, lies within the boundaries of Camp of San Luis Obispo. The State of California owns the other 50%. As a condition of the Land Conservancy donation, parcel 4 is governed by rules and regulations of Camp San Luis Obispo, and any proposed activities there must have the approval of the Camp. There are important natural resources within the four parcels, especially the extensive serpentine chaparral, coast live oak woodlands, natural springs, Sargent cypress groves, and associated riparian habitats, and the serpentine soils with their associated rare and sensitive plant species.

A biological assessment was conducted in the area by the consulting firm Tenera in spring 2009. Floristic surveys identified over 140 plant species on the property, with 8 of them being classified as rare species. Animal surveys revealed over 80 different species, mostly birds. This figure is almost

certainly low as the list consists of species actually observed on the property, and additional species not observed are expected to occur there.

Six different habitat types were identified on the property and range from serpentine outcrop to annual grasslands to wetland seeps. The rare and sensitive species are distributed throughout the different habitat types. Management activities that exist and are proposed for SSNR are public recreation, road maintenance, erosion control, sensitive habitat restoration, and endangered species enhancement.

1.3 Access

The property does not have public vehicular access. However, a well-used pedestrian and bicycle access exists through the Cal Poly campus at the end of Stenner Creek Road (though one must cross the railroad tracks), and another exists through Los Padres National Forest from TV Tower Road (also known as West Cuesta Ridge Road). Legal vehicular access for maintenance purposes is available through Camp San Luis Obispo.

1.4 Legal Agreements

Existing easements for water pipelines, communication lines, and restricting uses of the property are present at SSNR. These include:

1. At least three easements for water pipelines;
2. An easement for a coaxial cable line; (possibly abandoned) and
3. A conservation easement restricting the uses of Parcels 2 and 3 to open space and recreational uses.

Of the above, the most significant are the pipeline easements, which allow for installation and maintenance of the three water pipelines across portions of Parcels 1 and 2, together with rights of access. As a result, a maintenance road exists which accesses Parcel 1 from private property to the west and traverses a portion of the property, up to the so-called "portal" area on Parcel 2, where the three pipelines emerge from the tunnels crossing under West Cuesta Ridge. These easements also restrict some of the activities on the surface, specifically tree planting which could conflict with maintenance requirements for the pipeline routes. One of the easements, for the Nacimiento pipeline, is very active as the pipeline is currently (summer 2009) being constructed there.

2. Inventory

2.1 Physical features

Area – 363 acres
Miles of trails – 4 miles
Miles of waterway – 2.5 miles
Access points – there are no public vehicular access points to SSNR. Pedestrian and Bicycle access is available through a portion of the Cal Poly campus and from TV Tower Road in Los Padres National Forest.

2.2 General Description

The general aspect of SSNR is of a scenic, brushy mountainside, with occasional grasslands and oak woodlands, plus a planted eucalyptus grove. Health of the vegetation is considered very good, as the site has made nearly full recovery from a major fire in 1994. Some burned trees are still apparent, however new shrubs and

trees are thriving and filling in the hillsides. Several natural springs flow into both the San Luis Obispo Creek watershed and the Chorro Creek/ Morro Bay watershed. These wetland habitats greatly enhance the upland resource value of this property, having been found, among other things, to support a population of endangered California Red-legged frogs. The three main trails (Shooters, Morning Glory and Elevator) are heavily used by mountain bikers and hikers, and have been for many years. In 2008 a portion of Elevator Trail was rerouted for safety and environmental reasons.

2.3 Cultural/Historic Resources

It seems probable that Native Americans made some use of the interesting flat on Parcel 1 with its reliable water sources; however, no prehistoric artifacts were found in a major survey conducted in 1996 as part of the environmental planning for the Nacimiento pipeline. That survey included portions of both parcels 1 and 2, extending for 200 yards on either side of the pipeline route. The eucalyptus and Monterey cypress tree plantings at that location suggest some type of homestead or other residential use. However, again, however, no archeological evidence for such use has been observed. The other parcels are steep and densely covered with brush and are therefore considered to be much less likely candidates for significant Native American use.

The Eucalyptus groves on parcels 1 and 2, were presumably planted in the late 1800's or early 1900's.

Remnants of the water pipeline for the steam engines can still be observed on Parcel 1, and are visible today on the realigned "Elevator Trail". The pipeline was probably built in the late 1800's and was used until after World War Two to provide water for steam locomotives traveling the railroad grade at that location.

The other historical feature of note is the portal of the Salinas Reservoir water pipeline, which is the oldest of the pipelines (constructed in 1942). Despite its age, however, the concrete structure is not considered historic in a legal sense. No activities are called for in the vicinity of the portals and they are expected to be unaffected by implementation of the Conservation Plan.



West portal of the City's 1942 water pipeline from Santa Margarita Lake

2.4 Geology and Soils

The geology of the Stenner Springs area was described in a geologic study published in 1979 (Hall et al). The survey indicated that most of the property is underlain by rocks of Jurassic age, chiefly serpentine and greywacke. A portion of Parcel 2 is underlain by red chert, also of Jurassic age. Much of the parent material is in the form of a “mélange”, that is, a mix of crushed and broken rocks with limited bedrock exposures.

These parent materials give rise to a soil mix of rock outcrops and clay loams of the Gazos-Lodo clay loam, Henneke-Rock outcrop complex, Lodo clay loam, and Los Osos-Lodo complex. These are all poor and easily erodible soils (Class VIIe). Most of the property is steep and mountainous with moderate to severe erosion potential. Except for the Los Osos-Lodo complex, they are derived from serpentine parent materials. A discernable difference in vegetation between the serpentine-derived and non-serpentine-derived soils can be seen on Parcel 2, where the serpentine chaparral dominated by ceanothus gives way to a chaparral on the chert dominated by chamise.

Soils in the area are described in detail in Appendix A.

2.5 Water

The property contains the headwaters of Stenner Creek, and Chorro Creek, both of which are important waterways in the area, and flow into the San Luis Obispo Creek and Morro Bay watersheds, respectively. There are at least five springs on the property, at least one of

which has a strong year-round flow. The others are variable. In addition, there are several seeps, where water reaches the ground surface for all or part of the year but does not result in significant surface flows. Finally, the major spring and several of the smaller springs form the headwaters of several small, perennial streams which flow to the railroad tracks and form the main stem of Stenner Creek below the tracks. In addition the headwaters of the south fork of Chorro Creek forms on Parcel 3.

2.6 Habitat Types

The Tenera survey identified 6 plant communities or habitat types at Stenner Springs. (City staff has added the cypress groves as a seventh type.). These habitat types include:

2.6.1 Chaparral/Coastal scrub

Chaparral is composed of hardy plants that thrive in poor soils and can tolerate dry summers and wet winters. Chaparral is highly susceptible to fire. Most of the plants of the Chaparral community have small, hard leaves which hold moisture. Some of these plants are Chamise, Leather Oak, Obispo Manzanita, Buckbrush (Ceanothus), Bush Poppy and Deerweed.

On the Stenner Springs property, most of the Chaparral is underlain by Serpentine which is dominated by Ceanothus, Leather Oak, and Manzanita. This occurs on portions of parcel 2 and almost all of parcels 3 and 4. A portion of parcel 2 is underlain by red chert and the Chaparral there is dominated by Chamise. Species that are commonly called the Coastal Scrub

community are the Monkey flower, Coyote Bush, and California sage brush.

2.6.2 Oak/Riparian Woodland

Oak/Riparian woodland occurs along water courses on all parcels and on lower elevation slopes. The most important of the plants in the Oak/woodland are: Coast Live Oak, California Bay, Arroyo and Coulter Willows, Toyon and Poison Oak.

Brewer's Spineflower



2.6.3 Grassland

Grassland habitat is found in conjunction with the serpentine bunchgrass habitat, on parcel 1 and to a lesser extent on parcel 4. There are small areas where the serpentine outcrop recedes and open area has been colonized by wild oats, ryegrass and brome. Plant species commonly encountered in grassland habitat on the site includes:

- Foxtail barley (*Hordeum sp.*)
- Ryegrass (*Lolium multiflorum.*)
- Wild oats (*Avena fatua*)

- Ripgut (*Bromus diandrus*)
- Purple needlegrass (*Nasella pulchra*)

2.6.4 Eucalyptus groves

The Eucalyptus groves consist of plantings and volunteers of Blue Gum Eucalyptus (*Eucalyptus globulus*), with occasionally understory of shade-tolerant native species such as: California Bay, Coffeeberry and Poison oak. There are two groves covering a total of about four acres. Following the 1994 fire literally thousands of seedlings came up in the groves, and these trees have now formed a dense understory of eucalyptus which is competing in places with older native plants such as oaks for light and water.

2.6.5 Serpentine Outcrops

Habitat areas of thinner soils or with exposed rock are termed serpentine outcrops. The chemical properties of serpentine rock and their associated soils, high in magnesium, low in calcium, containing large amounts of iron and nickel, and typically deficient in nitrogen and phosphorus, make vegetation establishment very difficult. Only certain plant species which are serpentine endemic are found here. Brewer's spineflower, *Chorizanthe breweri*, and San Luis Obispo dudleya, *Dudleya abramsii ssp. murina*, are two rare plants found only on serpentine outcrops in San Luis Obispo County and are common in the SSNR.



Palmer's spineflower

2.6.6 Wetlands

Wetlands are areas of standing or flowing water that support aquatic plants, and animals. At SSNR the wetlands consist of springs and the small waterways that flow from them. The dominant plant species are Arroyo willow and Coulter willow. At the largest spring, California red-legged frogs were observed in June 2009.

2.6.7 Sargent Cypress

The small groves of Sargent Cypress are found on parcels 3 and 4. Sargent Cypress is a native California tree restricted to widely scattered serpentine sites from Mendocino County in the north to Santa Barbara County in the south. A much larger stand of Sargent cypress occurs on National Forest lands immediately to the north of Parcel 3.

These habitat types are identified on Figures 4 and 5, Vegetation.

2.7 Plants and Wildlife

2.7.1 Plants

A Floristic survey was conducted on the Stenner Springs property in spring 2009.

The survey reported over one hundred forty plant species, with 8 of those considered rare according to the CNPS, and 48 introduced species. The rare plants found on the property have status recordings of List 1B and List 4. The categories are on a scale of low threat (List 4) to species that are presumed extinct (List 1A). Vulnerability is due to limited or sensitive habitat, low numbers of individuals per population, or low numbers of populations. The majority of these species are serpentine dependent. Due to the harsh environment where these plants are found, their distribution classifies them for listing as sensitive species. The protection of the SSNR provides these plants with protection and leads to possible enhancement and increase in numbers.

A list of plant species found on the property is in Appendix B, Table 1.

Clay Mariposa Lily



Figure 4 Habitat Types Parcels 1 & 2

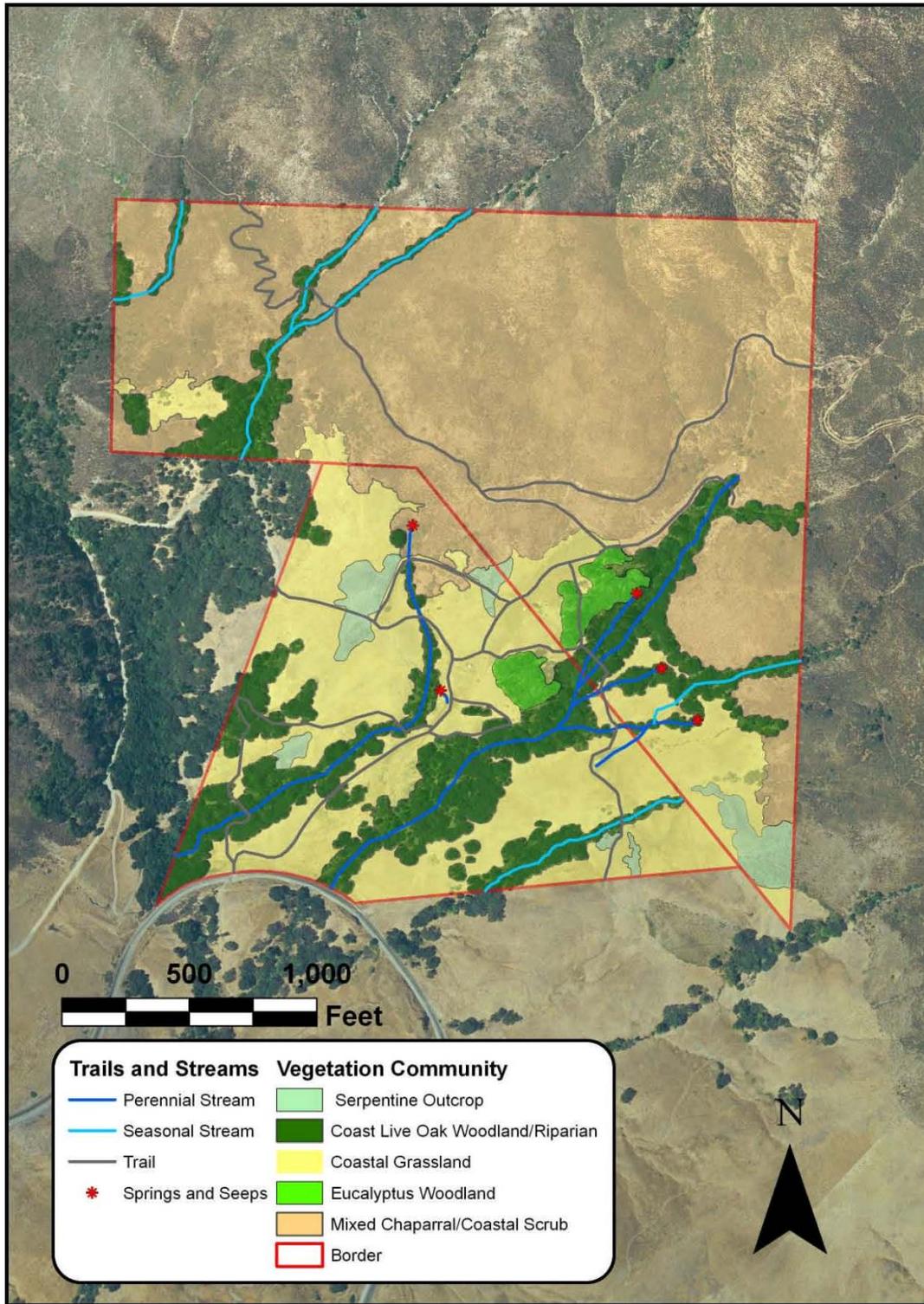


Figure 4. Natural communities on Parcel 1 and Parcel 2 of the Stenner Springs Natural Reserve.

Figure 5 Habitat Types Parcels 3 & 4

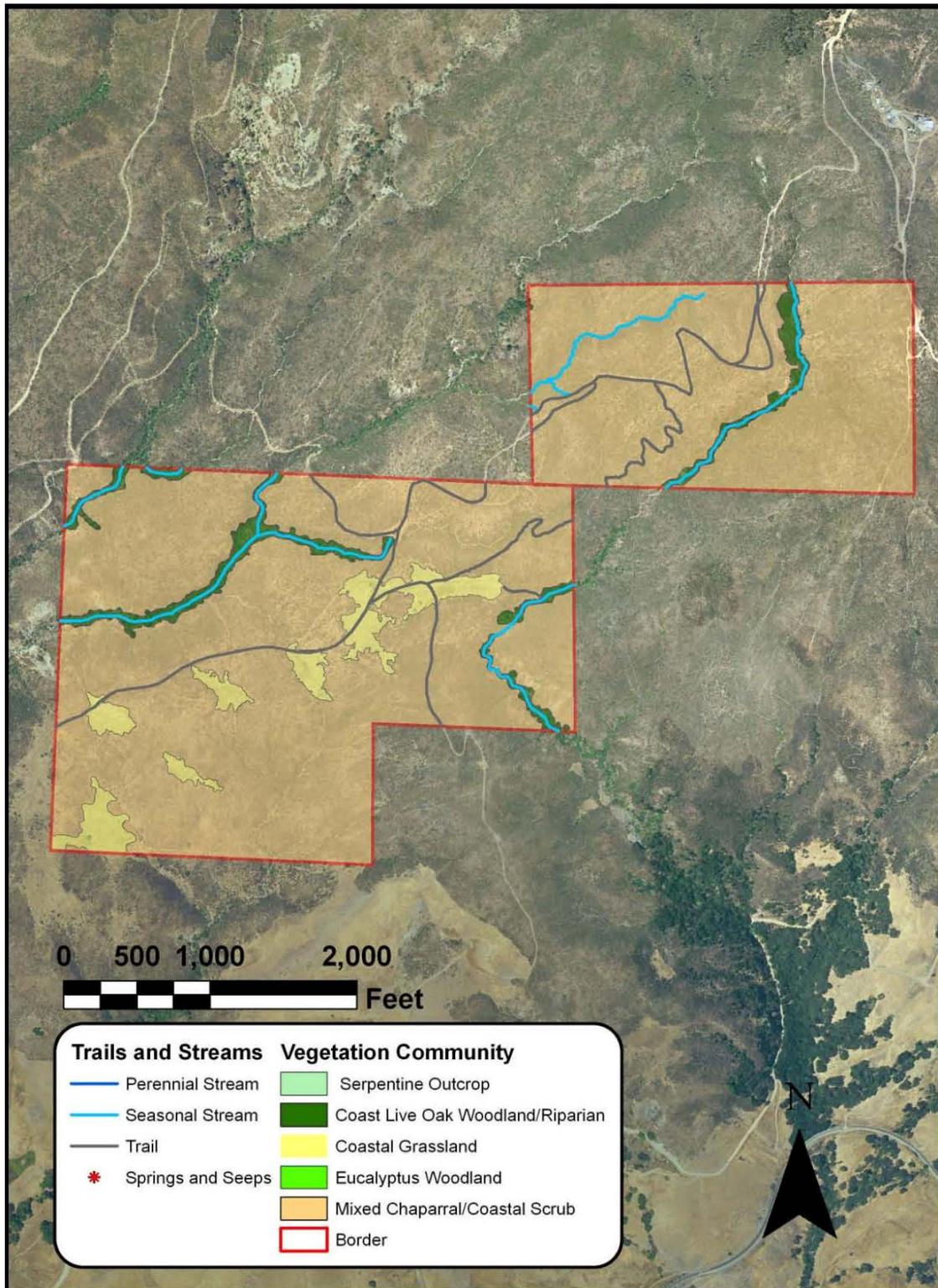


Figure 5. Natural communities on Parcel 3 and Parcel 4 of the Stenner Springs Natural Reserve.

2.7.2 Animals

Multiple animal surveys were conducted on the Stenner Springs property in spring 2009. The surveys reported over eighty different animal species. The majority of these animals are birds. There were in addition 4 species of amphibians (55 species), 3 species of reptiles and 8-10 species of mammals including bats. Among the amphibians observed included the endangered California red-legged frog.

A list of observed animal species is in Appendix B, Table 2. It is likely that there are more native animals on the property as the list names only those species actually observed in field surveys; other species such as rattlesnakes are assumed to be present but were not observed and therefore not listed.

3. Goals and Policies

3.1 Goals

The “Conservation Guidelines for Open Space Lands of the City of San Luis Obispo” describes City-adopted management guidelines and policies which are outlined in the City’s “Conservation and Open Space Element”.

Management of SSNR will be undertaken by the City with the following goals:

- To conserve, enhance, and restore natural plant communities; to protect sensitive endangered plant species and their habitats; and to maintain

biodiversity of native plants and animals.

- To provide the public with a safe and pleasing natural environment in which to pursue recreational activities, while maintaining the integrity of the resources and minimizing the impacts on wildlife and habitats present in the Reserve. This can include a constructed “skills area” for bicyclists that links such activities to environmental management and appreciation in a suitable environment on the property. The eucalyptus grove has been identified as such a suitable environment.
- To preserve and restore creeks, wetlands and ephemeral seeps or springs to a natural state, and provide suitable habitat for all native aquatic and riparian species.
- To minimize the impacts of harmful activities, such as the release of pollutants, while maintaining the drainage systems as a means of conveying storm water into and within urban areas.
- To protect and preserve native plant and animal species and enhance their habitats, in order to maintain viable wildlife populations within balanced ecosystems.

3.2 Public Comment and Input

A public meeting was held on June 6, 2008 to discuss issues, thoughts and ideas for the Stenner Springs property. Some of the topics that were discussed are as follows:

- Serpentine carries the risk of asbestos. Be sure to patrol erosion areas, as these areas are subject to asbestos.
- Control cattle grazing. Fences or other means of confinement should be installed in order to prevent unacceptable damage.
- Trespassing issues. This is a serious matter as Camp San Luis Obispo uses some of the property for target practice and training. If trespassers are not kept out, this could result in a serious injury.
- “Skills area” proponents requested such an area at some point along the major trails crossing SSNR.

3.3 Resource Maps

Resource maps are included in Appendix C. These maps show where Mariposa Lilies, Cypress Trees, and other plants and animals of concern and their habitats are located.

3.4 Resource Enhancement and Mitigation

Parcel 1 of SSNR was originally purchased with funds from the City of San Luis Obispo water enterprise, with the intention of utilizing the property for mitigation of losses of native oak trees due to construction of the Nacimiento pipeline, both on and off the SSNR. For this reason, certain restorative areas are proposed within the Reserve.

Wetland enhancement, including the possible introduction of the rare Chorro Creek bog thistle is also a reasonable

objective for the site. As enhancement or mitigation funding opportunities arise, they will be pursued to further habitat improvements of this type.

4. Conservation Plan

4.1 Naming

It is recommended that the property be designated as Stenner Springs Natural Reserve because of the springs that are a hallmark of the property.

Naming of trails will continue in an informal way by trail users.

4.2 Land Designations

Three land designations are recommended for SSNR: include Habitat Area, Management/Trail Area, and Restorative Area.

4.2.1 Habitat Area

The habitat area covers approximately 295 of the 363 acres making up the Reserve, as follows; Parcel 1, 2 acres; Parcel 2, 58 acres; Parcel 3, 84 acres; Parcel 4, 150 acres.

4.2.2 Management Area/Trail Corridor

The areas of Management and Trail Corridors are as follows: Parcel 1, 44 acres, Parcel 2, 15 acres, plus those areas of identified trail in Parcel 3 and proposed in Parcel 4. This totals approximately 63-64 acres.

Figure 6

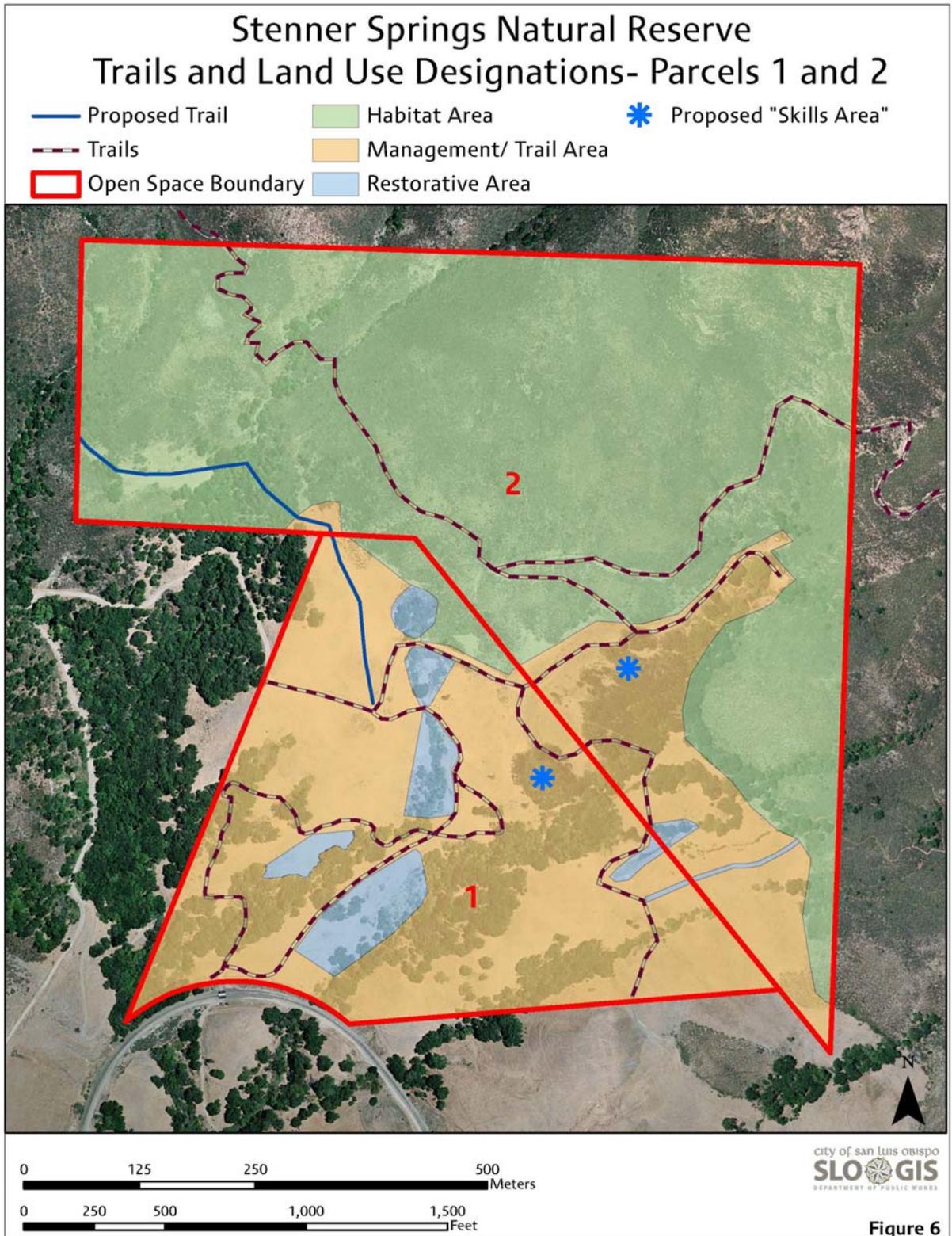


Figure 7

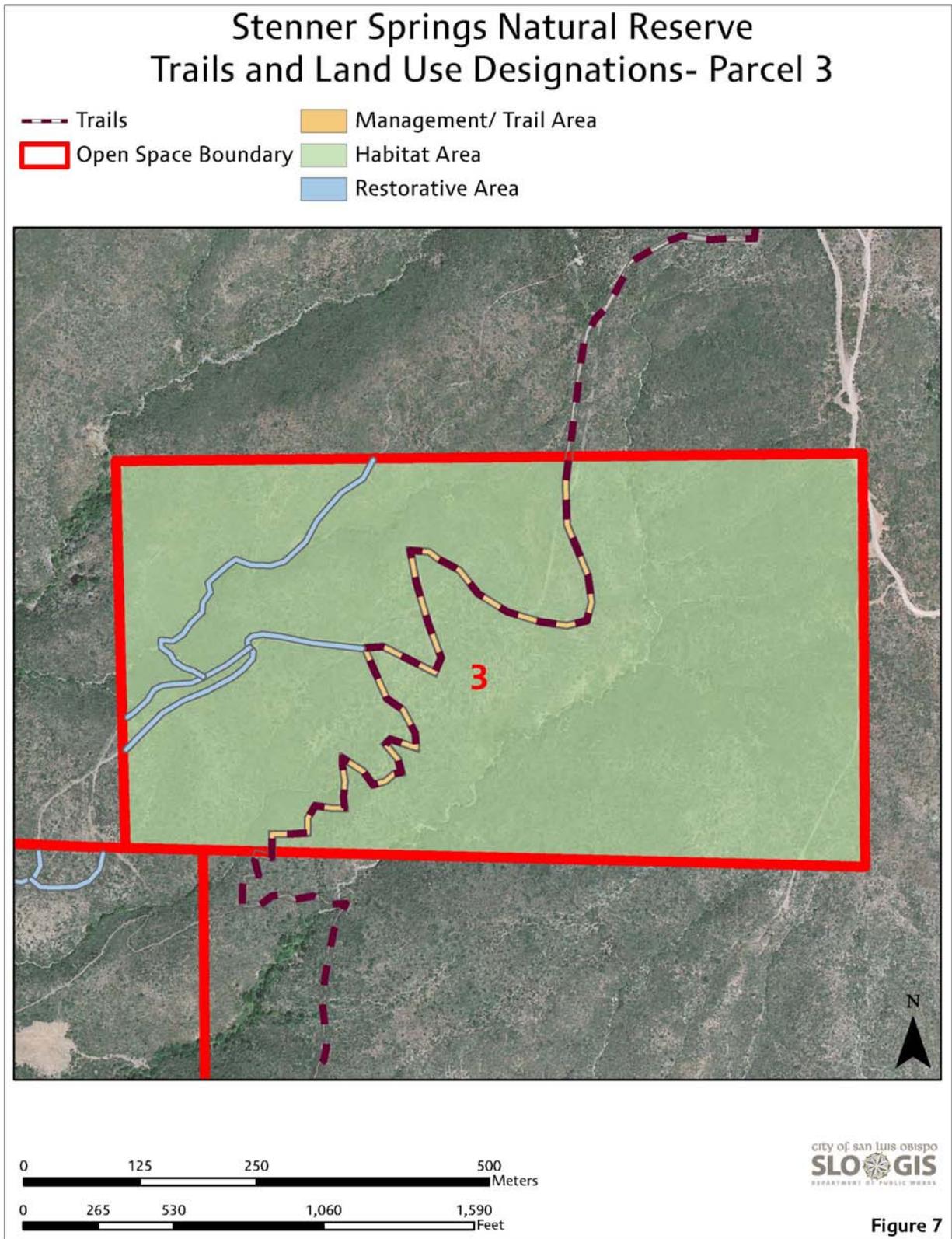
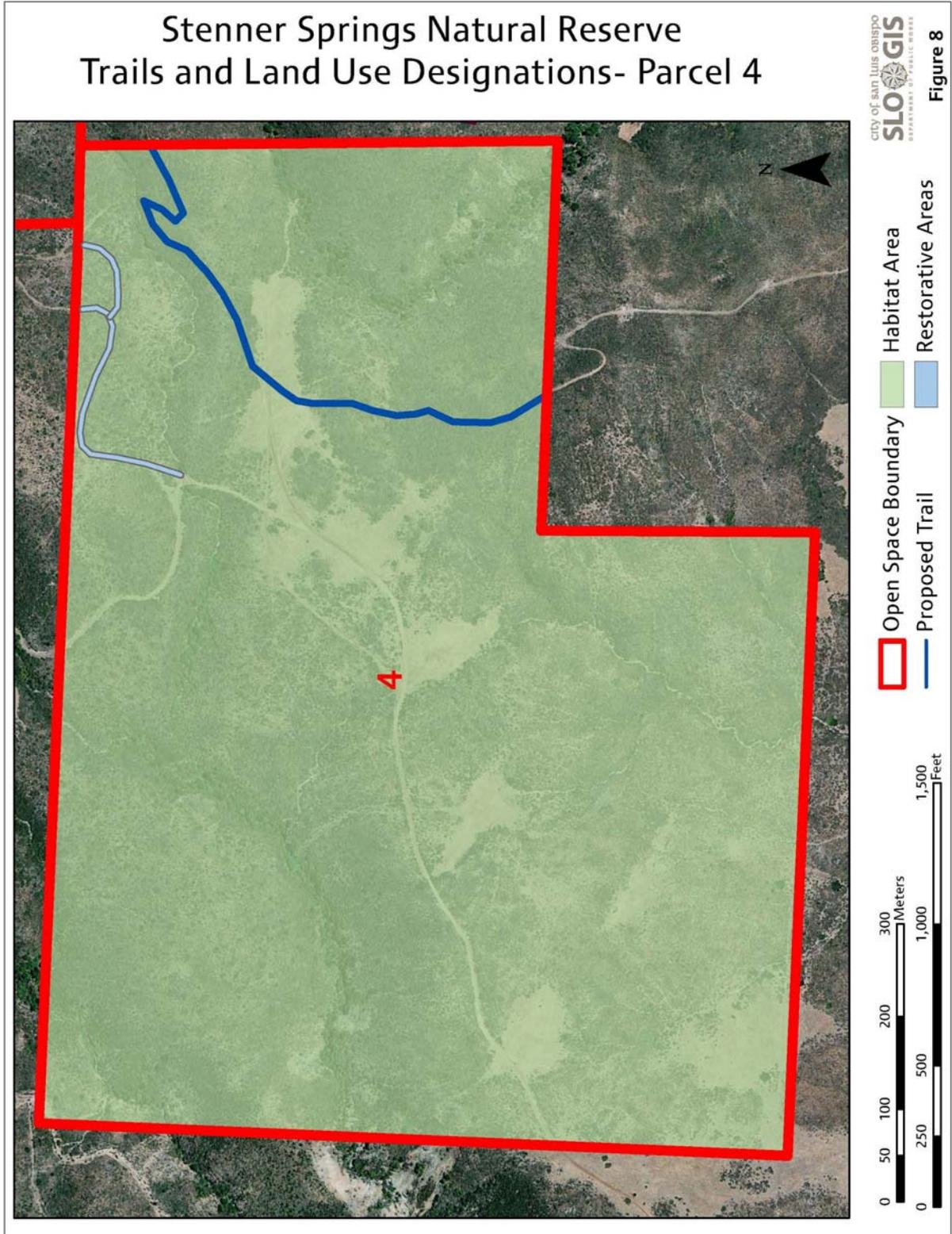


Figure 8



4.2.3 Restorative Area

For the restorative area, there are potential areas for oak woodland expansion and enhancement, wetland enhancement, and trail rehabilitation covering approximately 12 acres of the total 363 acres, nearly all of which is in Parcel 1. They are as follows:

- New oak/bay or other native tree plantings
- Protective measures for existing mature oaks or any young natural plantings
- Protective fencing around main spring for the Red-legged frogs
- Protective measures and replanting on the wetland and riparian areas downstream of the main spring
- Other potential restorative measures would include trail re-routing or closure.

The Conservation Plan Areas are depicted on Figures 6, 7, and 8

5. Implementation

The general order in which these tasks will be implemented is detailed below. Each task has been designated to staff from the City's Natural Resources Program (NR), Parks and Recreation Department (PR) or other City staff as specified.

5.1 Ongoing Tasks

General maintenance activities in accordance with the adopted policies

described in "*Conservation Guidelines for Open Space Lands of the City of San Luis Obispo*" shall be implemented on a regular or 'as needed' basis throughout the 5-7 years covered by this Conservation Plan (NR/PR).

Specific Tasks Years 1-2

- Install informational signage at entrances.
- Remove scattered Eucalyptus trees outside of the established eucalyptus grove, and thin the grove, especially where native trees such as oaks are being negatively impacted.
- Initiate oak and other native plantings at indicated restorative areas.
- Make "Elevator" trail single track.
- Control purple star thistle and yellow star thistle.
- Close or re-route the two major unnamed steep trails.
- Build a pedestrian/ bike bridge at the access road below the main spring crossing the small creek there.
- Replace the current agricultural lease with Cal Poly with a needs-driven grazing program and water use agreement.
- Seek agreement with Camp San Luis Obispo and U. S. Forest Service to allow construction of a loop trail in the eastern (upper) portion of parcel 4 to direct trail users back toward parcels 1 and 2.
- Seek a management agreement with the U. S. Forest Service to permit city construction, monitoring, and maintenance of

existing trails (Morning Glory, and Shooters) crossing forest lands.

- Seek agreement with a non-profit partner to construct and manage the mountain bike skills area to the satisfaction of the city.

Years 3-4

- Continue activities outlined above to completion.

Years 5-6

- Continue activities outlined above to completion.

5.2 Addressing the Issues

Since before the adoption of the original Conservation Guidelines in 2002, the definition of mountain biking as “passive” or “active” has been problematic for the City of San Luis Obispo. Since this issue apparently could not be decided by the community, the Guidelines permitted what might be considered active uses in Management Areas and Trails, specifically to accommodate this issue and “legalize” the extensive use of trails in City-owned open space lands by mountain bikes that was already occurring.

Adoption of the Update Conservation and Open Space Element in 2006 did not address this ongoing issue directly but simply called for “passive” recreation in City-owned open space lands. Mountain biking was not mentioned as either “active” or “passive” in the Element’s glossary. Staff has therefore assumed that mountain biking was and continues to be a sanctioned activity in those lands, and has therefore treated the use as passive by definition.

It is this reality, plus the fact that “skills areas” or “free-ride areas” (as they are also known) are associated with trail usage and are generally found along trails or physically associated with them in some way, that allows the City to determine that the establishment of such an area at Stenner Springs is consistent with the intent of the Conservation Guidelines and the updated Conservation and Open Space Element of the General Plan.

5.3 Wildfire Preparedness Plan

Since Stenner Springs is located in such a remote location, a specific Wildfire Preparedness Plan is not considered necessary; however, access for fire and safety vehicles will be maintained.

5.4 Livestock Grazing

Livestock grazing is currently permitted since SSNR is not separately fenced from the adjacent Cal Poly lands to the south. The current lease on the property, inherited by the City from Union Pacific Railroad, will be cancelled and replaced with a new agreement changing livestock grazing to an as-necessary program, and allowing the continued availability of water for use by Cal Poly’s agriculture program. This agreement will remain in effect unless cancelled or modified by the parties or by a superior agency. The City will not provide warranties in the latter regard.

6. Fiscal Statement

The fiscal impact of the adoption of the SSNR Conservation Plan is expected to be minor. It will consist of patrol and maintenance of the property at the same

level as currently exists, and the implementation of several small-scale capital improvements. The latter include:

- Mitigation measures to mitigate for impacts of the Nacimiento pipeline and other erosion problems at the site;
- Closure or re-routing of existing trails where said trails are leading to resource damage, these include the two unnamed trails on parcels 2 and 3;
- Possible construction of a new trail connection Hill 1640 on parcel 4 with "Shooter's" Trail, if permitted by Camp San Luis Obispo and the U. S. Forest Service;
- Establishment of a mountain bike skills area along the "Shooters" Trail at the Eucalyptus grove upon satisfactory creation of an entity to properly construct and manage such a feature;
- Installation of educational and directional signage to identify pedestrian and bicycle trails; and
- Fencing of certain sensitive areas as needed to control access and foster habitat restoration and enhancement in those areas.

None of these projects are considered costly. The new trail plus the related closures, would call for expenditures in the \$1,000-\$2,000 range for materials. These could be paid out of maintenance funds from the Natural Resources program. Volunteer support is expected for actual trail construction and closure.

The restoration projects may be funded internally or may utilize grant fund or mitigation sources.

The cost of the developing mountain bike skills area is unknown but is expected to be raised through grants and donations; furthermore the site will be managed by an independent group recognized by the City.

It is expected that the level of staffing for the Reserve will not change.

7. Monitoring

A series of twelve photo-points have been established at SSNR which include areas of exotic species, grasslands, restoration sites, major trails and existing erosion features. The sites will be visited at least biannually and photographs taken from the same perspective. This will give a temporal record of the status of the resources present at SSNR over time. Should examination of subsequent photographs suggest that the status of the resource is being negatively impacted (i.e. exceeding limits of acceptable change) by visitor activity or management decisions, permitted uses and management strategy will be re-evaluated.

Aerial photos showing the location of the monitoring points and the views from them are shown in Appendix D.

Appendix A
Soils Map and
Description of Soil Types

Soils Map (from Soil Survey of San Luis Obispo County, Coastal Part, 1984)



Soil Types (from Soil Survey of San Luis Obispo County, Coastal Part, 1984)

144—Gazos-Lodo clay loams, 30 to 50 percent slopes. These steep soils are on foothills and mountains. Areas are irregular in shape and range from 50 to 300 acres. The natural vegetation is mainly annual grasses and forbs or brush with scattered hardwoods. Elevation ranges from 300 to 2,000 feet. The average annual precipitation ranges from 15 to 28 inches, and the average annual air temperature is about 58 degrees F. The frost-free season ranges from 250 to 350 days, depending on location.

This complex is about 45 percent Gazos soil and 40 percent Lodo soil. Lodo soil differs from Gazos soil by being shallow and somewhat excessively drained.

Included in this complex are a few small areas of Diablo and Cibo clays, Los Osos loam, and soils similar to Gazos soil that are deep. Also included are areas of Lompico and McMullin loams. Included areas make up about 15 percent of the total acreage. At the San Luis Obispo-Monterey county line, this complex matches with the Monterey survey's Millsholm-Gazos complex. The Millsholm soil differs from Lodo soil by having lighter colors. Millsholm soil is not extensive enough to be included as a named soil in this survey.

The Gazos soil is moderately deep and well drained. It formed in residual material weathered from sandstone or shale. Typically, the surface layer is brown clay loam about 11 inches thick. The underlying material is grayish brown and brown clay loam 19 inches thick. Hard, fractured sandstone is at a depth of about 30 inches.

Permeability of the Gazos soil is moderately slow, and the available water capacity is low or moderate. Surface runoff is rapid, and the hazard of water erosion is high. The effective rooting depth ranges from 22 to 38 inches.

The Lodo soil is shallow and somewhat excessively drained. It formed in residual material weathered from red rock, sandstone, or shale. Typically, the surface layer is dark brown clay loam about 12 inches thick. This is underlain directly by hard, fractured sandstone.

Permeability of the Lodo soil is moderate, and the available water capacity is very low or low. Surface runoff is rapid, and the hazard of water erosion is high. The effective rooting depth ranges from 6 to 20 inches.

Most areas of these soils are used as rangeland.

These soils are moderately suited to rangeland. The clay loam surface layer is subject to sheet and gully erosion and soil compaction. These problems can be reduced if the grazing is restricted when the surface is wet or moist and by allowing greater amounts of plant residue to remain on the surface. Because it is shallower, the Lodo soil has less available water capacity and less average plant production. The Lodo soil is often overgrazed while the Gazos soil is still underutilized. Proper placement of livestock watering facilities and salt promotes good distribution of grazing. The major forage plants are annuals, including burclover. Purple needlegrass and, in the drier areas, foothill needlegrass are locally abundant perennial forage grasses. Because of the shallowness of the Lodo soil, plants mature earlier and become dry and flammable.

Dense stands of chamise often dominate both soils, indicating a history of fire. Undesirable plants, which indicate soil disturbance, are black sage, California sagebrush, and tarweed. Stock trails through dense stands of brush can improve grazing distribution by providing better access to forage.

In a few areas, these soils are used for rural homesite development. However, because of the steep slopes, low strength, moderately slow and slow permeability, and depth to rock, urban development and most other engineering practices require special design considerations. The cuts needed to provide relatively level building sites can expose bedrock. Septic tank absorption fields do not function properly on these soils. Septic tank absorption lines should be installed on the contour. The use of sandy backfill for the trench and long absorption lines helps to compensate for the moderately slow and slow permeability and the depth to rock. An alternative method of waste disposal would be connecting to a community disposal system. Road design should include measures to decrease water erosion, such as minimum grading, installing runoff and sediment control structures, and establishing a permanent plant cover on the side slopes.

The Gazos and Lodo soils in this complex are in capability subclass V1e (15), nonirrigated.

146—Henneke-Rock outcrop complex, 15 to 75 percent slopes. This moderately steep to very steep soil is on foothills and mountains (see fig. 10). Areas are irregular in shape and range from 15 to 1,200 acres. The natural vegetation is mainly brush, annual grasses, and perennial grasses with a few scattered hardwoods or conifers (see fig. 11). Elevation ranges from 1,000 to 3,000 feet. The average annual precipitation ranges from 18 to 35 inches, and the average annual air temperature is about 58 degrees F. The frost-free season ranges from 200 to 250 days, depending on location.

This complex is about 45 percent Henneke soil and 35 percent Rock outcrop.

Included in this complex are a few small areas of Obispo clay and a deep soil similar to Henneke soil. Included areas make up about 20 percent of the total acreage.

The Henneke soil is shallow and somewhat excessively drained. It formed in residual material weathered from serpentine. Typically, the surface layer is reddish brown very cobbly clay loam about 8 inches thick. The subsoil is dark reddish brown very cobbly clay about 11 inches thick. This is underlain by hard serpentine rock at a depth of about 19 inches (fig. 13).

Permeability of this Henneke soil is moderately slow, and the available water capacity is very low. Surface runoff is rapid or very rapid, and the hazard of water erosion is high or very high. The effective rooting depth ranges from 10 to 20 inches.

The Rock outcrop is hard serpentine that is exposed or near the soil surface.

Most areas of this complex are used as rangeland, watershed, and wildlife habitat.

This complex is poorly suited to rangeland. Because of the clay loam surface layer and steep to very steep slopes, the soil is subject to sheet erosion. The exposed cobbles and Rock outcrop hinder livestock movement and increase the hazard of soil erosion. The rocks prevent water infiltration, increasing the amount of surface runoff. Natural terrain barriers should be utilized as management area boundaries. The serpentine parent material causes a calcium-magnesium imbalance, which prevents the normal growth of many plants. The forage produced on this soil is often of low palatability. The major forage plants are perennial grasses, including squirreltail and purple needlegrass. Shrubs, such as leather oak and manzanita, and forage, such as mast and berries, provide wildlife cover and forage. Wildfire is a hazard because the shrubs are often in dense stands. Properly engineered access roads and fuel breaks can improve livestock distribution, reducing the hazards of soil erosion and wildfire. Undesirable plants include locoweed and tocalote.

Most engineering practices require special design considerations because of slope, depth to rock, and large stones. Septic tank absorption fields should be installed on the contour. Increasing the size of the absorption field helps to compensate for the shallow depth and large stones. The placement of absorption fields may not be possible because of the high cobble content. Excavations for foundations and roads can be protected from erosion by minimum grading, using runoff

and sediment control structures, and establishing a permanent plant cover on side slopes. The base material may also need to be replaced with a more suitable material.

This complex is in capability subclass VIIe (15), nonirrigated.

147—Lodo clay loam, 5 to 15 percent slopes. This shallow, somewhat excessively drained, moderately sloping and strongly sloping soil is on foothills and mountains. It formed in residual material weathered from red rock, shale, or sandstone. Areas are irregular in shape and range from 5 to 150 acres. The natural vegetation is mainly brush, annual grasses, and forbs. Elevation ranges from 300 to 3,000 feet. The average annual precipitation ranges from 15 to 35 inches, and the average annual air temperature is about 59 degrees F. The average frost-free season ranges from 250 to 365 days, depending on location.

Typically, the surface layer is dark brown clay loam about 12 inches thick. It is underlain directly by fractured, hard sandstone. In places, this soil has a sandy loam or loam surface layer and contains as much as 35 percent gravel.

Included in this map unit are a few small areas of Cibo clay, Diablo clay, Gazos clay loam, and Los Osos loam.

Permeability of this Lodo soil is moderate, and the available water capacity is very low or low. Surface runoff is medium, and the hazard of water erosion is moderate. The effective rooting depth ranges from 6 to 20 inches.

Most areas of this soil are used as rangeland. Some areas are used for urban development.

This soil is moderately suited to rangeland. The clay loam surface layer is subject to gully erosion and soil compaction. These problems can be reduced by grazing when the surface layer is moderately dry and by maintaining adequate plant residue on the soil surface. The major forage plants are annuals, including burclover. Purple needlegrass, a perennial forage grass, is locally abundant. Because the soil is shallow and frequently overgrazed, such shrubs as California sagebrush and coyotebush become established. Undesirable plants, which indicate soil disturbance, are black sage, tocalote, and tarweed. Livestock grazing should be managed so that the desired balance of plant species is maintained.

Some areas are becoming increasingly important for homesite development. Special design considerations may be required, however, for foundations and footings because of the shallow depth to rock. Septic tank absorption fields do not function properly on this soil. Septic tank absorption lines should be placed on the contour. Using sandy backfill for the trench and long absorption lines helps to compensate for the depth to rock. An alternative method of disposal should be selected. If areas are to be landscaped, topsoil may need to be imported. Excavation for local road and street construction is difficult because of the hard, fractured underlying rock. Erosion can be minimized if minimum grading and runoff and sediment control structures are used and a permanent plant cover is established on side slopes.

This Lodo soil is in capability unit IVe-1 (15), nonirrigated.

150—Lodo clay loam, 50 to 75 percent slopes. This shallow, somewhat excessively drained, very steep soil is on foothills and mountains. It formed in residual material weathered from red rock, shale, or sandstone. Areas are irregular in shape and range from 5 to 150 acres. The natural vegetation is mainly brush with a few areas of annual grasses and forbs. Elevation ranges from 300 to 3,000 feet. The average annual precipitation ranges from 15 to 35 inches, and the average annual air temperature is about 59 degrees F. The average frost-free season ranges from 250 to 365 days, depending on location.

Typically, the surface layer is dark brown clay loam about 12 inches thick. This is underlain directly by fractured, hard sandstone. Some small areas of this soil have a sandy loam or loam surface layer and contain as much as 35 percent gravel.

Included in this map unit are a few small areas of Cibo clay, Diablo clay, Gazos clay loam, and Los Osos loam.

Permeability of this Lodo soil is moderate, and the available water capacity is very low or low. Surface runoff is very rapid, and the hazard of water erosion is very high. The effective rooting depth ranges from 6 to 20 inches.

Most areas of this soil are used as rangeland.

This soil is poorly suited to rangeland. Because of the clay loam surface layer and steep slopes, this soil is subject to sheet and gully erosion and soil compaction. These problems can be reduced by grazing when the surface layer is moderately dry and by allowing greater amounts of plant residue to remain. Uniform utilization is difficult because of the very steep slopes. Properly engineered access roads and proper placement of livestock watering facilities and salt promote good distribution of grazing. The major forage plants are annuals. Purple needlegrass and, in the drier areas, foothill needlegrass are locally abundant perennial forage grasses. Because the soil is shallow, plants mature early and become dry and flammable. Dense stands of chamise often dominate this soil following fire. Undesirable plants, which indicate soil disturbance, are black sage, California sagebrush, and tarweed. Livestock grazing should be managed so that the desired balance of plant species is maintained.

Most engineering practices require special design considerations because of the steep slopes and shallow depth to rock. Road construction and other excavations should include runoff and sediment control structures and minimum grading. A more suitable base material may need to be brought in from an outside source. Because of the high erosion hazard, a permanent plant cover should be maintained at all times.

This Lodo soil is in capability subclass VIIe (15), nonirrigated.

165—Los Osos-Diablo complex, 30 to 50 percent slopes. These steep soils are on foothills and mountains. Areas are irregular in shape and range from 10 to 400 acres. The natural vegetation is mainly annual grasses and forbs with a few areas of brush and hardwoods along drainageways. Elevation ranges from 200 to 3,000 feet. The average annual precipitation ranges from 15 to 28 inches, and the average annual air temperature is about 59 degrees F. The frost-free season ranges from 275 to 350 days, depending on location.

This complex is about 40 percent Los Osos soil and 35 percent Diablo soil. Diablo soil differs from Los Osos soil by being deep and by having a clay texture throughout.

Included in this complex are small areas of Cibo clay, Gaviota sandy loam, Gazos clay loam, Obispo clay, Rock outcrop, and a soil that is similar to Los Osos soil but is deep or is underlain by harder rock. Also included are small areas of Lompico and McMullin loams in areas that have a dense hardwood canopy. Included areas make up about 25 percent of the total acreage.

The Los Osos soil is moderately deep and well drained. It formed in residual material weathered from sandstone or shale. Typically, the surface layer is brown loam about 14 inches thick. The subsoil is yellowish brown clay and light yellowish brown clay loam to a depth of about 32 inches. The underlying material is pale yellow sandy loam to a depth of 39 inches. This lies directly over weathered, fractured sandstone. Some areas have a clay loam surface layer.

Permeability of the Los Osos soil is slow, and the available water capacity is low or moderate. Surface runoff is rapid, and the hazard of water erosion is high. The effective rooting depth ranges from 20 to 40 inches. This soil has high shrink-swell potential in the subsoil and is subject to slippage when wet.

The Diablo soil is deep and well drained. It formed in residual material weathered from sandstone, shale, or mudstone. Typically, the surface layer is very dark gray clay about 38 inches thick. The underlying material to a depth of about 58 inches is olive gray clay. This is underlain by weathered mudstone. The profile is neutral in the surface layer and becomes moderately alkaline and calcareous as depth increases. Some areas have a clay loam or silty clay surface layer.

Permeability of the Diablo soil is slow, and the available water capacity is moderate to very high. Surface runoff is rapid, and the hazard of water erosion is high. The effective rooting depth ranges from 45 to 58 inches. This soil has high shrink-swell potential and is subject to slippage when wet.

Most areas of these soils are used as rangeland.

These soils are moderately suited to rangeland. The steep slopes, clay subsoil, and loam surface layer of the Los Osos soil increase the hazard of gully erosion. Erosion can be controlled by maintaining adequate plant residue on the soil surface. The clay surface layer of the Diablo soil is subject to compaction. This problem can be reduced by grazing when the surface layer is moderately dry. Proper grazing use and the use of properly engineered access roads and fuel breaks improve livestock distribution, reducing the hazards of soil erosion and wildfire. These soils have a rather long, slow growing forage season. The soils are typically under annual grasses, although Los Osos soil supports groves of live oak with such understory plants as bush monkeyflower, blue elderberry, and California peony. Major forage plants on both soils include burclover and other annual legumes, with purple needlegrass producing over 50 percent of the dry weight forage in many areas. Undesirable plants include coyotebush, black sage, and cheeseweed. Near the coast, milkthistle, poison-hemlock, and mustard are undesirable and increase following soil disturbance, especially on the Diablo soil. If the range is overgrazed, the proportion of preferred forage plants decreases and the proportion of less preferred plants increases. Livestock grazing should be managed so that the desired balance of plant species is maintained.

Urban development and most other engineering practices require special design considerations because of the erosion hazard, steep slopes, and the high shrink-swell potential, low strength, and slow permeability of the Diablo soil and the Los Osos subsoil. Foundation and footing designs need to compensate for the high shrink-swell potential and low strength caused by the high clay content of these soils. Subgrade material sometimes needs to be removed and replaced with a more suitable material, or a high degree of compaction and moisture control needs to be maintained during construction. Septic tank absorption fields do not function properly because of the slow permeability and slope. Septic tank absorption field trench lines should be placed on the contour. Increasing the length of the lines helps to compensate for the slow permeability. The high erosion hazard can be reduced by minimum grading, installing runoff and sediment control structures, and establishing a permanent plant cover on side slopes.

The Los Osos and Diablo soils in this complex are in capability subclass VIe (15), nonirrigated.

Appendix B

**Lists of Plant and Animal Species
Identified Within SSNR**

Table 1

Plant Species

Scientific Name	Common Name	Grassland	Oak/Riparian Woodland	Serpentine Outcrop	Scrub/Chaparral	Seep Areas	Eucalyptus Woodland
<i>Trees</i>							
<i>Cupressus macrocarpa</i>	Monterey cypress		O ²				
<i>Cupressus sargentii</i>	Sargent cypress				C ³		
<i>Eucalyptus globulus</i>	Blue gum	U ¹	U ¹ , U ²		O ¹ , O ² , U ³ , U ⁴		D ² U ²
<i>Heteromeles arbutifolia</i>	Toyon		C ¹ , C ²		U ¹ , C ³ , C ⁴		
<i>Pinus sabiniana</i>	Foothill pine	O ¹					
<i>Platanus racemosa</i>	Sycamore		U ²				
<i>Populus fremontii</i>	Fremont cottonwood		R ²				
<i>Quercus agrifolia</i>	Coast live oak		D ¹ , D ²		U ¹ , C ²		
<i>Salix lasiolepis</i>	Arroyo willow		U ¹			C ¹	
<i>Umbellularia californica</i>	California bay-laurel		C ¹ , C ²		R ² , R ³ , R ⁴		U ²
<i>Shrubs</i>							
<i>Adenostoma fasciculatum</i>	Chamise	U ²			D ¹ , C ² , C ⁴ , U ³		
<i>Arctostaphylos obispoensis</i> *	Bishop manzanita			C ¹	D ³ , D ⁴ , C ¹ , C ²		
<i>Artemisia californica</i>	California sagebrush			U ¹	C ¹		
<i>Baccharis pilularis</i>	Coyote bush	C ¹ , U ⁴			C ¹ , C ³		
<i>Ceanothus cuneatus</i>	Buckbrush	O ² , U ⁴	O ²		D ¹ , D ² , D ³ , D ⁴		
<i>Ceanothus foliosus</i>	Wavy leaved ceanothus				D ³ , D ⁴		
<i>Cercocarpus betuloides</i>	Mountain mahogany		O ²		C ²		
<i>Clematis lasiantha</i>	Pipestem		R ¹		O ²		
<i>Dendromecon rigida</i>	Bush poppy				C ³ , C ⁴ , U ²		
<i>Ericameria arborescens</i>	Golden fleece				U ³ , U ⁴ , R ²		
<i>Eriogonum elongatum</i>	Tall buckwheat	O ¹ , O ²		C ¹ , O ²	C ¹		
<i>Eriogonum fasciculatum</i>	California buckwheat			C ¹	C ¹ , U ²		
<i>Eriophyllum confertiflorum</i>	Golden-yarrow	O ¹ , O ²			O ¹ , O ² , O ³ , O ⁴		U ²
<i>Garrya congdonii</i>	Interior silk tassel bush				O ⁴ , R ³		
<i>Hazardia squarrosa</i>	Saw-toothed goldenbush	O ³ , U ¹			C ¹		
<i>Hesperoyucca whipplei</i>	Yucca	O ¹ , O ²		D ¹ , D ²	C ¹ , C ² , U ⁴		
<i>Lotus scoparius</i>	Deerweed			C ¹	C ¹ , C ² , C ³ , C ⁴		
<i>Malacothamnus palmeri</i> *	Palmer's bush mallow				R ² , O ⁴		
<i>Mimulus aurantiacus</i>	Sticky monkeyflower	U ²	R ¹	C ¹	C ¹ , C ² , C ⁴		U ²
<i>Pickeringia montana</i>	Chaparral pea				C ²		

<i>Carduus pycnocephalus+</i>	Italian thistle	C ¹ , C ²	C ¹			
<i>Carex obispoensis*</i>	San Luis Obispo sedge	C ⁴			C ³ , O ⁴	C ⁴
<i>Carex spissa</i>	San Diego sedge		R ¹			D ¹
<i>Centaurea calycitrapa+</i>	Purple star thistle	C ¹	C ¹			
<i>Centaurea melitensis+</i>	Tocolote	O ¹				
<i>Chlorogalum pomeridianum ssp. pomeridianum</i>	Soap plant	C ¹			C ³ , C ⁴	
<i>Chorizanthe breweri*</i>	Brewer's spineflower			C ²		
<i>Chorizanthe palmeri*</i>	Palmer's spineflower	U ⁴		C ¹ , C ²		
<i>Cirsium occidentale</i> var. <i>lucianum</i>	Cobweb thistle	R ¹				
<i>Claytonia perfoliata</i>	Miner's lettuce		C ¹			
<i>Croton setigerus</i>	Dove weed	O ¹				
<i>Cryptantha</i> sp.	Cryptantha			C ¹	U ¹	
<i>Cyperus eragrostis</i>	Umbrella sedge					D ¹ , C ²
<i>Dichelostemma capitatum</i>	Blue dicks	C ¹	U ¹		C ¹	
<i>Dodecatheon clevelandii</i>	Shooting star	C ¹				
<i>Dryopteris arguta</i>	Wood fern		U ¹			
<i>Dudleya abramsii</i> ssp. <i>murina*</i>	San Luis Obispo dudleya			U ¹ , C ²	C ¹	
<i>Dudleya lanceolata</i>	Lanceleaf liveforever				O ²	
<i>Equisetum telmateia</i>	Giant horsetail		U ¹			
<i>Erodium botrys+</i>	Storkbill filaree	D ¹ , C ²	C ¹			
<i>Eschscholzia californica</i>	California poppy	C ¹ , C ²		D ¹ , C ²	O ¹ , O ²	
<i>Fritillaria biflora</i>	Chocolate bells	U ² , R ⁴		R ²		
<i>Galium andrewsii</i>	Prickly bedstraw				O ¹ , O ² , O ³ , O ⁴	C ¹ , C ²
<i>Galium aparine</i>	Common bedstraw		C ¹			
<i>Gnaphalium californicum</i>	Everlasting	O ¹ , R ⁴				
<i>Grindelia hirsutula</i>	Gum plant	C ¹				
<i>Helenium puberulum</i>	Sneezeweed					O ¹
<i>Hemizonia congesta</i> ssp. <i>luzuiifolia</i>	Hayfield tarweed	O ¹ , C ⁴		O ¹		
<i>Hordeum murinum+</i>	Foxtail barley	C ¹ , C ²				
<i>Juncus bufonius</i>	Toad rush					C ¹
<i>Juncus patens</i>	Spreading rush		U ¹			D ¹
<i>Juncus xiphioides</i>	Iris leaved rush					D ¹
<i>Keckelia cordifolia</i>	Climbing penstemon				U ¹	U ²

<i>Lasthenia gracilis</i>	Common goldfields	C ¹ , C ²				
<i>Leymus condensatus</i>	Giant wild-rye				O ⁴	
<i>Lolium multiflorum</i> +	Ryegrass	O ¹ , O ² , C ⁴				C ¹
<i>Lomatium dasycarpum</i>	Woolly fruited lomatium	O ¹ , U ⁴		U ¹	U ² , U ⁴	
<i>Lomatium parvifolium</i>	Small-leaved lomatium		C ¹		U ¹	
<i>Lupinus albinus</i>	Silver bush lupine			C ¹	C ¹	
<i>Lupinus succulentus</i>	Succulent lupine	C ¹				
<i>Marah fabaceus</i>	Wild cucumber vine					U ²
<i>Medicago polymorpha</i> +	Bur-clover	U ¹				
<i>Melica imperfecta</i>	Melic grass	O ¹			O ¹ , O ²	
<i>Melilotus indica</i>	Yellow sweet clover	C ¹				
<i>Mimulus guttatus</i>	Seep monkeyflower	C ¹				D ¹ , D ²
<i>Nassella lepida</i>	Slender needlegrass	C ⁴				
<i>Nassella pulchra</i>	Purple needlegrass	C ¹ , C ⁴				
<i>Paeonia californica</i>	California peony	R ³	O ²			
<i>Pellaea andromedifolia</i>	Coffee fern		R ²			
<i>Phacelia imbricata</i>	Phacelia	O ¹				
<i>Phacelia sp.</i>	Phacelia	C ¹		C ¹	C ¹	
<i>Plagiobothrys nothofulvus</i>	Popcorn flower			C ¹		
<i>Plantago erecta</i>	Plantain	O ¹ , O ² , O ⁴				C ¹ , C ²
<i>Plantago major</i> +	Common plantain					C ²
<i>Pogogyne douglasii</i>	Douglas' mesamint	O ³				
<i>Polygogon monspeliensis</i> +	Rabbitfoot grass	C ¹				C ¹ , C ²
<i>Pteridium aquilinum</i>	Bracken fern		U ¹			
<i>Ranunculus californicus</i>	Buttercup	C ¹ , C ² , C ⁴		C ¹		
<i>Nasturtium officinale</i>	Watercress					D ²
<i>Rumex crispus</i> +	Curly dock	U ¹				
<i>Salvia columbariae</i>	Chia			C ¹ , C ²	C ¹ , C ²	
<i>Sanicula hoffmani</i> *	Hoffman's sanicle					
<i>Scirpus microcarpus</i>	Panicled bulrush					O ¹
<i>Sidalcea malviflora</i>	Checker mallow	U ⁴				
<i>Silybum marianum</i> +	Milkthistle	C ¹ , C ²				
<i>Sisyrinchium bellum</i>	Blue-eyed grass	C ¹ , C ² , C ³			U ³ , U ⁴	
<i>Sonchus asper</i> +	Prickly sow thistle			C ¹		
<i>Sonchus oleraceus</i> +	Common sow thistle	O ³		O ¹		
<i>Stachys bullata</i>	Hedge-nettle	O ³	C ¹ , C ²		U ³ , U ⁴	C ¹ , C ² C ⁴ , O ³
<i>Stephanomeria cichoriacea</i>	Silver rocklettuce				U ²	

<i>Torilis arvensis</i> +	Hedge-parsley	O ¹	C ¹			
<i>Trifolium hirtum</i> +	Rose clover	C ¹			O ²	
<i>Verbena lasiostachys</i>	Vervain					O ¹ , O ²
<i>Vicia gigantea</i>	Giant vetch		U ¹			
<i>Vicia sativa</i> +	Vetch		C ¹			
<i>Vicia villosa</i> +	Vetch		C ¹			
<i>Viola pedunculata</i>	Johnny jump-ups	U ¹ , U ²				
<i>Vulpia microstachys</i>	Annual fescue	C ¹				
<i>Zigadenus fremontii</i>	Fremont's death camas	O ¹ , O ² , U ⁴	U ¹			

* Special status plant species
 + Invasive introduced species

Legend for relative abundance within community:

- D- Dominant
- C- Common
- O- Occasional
- U- Uncommon
- R- Rare
- 1,2,3,4 Superscripts refer to parcel #

Table 2

Amphibians

Scientific Name Common Name	Grassland	Oak/Riparian Woodland	Chaparral and Scrub	Eucalyptus Woodland
<i>Batrachoseps nigriventris</i> Black-bellied slender salamander		√		
<i>Pseudacris regilla</i> Pacific chorus frog		√		√
<i>Rana aurora draytonii</i> California red-legged frog		√		
<i>Taricha torosa torosa</i> Coast range newt		√		

Table 3

Reptiles

Scientific Name Common Name	Grassland	Oak/Riparian Woodland	Chaparral and Scrub	Eucalyptus Woodland
<i>Cnemidophorus tigris</i> Western whiptail lizard			√	
<i>Elgaria multicarinatus</i> Southern alligator lizard	√	√		√
<i>Plestiodon skiltonianus</i> Western skink	√			
<i>Pituophis melanoleucus</i> Gopher snake	√			
<i>Sceloporus occidentalis</i> Western fence lizard	√	√	√	√

Table 4**Birds**

Scientific Name Common Name	Grassland	Oak/Riparian Woodland	Chaparral and Scrub	Eucalyptus Woodland
<i>Aeronautes saxatalis</i> White-throated swift			√	
<i>Aimophila ruficeps ruficeps</i> Rufous-crowned sparrow			√	
<i>Amphispiza belli</i> Bell's sage sparrow			√	
<i>Aphelocoma californica</i> Western scrub-jay	√	√	√	√
<i>Archilochus alexandri</i> Black-chinned hummingbird			√	
<i>Baeolophus inornatus</i> Oak titmouse		√	√	
<i>Bombycilla cedrorum</i> Cedar waxwing		√		
<i>Buteo jamaicensis</i> Red-tailed hawk	√	√	√	√
<i>Callipepla californica</i> California quail		√	√	
<i>Calypte anna</i> Anna's hummingbird			√	√
<i>Calypte costae</i> Costa's hummingbird			√	
<i>Carduelis tristis</i> American goldfinch			√	
<i>Cathartes aura</i> Turkey vulture	√		√	
<i>Certhia Americana</i> Brown creeper		√		√
<i>Chamaea fasciata</i> Wrentit			√	
<i>Chondestes grammacus</i> Lark sparrow	√	√	√	√
<i>Colaptes auratus</i> Northern flicker		√	√	
<i>Columba fasciata</i> Band-tailed pigeon		√		√
<i>Contopus borealis</i> Olive-sided flycatcher		√	√	√
<i>Corvus brachyrhynchos</i> American crow	√	√	√	
<i>Cyanocitta stelleri</i> Steller's jay		√	√	√
<i>Cypseloides niger</i> Black swift			√	
<i>Dendroica coronate</i> Yellow-rumped warbler		√		
<i>Dendroica nigrecens</i> Black-throated gray warbler		√		
<i>Dendroica petechia</i> Yellow warbler		√		

<i>Dendroica townsendi</i> Townsend's warbler		√		
<i>Falco sparverius</i> American kestrel	√		√	
<i>Haliaeetus leucocephalus</i> Bald eagle			√	
<i>Hirundo pyrrhonta</i> Cliff swallow	√		√	
<i>Hirundo rustica</i> Barn swallow	√		√	
<i>Icterus bullockii</i> Bullock's oriole				√
<i>Junco hyemalis</i> Dark-eyed junco		√	√	√
<i>Meleagris gallopavo</i> Wild turkey	√	√		
<i>Melanerpes formicivorus</i> Acorn woodpecker		√		√
<i>Mimus polyglottis</i> Northern mockingbird		√	√	
<i>Myiarchus cinerascens</i> Ash-throated flycatcher				√
<i>Oreortyx pictus</i> Mountain quail			√	
<i>Parus rufescens</i> Chestnut-backed chickadee		√		
<i>Passerella iliaca</i> Fox sparrow			√	
<i>Picoides nuttallii</i> Nuttall's woodpecker		√		√
<i>Picoides villosus</i> Hairy woodpecker		√		
<i>Pipilo crissalis</i> California towhee		√	√	
<i>Pipilo erythrophthalmus</i> Spotted towhee		√	√	
<i>Polioptila caerulea</i> Blue-gray gnatcatcher			√	
<i>Psaltriparus minimus</i> Bushtit		√		
<i>Regulus calendula</i> Ruby-crowned kinglet		√		
<i>Sayornis nigricans</i> Black phoebe	√			
<i>Sayornis saya</i> Say's phoebe	√		√	
<i>Selasphorus sasin</i> Allen's hummingbird			√	√
<i>Sialia Mexicana</i> Western bluebird	√		√	
<i>Sitta carolinensis</i> White-breasted nuthatch		√		√
<i>Spizella atrogularis</i> Black-chinned sparrow			√	

<i>Spizella passerine</i> Chipping sparrow	√		√	
<i>Sturnella neglecta</i> Western meadowlark	√			
<i>Sturnus vulgaris</i> European starling				√
<i>Thryomanes bewickii</i> Bewick's wren		√	√	
<i>Toxostoma redivivum</i> California thrasher			√	
<i>Troglodytes aedon</i> House wren		√		√
<i>Turdus migratorius</i> American robin		√		
<i>Tyrannus verticalis</i> Western kingbird		√	√	
<i>Vermivora celata</i> Orange-crowned warbler		√		
<i>Vireo huttoni</i> Hutton's vireo		√		√
<i>Zenaida macroura</i> Mourning dove	√		√	
<i>Zonotrichia atricapilla</i> Golden-crowned sparrow	√		√	
<i>Zonotrichia leucophrys</i> White-crowned sparrow	√		√	

Table 5**Mammals**

Scientific Name Common Name	Grassland	Oak/Riparian Woodland	Chaparral and Scrub	Eucalyptus Woodland
<i>Canis latrans</i> Coyote	√		√	
Order Chiroptera Bat	√		√	
<i>Felis rufus</i> Bobcat			√	
<i>Peromyscus maniculatus</i> Deer mouse		√		
<i>Mus musculus</i> House mouse	√			
<i>Neotoma spp.</i> Unidentified woodrat		√	√	√
<i>Odocoileus herionus</i> Mule deer	√	√	√	
<i>Sciurus griseus</i> Western gray squirrel		√		√
<i>Spermophilus beecheyi</i> California ground squirrel	√	√		
<i>Sylvilagus bachmani</i> Brush rabbit			√	
<i>Thomomys bottae</i> Botta's pocket gopher	√		√	
<i>Urocyon cinereoargenteus</i> Gray fox		√	√	

Table 6

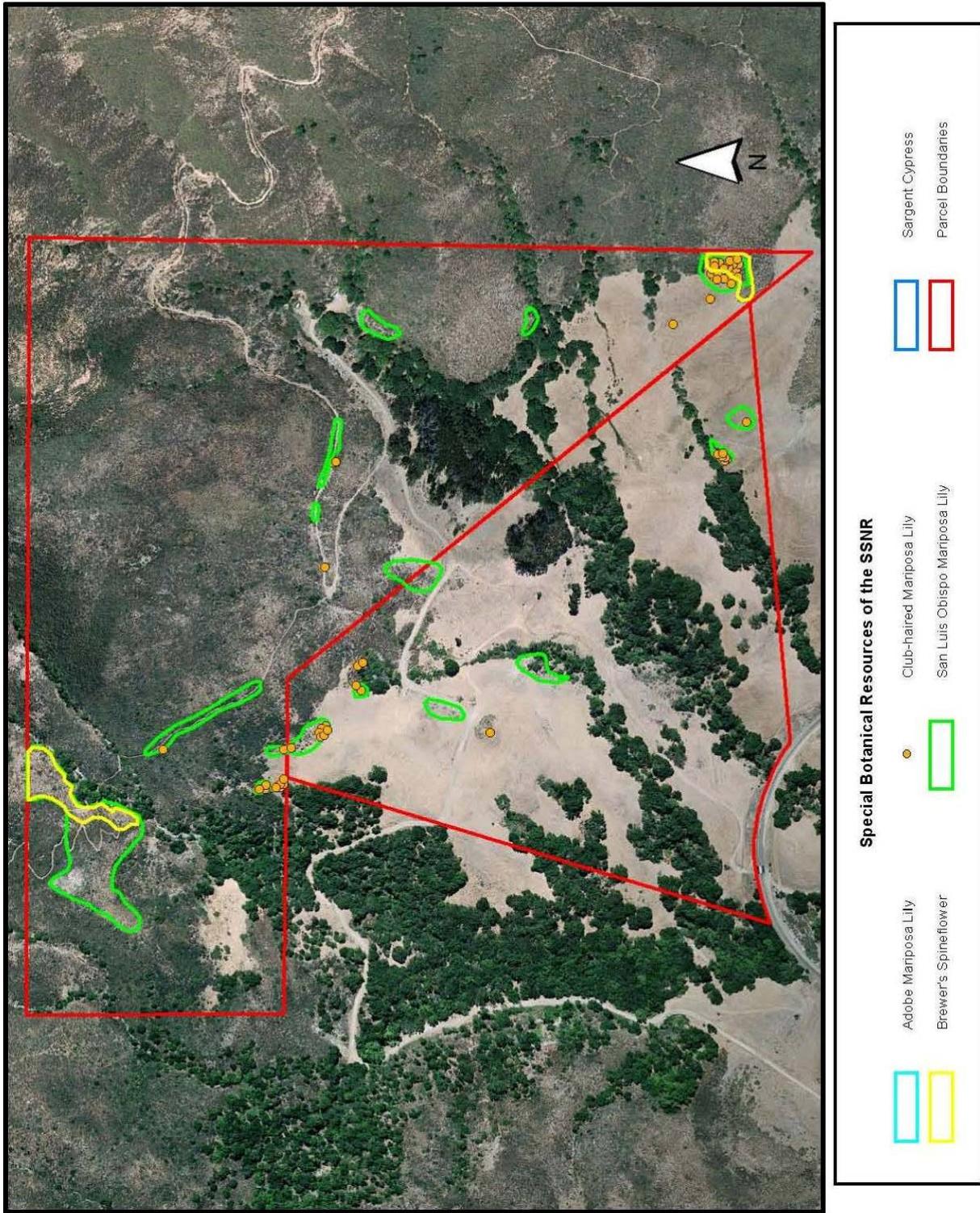
Invertebrates

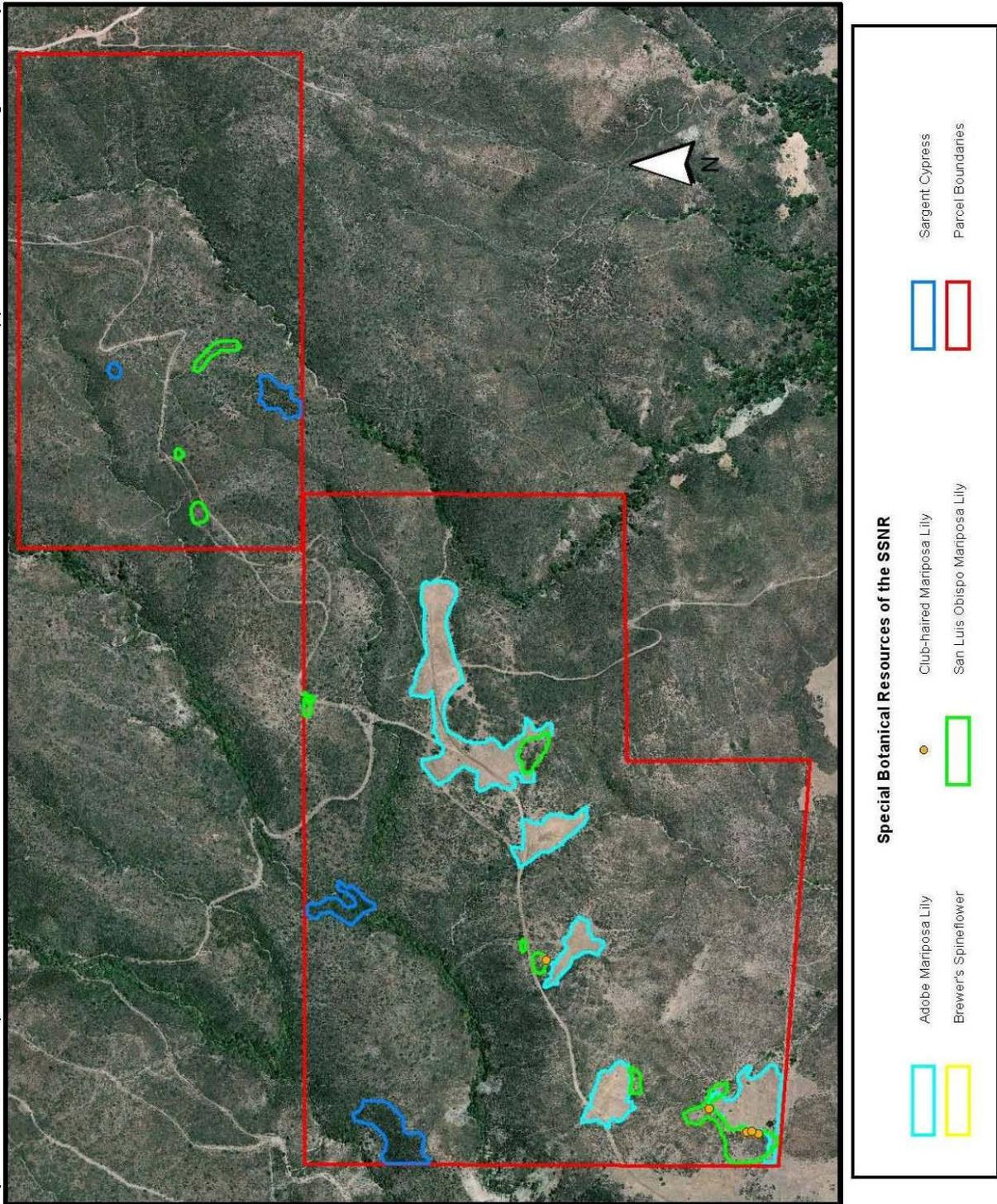
Scientific Name Common Name	Grassland	Oak/Riparian Woodland	Chaparral and Scrub	Eucalyptus Woodland
<i>Abedus indentatus</i> Giant water bug		√ seep areas		
<i>Adelpha bredowii</i> California sister butterfly		√		
<i>Bombus sp.</i> Bumble bee	√		√	
<i>Bombylius spp.</i> Bee fly			√	
<i>Danaus plexippus</i> Monarch butterfly	√		√	√
<i>Eleodes sp.</i> Stink beetle			√	
<i>Gryllus pennsylvanicus</i> Field cricket	√			
<i>Helminthoglypta umbilicata</i> Big Sur shoulderband snail		√ seep areas		√
Family: Coccinellidae <i>Ladybird beetle</i>	√	√	√	
Family: Hesperidae Skippers	√		√	
<i>Papilio rutulus</i> Western tiger swallowtail	√	√		
<i>Papilio zelicaon</i> <i>Anise swallowtail</i>	√	√		
<i>Nymphalis antiopa</i> Mourning-cloak butterfly	√	√		
<i>Platypedia sp.</i> Cicada			√	
<i>Priocnemis sp.</i> Spider wasp	√		√	
<i>Stenoplematus fuscus</i> Jerusalem cricket	√	√		√
<i>Vespula sp.</i> Yellowjacket	√			√

Appendix C

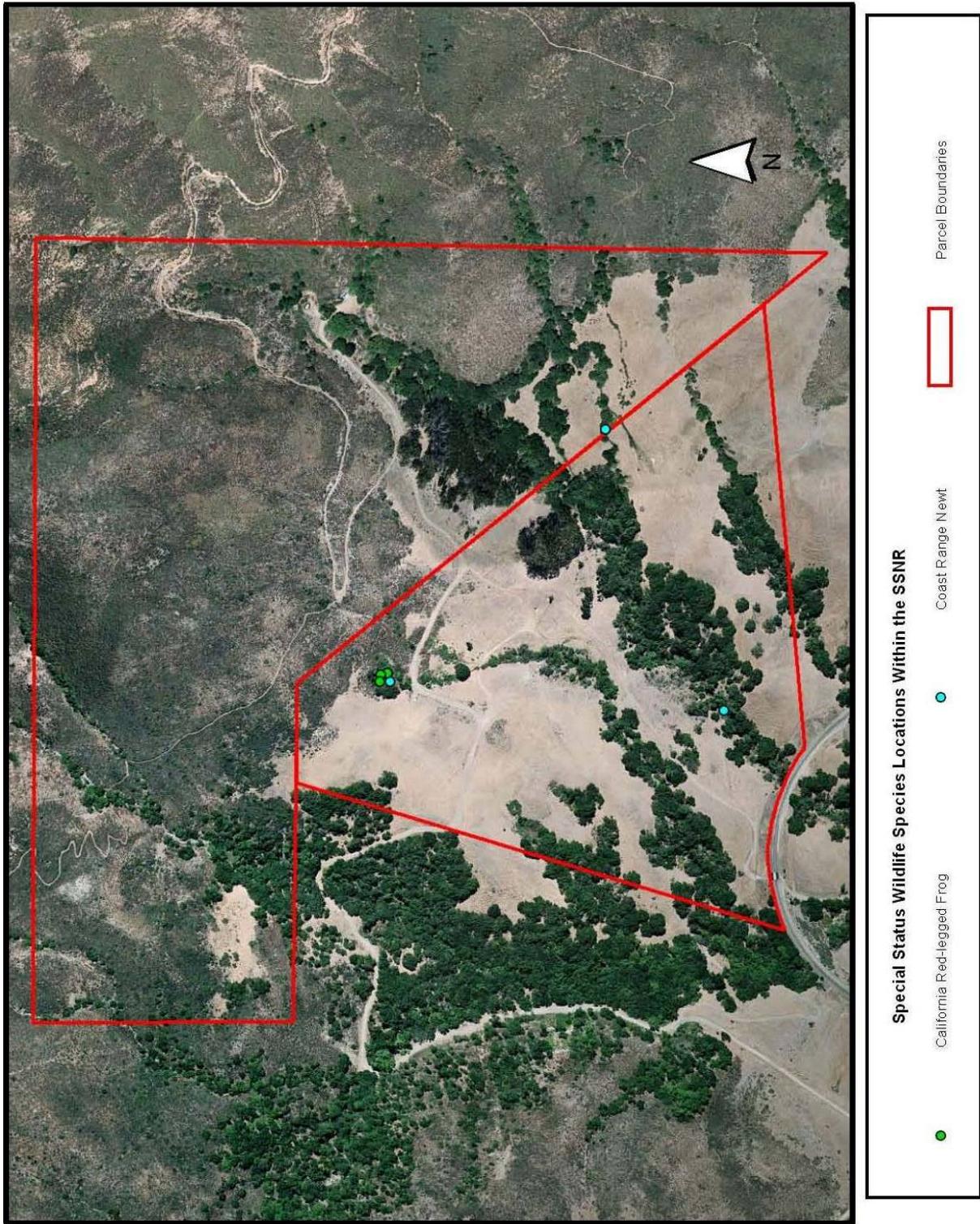
Resource Maps Showing Occurrence of Plant and Animal Species of Concern

Plant Species of Local Concern





Animal Species of Local Concern



Appendix D

Photo Monitoring Points and Aerial Photo of Photo Point Locations

Stenner Springs Natural Reserve Photo Point Locations

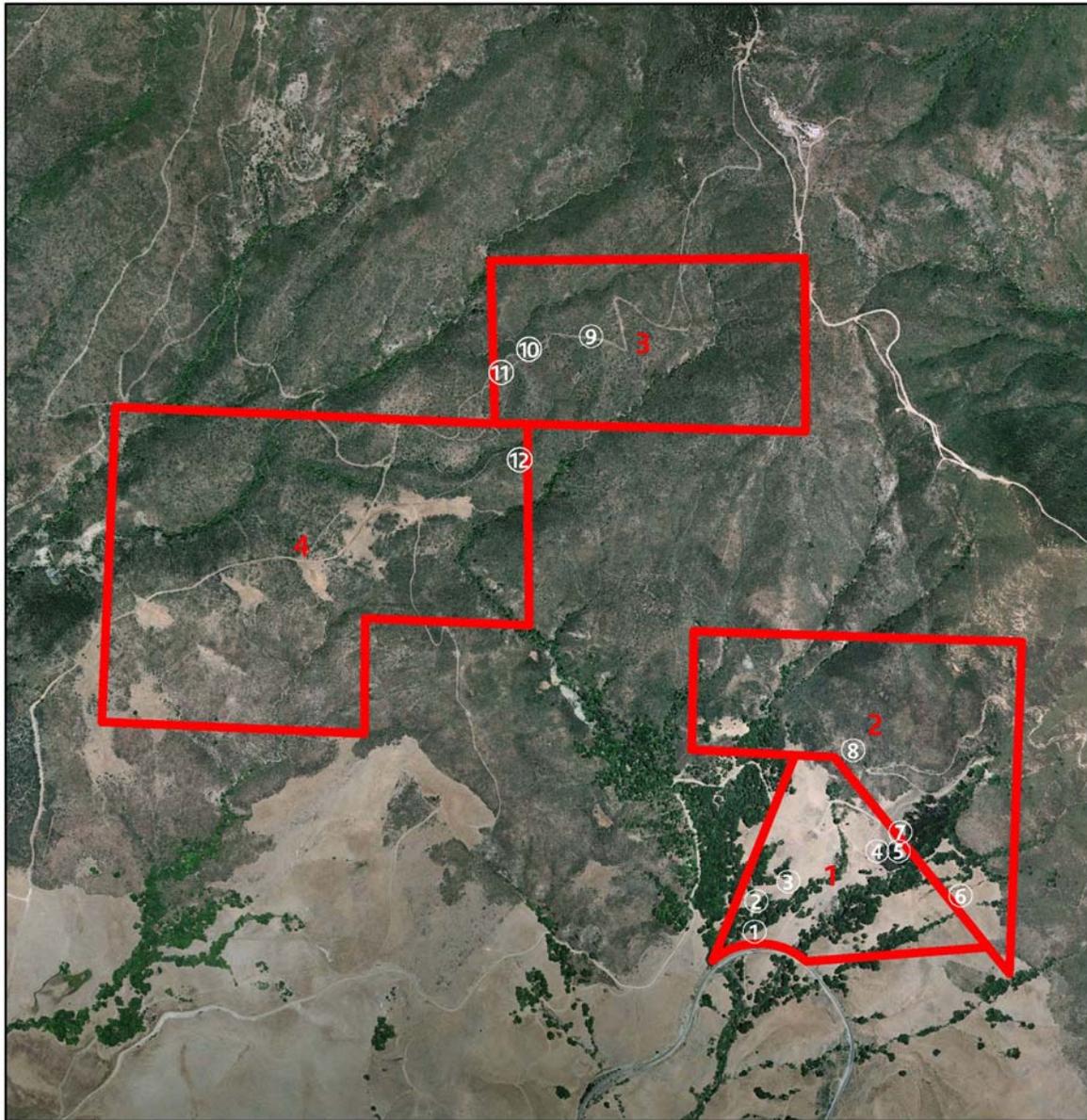


Photo-point 1: “Elevator” trail by the lower pedestrian entrance.



Photo-point 2: Nacimiento pipeline installation impacts.



Photo-point 3: More of the pipeline installation impacts.



Photo-point 4: parcel 1 in the main Eucalyptus grove. This is the possible “skills area” that is still under construction.



Photo-point 5: Another view of the “skills area” also located in the main Eucalyptus grove on parcel 1.



Photo-point 6: The steep trail on Parcel 2 that is causing extensive damage. Closure of the trail is recommended.



Photo-point 7: The existing trail on parcel 1 which is located near the “skills area”.



Photo-point 8: Typical view of the “Morning glory” trail roughly 100 yards north of junction from “Shooters” trail.

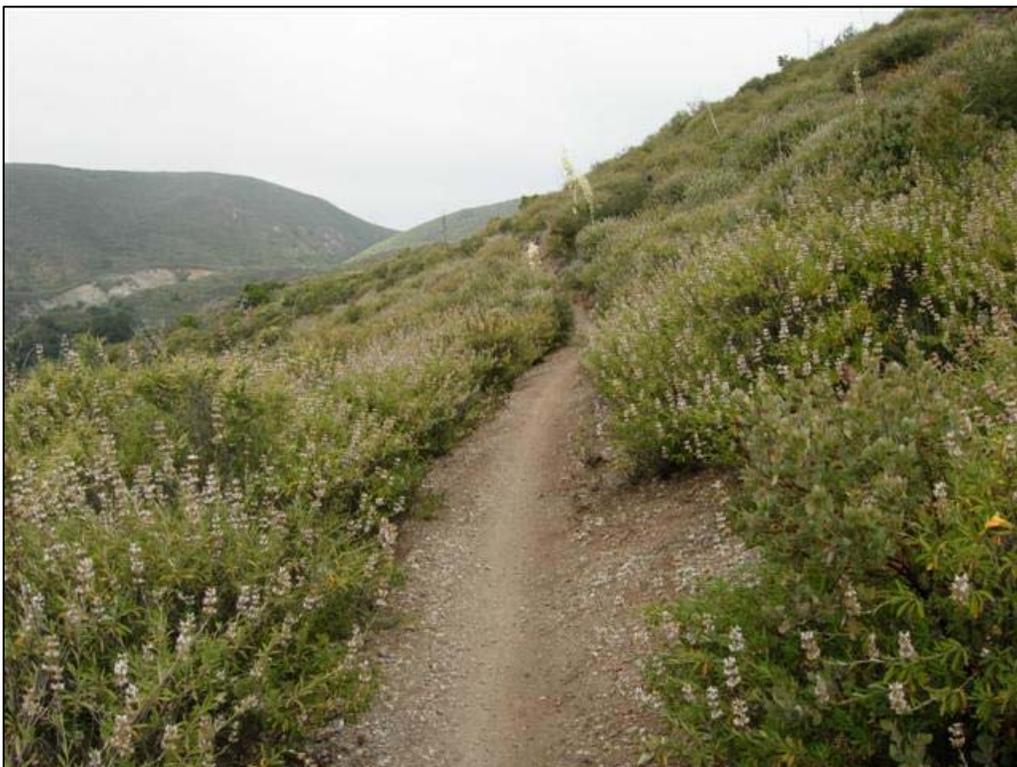


Photo-point 9: “Morning Glory” Trail at the point on Parcel 3 where it leaves an old jeep road and becomes hand-constructed.



Photo-point 10: This photo shows the erosion problems of trails that are placed incorrectly by visitors. This trail will be closed.



Photo-point 11: Unnamed trail that was part of the old jeep road, the upper portion is part of “Morning Glory” trail



Photo-point 12: “Morning Glory” trail near the crossing of upper Stenner Creek.

