Appendix D10
Rare Plant Survey Report

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August 5, 2009

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Montecito Equities, Ltd.
3080 Bristol St., Suite 630
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Subject: Rare Plant Survey Letter Report – Spring Trails Specific Plan

Dear Mr. DeMoranville:

This letter report documents the results of a rare plant survey conducted by PBS&J on July 6, 7, 8 and 9, 2009 for the Spring Trails Specific Plan (proposed project) proposed within an approximately 351-acre property located within unincorporated land in the northwestern portion of San Bernardino County, California. The survey also included the two proposed access roads located immediately south of the property. The property and areas supporting all proposed access roads for the project are collectively referred to herein as project site or site.

The report specifically documents a focused survey effort for 16 rare plant species that are known to the region and had been previously determined to have a potential to occur within the site and immediate vicinity. The report provides a brief analysis of potential impacts to species determined to be present, and includes recommendations for avoidance, minimization, and mitigation where applicable.

INTRODUCTION

Project Location

The project site is generally located northeast of Interstate 215 (I-215) and southwest of State Route 138 (SR 138) in an unincorporated portion of San Bernardino County, California (Figure 1). The northbound merge for I-215 and I-15 is located approximately five miles due west of the project site. Specifically, the site is located within an approximately 351-acre property at the base of the San Bernardino Mountains, north of Meyers Road and east of Cable Canyon Road, immediately outside and north of the City of San Bernardino's sphere of influence (Figure 2). The site is bounded to the north, east, and west by the San Bernardino National Forest and to the south by the Verdemonte Heights district of the City of San Bernardino. Mimosa Drive traverses the southern portion of the site and the northern terminus of Martin Ranch Road occurs in the central portion of the site.

The project site occurs within Sections 26 and 35, Township 2 North, Range 5 West and portions of the Muscupiabe Land Grant on the Devore and San Bernardino North, California, United States Geological Survey (USGS) 7.5-minute topographic quadrangle maps (Figure 3). The

primary and secondary access roads occur to the immediate southwest and southeast of the project site, within both unincorporated San Bernardino County and the City of San Bernardino.

Project Description

The Spring Trails Specific Plan is a 351-acre residential community consisting of single-family lots proposed in the foothills of the San Bernardino Mountains. The proposed project encompasses 70 percent of the total project site (244 acres), and the other 30 percent is to remain as open space.

METHODOLOGY

Literature Review

Prior to conducting field surveys, all relevant environmental documentation prepared for the project to date was reviewed for content pertaining to special status plant species. This included the following documents:

- *Review and Update of the Biological Resources Associated with the Spring Trails Development and Associated Access Roads*, dated February 3, 2009, prepared by PBS&J
- *Draft Habitat Assessment Report for the Spring Trails Project Site (Access Roads)*, dated October 27, 2008, prepared by Michael Brandman Associates (MBA)
- *Draft General Biological Resources Report for the Martin Ranch Project Site*, dated June 5, 2007, prepared by MBA
- *General Biological Resources Assessment Update for the Martin Ranch Property*, dated April 2, 2004, prepared by Natural Resources Assessment, Inc.
- *Biological Technical Report Update: Proposed Martin Ranch Project*, dated December 5, 2002, prepared by White & Leatherman Bioservices
- *Biological Technical Report: Proposed Secondary Access Road, Martin Ranch Project*, dated December 5, 2002, prepared by White & Leatherman Bioservices
- *Biological Resources Assessment and Report for the Martin Ranch Property*, dated February 1999, prepared by PCR Services Corporation

In addition, PBS&J reviewed recent and historical aerial imagery of the local area (Google Earth 2009), topographic maps (USGS 1979), soils maps (Soil Survey Staff 2009, USDA 2008), and previous vegetation mapping of the project site (MBA 2007, PCR 1999) to help qualify specific portions of the site in terms of species suitability and identify focused target areas for the survey. These target survey areas were then cross-referenced with the most recent project plans to confirm potential impact areas. The locations of biological resources identified during previous surveys were confirmed and plotted on current aerial maps that were used during field surveys.

PBS&J also reviewed available literature for all species targeted during the survey effort. Information gathered included species listing and recovery status, morphology, life history and habitat requirements, historic and current distribution, threats, special biological considerations,

and known locations of individuals and populations that have been recorded in the region. The literature review included a review of field guides, web sites, recovery plans, species databases, and Geographic Information Systems (GIS) data. Known recorded locations of the target species were queried using the Consortium of California Herbarium database (Consortium 2009), the California Natural Diversity Database (CNDDB 2009), the California Native Plant Society Electronic Inventory (CNPS 2009), and the Calflora Plant Observation Library (Calflora 2009). A complete list of references is included at the end of this report.

Field Surveys

Qualified PBS&J biologists May Lau, Marnie McKernan, and Karl Osmundson conducted a four-day focused survey effort upon the site, herein referred to as survey area, on July 6, 7, 8 and 9, 2009. The survey area is depicted on Figure 4. The survey area was determined based on habitat suitability for each of the 16 target species and locations within areas proposed to be impacted either directly or indirectly as a result of the project. Some portions of the site were not surveyed on foot due to inaccessibility (extremely steep terrain, impenetrable vegetative cover, and physical barriers), poor habitat suitability, and their location outside proposed impact areas. Where feasible, these areas were surveyed by scanning suitable visible habitat with binoculars.

Surveys were conducted according to recent protocols and guidelines that have been approved and recommended by the U.S. Fish and Wildlife Service (USFWS; 1996), California Department of Fish and Game (CDFG; 2000), California Native Plant Society (CNPS; 2001), and other respected sources (Cypher 2002). Only special status species with known blooming periods during the time of the survey were targeted during the effort. Blooming periods for target species were confirmed in the region using available sources (CNPS 2009). The entire survey area was surveyed on foot and by focal observations to obtain a complete botanical inventory and specifically locate and identify any target species.

All specimens observed during the survey were identified to the appropriate taxonomic level necessary to determine whether or not they are rare, threatened, or endangered. Specimens not identified to the species level in the field were pulled and later identified in the office using taxonomic guides and other resources. All collecting was conducted according to recognized collecting guidelines and documentation techniques for ethical collecting (CNPS 2001). All plant species names in this report were derived from Hickman (1993) and Jepson (2009). Nomenclature of vegetation communities were derived from Holland (1986), Sawyer and Keeler-Wolf (1995), CDFG (2009), and interpretations from previous studies (MBA 2008, MBA 2007, PCR 1999).

BIOLOGICAL SETTING

Topography

The project site is situated located on gently sloping alluvial benches in between canyons, steep hillsides, and drainages. As shown in Figure 3, the topography of the project site varies from steep topography (over 30 percent slopes) in the north and southeast portions of the site, to gentle topography (0 to15 percent slopes) in the central portions of the site. The site slopes to the general southwest at an average 10 to 15 percent grade, with elevations ranging from

approximately 3,540 feet above mean sea level (amsl) at the northern boundary, to approximately 2,010 feet amsl at its southern boundary. The majority of the steeper slopes on-site are either east- or west-facing, and the more expansive, shallow-sloping fans are generally south-facing. Given the general aspect of the project site, the majority of the site is exposed to morning, mid-day, and afternoon sun during the majority of the year lending to hot and dry conditions.

As depicted on the Devore, California USGS 7.5-minute topographic map, the project site falls within the lower reaches of two major canyon features, Cable Canyon and Meyers Canyon. Cable Canyon supports the headwaters to the perennial blue-line stream, Cable Creek. Within the extreme northern portions of the site and within higher elevations, Cable Canyon is further divided into two tributary canyons, the East Fork and West Fork. The East Fork and West Fork support two unnamed tributary blue-line streams to Cable Creek, both of which convey perennial flows. A large, unnamed, east-to-west trending intermittent blue-line stream traverses the base of another unnamed canyon within the northern-central portions of the site. This stream is a tributary water to Cable Creek within the project site. An additional unnamed blue-line stream emerges from Meyers Canyon. This stream eventually discharges into Cable Creek further to the south of the site.

Soils

Based on the Natural Resources Conservation Service (NRCS) Soil Surveys for San Bernardino County, Southwestern Part and San Bernardino National Forest (USDA 2008), the project site contains twelve distinct soil mapping units that generally comprise of sand and rock complexes, sandy loam, or loamy sand (Exhibit 5). The specific soils mapped within the project site include Osito-Modesto families association, Ramona family–Typic Xerorthents association, Soboba-Hanford families association, Trigo family-Lithic Xerorthents association, Cieneba-Rock outcrop complex, Greenfield fine sandy loam, Hanford coarse sandy loam, Ramona sandy loam, Saugus sandy loam, Soboba gravelly loamy sand, Soboba stony loamy sand, and Tujunga gravelly loamy sand. None of these soils are known to be exclusively associated with any rare plant species. When combined with the appropriate vegetation associations, hydrology, and elevations, sandy loams and loamy sands that are associated with alluvial fans, floodplains, and dry washes are known to support a number of rare plant species in the region (CNPS 2009, CNDDB 2009, Clarke 2007, Reiser 1994, Munz 1974). General characteristics associated with these soils types are described below.

Osito-Modesto families association, 30 to 50 percent slopes (CmF)

This association is about 40 percent Osito family soils and 30 percent Modesto family soils. It occurs on hills at elevations of 1,800 to 4,200 feet. Soils are well drained, and runoff is moderate. This association is not listed as hydric soil on the NRCS Soil Survey for San Bernardino National Forest. Osito-Modesto families association is mapped within a very steep peninsular slope in the northwestern portions of the site.

Ramona family-Typic Xerorthents, warm association, 2 to 30 percent slopes (ChDE)

This association is about 60 percent Ramona family soils and 20 percent Typic xerorthents, warm, and similar soils. It occurs on uplands at elevations of 2,000 to 4,000 feet. These soils are well drained and runoff is low. This soil is not listed as hydric soil on the NRCS Soil Survey for San Bernardino National Forest. Ramona family-Typic Xerorthents is mapped within the southeastern portions of the site encompassing portions of the proposed primary access road.

Soboba-Hanford families association, 2 to 15 percent slopes (AbD)

This association is about 50 percent Soboba family soils and 30 percent Hanford family soils. It occurs on floodplains at elevations of 1,600 to 4,000 feet. These soils are well to excessively drained, and runoff is moderate. This soil is not listed as hydric soil on the NRCS Soil Survey for San Bernardino National Forest. Soboba-Hanford families association encompasses a substantial area of the northern half of the site, with inclusions heading out of the northeast from higher elevations.

Trigo family-Lithic Xerorthents, warm complex, 50 to 75 percent slopes (DnG)

This complex is about 50 percent Trigo family and similar soils and 20 percent Lithic xerorthents, warm, and similar soils. It occurs on hills at elevations of 1,790 to 6,400 feet. These soils are somewhat excessively drained, and runoff is high. This soil is not listed as hydric soil on the NRCS Soil Survey for San Bernardino County, Southwestern Part. Trigo family-Lithic Xerorthents are mapped within the extreme northern portions of the site.

Cieneba-Rock outcrop complex, 30 to 50 percent slopes (Cr)

This complex is about 60 percent Cieneba and similar soils and 30 percent rock outcrop. It occurs on hills at elevations of 500 to 4,000 feet. These soils are somewhat excessively drained, and runoff is high. This soil is not listed as hydric soil on the NRCS Soil Survey for San Bernardino County, Southwestern Part. Cieneba-Rock outcrop complex is mapped in the southeastern portions of the project site.

Greenfield fine sandy loam, 9 to 15 percent slopes (GtD)

This soil type is about 85 percent Greenfield and similar soils. It occurs on alluvial fans at elevations of 100 to 3,500 feet. These soils are well drained, and runoff is moderate. This soil is not listed as hydric soil on the NRCS Soil Survey for San Bernardino County, Southwestern Part. Greenfield fine sandy loam is mapped in the southern portions of the project site.

Hanford coarse sandy loam, 9 to 15 percent slopes (HaD)

This soil type is about 85 percent Hanford and similar soils. It occurs on alluvial fans at elevations of 150 to 900 feet. These soils are well drained, and runoff is low. This soil is not listed as hydric soil on the NRCS Soil Survey for San Bernardino County, Southwestern Part. Hanford coarse sandy loam is mapped in the southern portions of the project site.

Ramona sandy loam, 15 to 30 percent slopes, eroded (RmE2)

This soil type is about 85 percent Ramona and similar soils. It occurs on terraces at elevations of 250 to 3,500 feet. These soils are well drained, and runoff is low. This soil is not listed as hydric soil on the NRCS Soil Survey for San Bernardino County, Southwestern Part. Ramona sandy loam is mapped within the southern portions of the site.

Saugus sandy loam, 30 to 50 percent slopes (ShF)

This soil type is about 85 percent Saugus and similar soils. It occurs on hills at elevations of 600 to 2,500 feet. These soils are well drained, and runoff is low. This soil is not listed as hydric soil on the NRCS Soil Survey for San Bernardino County, Southwestern Part. Saugus sandy loam is mapped in the southwestern portions of the project site.

Soboba gravelly loamy sand, 0 to 9 percent slopes (SoC)

This soil type is about 85 percent Soboba and similar soils. It occurs on alluvial fans at elevations of 30 to 4,200 feet. These soils are excessively drained, and runoff is high. This soil is listed as partially hydric on the NRCS Soil Survey for San Bernardino County, Southwestern Part. Soboba gravelly loamy sand is mapped within the southern portions of the project site.

Soboba stony loamy sand, 2 to 9 percent slopes (SpC)

This soil type is about 85 percent Soboba and similar soils. It occurs on alluvial fans at elevations of 30 to 4,200 feet. These soils are excessively drained, and runoff is very high. This soil is not listed as hydric soil on the NRCS Soil Survey for San Bernardino County, Southwestern Part. Soboba stony loamy sand is mapped within two locations in the western portions of the site.

Tujunga gravelly loamy sand, 0 to 9 percent slopes (TvC)

This soil type is about 85 percent Tujunga and similar soils. It occurs on alluvial fans at elevations of 10 to 1,500 feet. These soils are somewhat excessively drained, and runoff is high. This soil is listed as partially hydric on the NRCS Soil Survey for San Bernardino County, Southwestern Part. Tujunga gravelly loamy sand underlies a large alluvial fan area in the central portion of the project site.

Vegetation Communities

A total of 19 vegetation communities characterize the project site based on previous vegetation mapping efforts conducted for the project (MBA 2008, MBA 2007, PCR 1999). These communities are depicted within Exhibit 6 and include California walnut woodland, ceanothus crassifolius chaparral, chamise chaparral, canyon live oak woodland, disturbed, eucalyptus, eucalyptus/non-native grassland, eucalyptus/Riversidean sage scrub, non-native grassland, northern mixed chaparral, ornamental, Riversidean alluvial fan sage scrub, Riversidean sage scrub, Riversidean sage scrub/California walnut woodland, Riversidean sage scrub/eucalyptus, southern sycamore-alder riparian woodland, southern willow scrub, southern willow scrub/California walnut woodland, and sycamore alluvial woodland. The following provides a brief description of each community previously mapped within the project site.

California Walnut Woodland

California walnut woodland is generally described as an open-canopy woodland dominated by southern California black walnut (*Juglans californica* var. *californica*) trees. A stand of California walnut woodland is mapped within the northern portions of the project site at the base of the adjacent hillside (Exhibit 6). This community intergrades with chaparral along the majority of its perimeter, with limited portions also abutting Riversidean alluvial fan sage scrub. Characteristic species observed within this stand include Southern California black walnut, coast live oak (*Quercus agrifolia*), sugar bush (*Rhus ovata*), skunkbush (*Rhus trilobata*), western ragweed (*Ambrosia psilostachya*), and tarragon (*Artemisia dracunculus*).

Ceanothus Crassifolius Chaparral

Ceanothus crassifolius chaparral is generally described as a moderately-dense to dense, tall, chaparral dominated by hoary-leaf ceanothus (*Ceanothus crassifolius*). This community has been mapped at two locations within the project site, including a smaller stand in the northern portions of the site, and a larger linear stand within a west-facing slope in the southern portions of the site. Aside from hoary-leaf ceanothus, plant species observed include chamise (*Adenostoma fasciculatum*), toyon (*Heteromeles arbutifolia*), scrub oak (*Quercus berberidifolia*), and sugar bush.

Chamise Chaparral

Chamise chaparral is generally described as an open to moderately-dense chaparral dominated by chamise. Some stands may be heavily dominated by chamise with very little species richness or understory. This community has been mapped as a large stand in the southern portions of the site. Aside from chamise, plant species observed include California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), white sage (*Salvia apiana*), deerweed (*Lotus scoparius*), and golden yarrow (*Eriophyllum confertifolium*).

Canyon Live Oak Woodland

Canyon live oak woodland is generally described as an open- or closed-canopy evergreen woodland dominated by canyon live oak (*Quercus chrysolepis*) trees. This community is mapped at a single location in the northern portions of the site within the West Fork of Cable Canyon. Other species observed include holly-leaved cherry (*Prunus ilicifolia* ssp. *ilicifolia*) and skunkbush.

Disturbed

Disturbed habitats are generally defined as land that contains existing developments, has been cleared of vegetation, or contains a preponderance of non-native plant species such as ornamentals or ruderal exotic species that are disturbance tolerant. A number of disturbed areas have been mapped throughout the project site.

Eucalyptus - Eucalyptus/Non-Native Grassland - Eucalyptus/Riversidean Sage Scrub

Eucalyptus communities are dominated by gum (*Eucalyptus* sp.) trees, an introduced species that produces a large amount of leaf and bark litter. The chemical and physical characteristics of this litter limit the ability of other species to grow in the understory, with a resultant decrease in

floristic diversity. Eucalyptus trees have been planted historically for a variety of reasons, but they are particularly popular owing to its rapid growth rate. Thin linear stands of pure eucalyptus occur within the northern and southern-central portions of the site. This are presumed to be old windrows for associated with historic agricultural practices. Mixed stands that include larger understories of non-native grassland or Riversidean sage scrub are also mapped in the western-central and southern portions of the site.

Non-Native Grassland

Non-native grassland is generally defined as a dense to sparse cover of annual grasses, often associated with numerous species of showy-flowered native annual forbs. This association occurs on gradual slopes with deep, fine textured, usually clay soils. Dominant species include wild oat (*Avena fatua*), slender wild oat (*Avena barbata*), ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), barley (*Hordeum vulgare*), fescue (*Vulpia myuros*), black mustard (*Brassica nigra*), filaree (*Erodium cicutarium*), and cheeseweed (*Malva parviflora*). This community is mapped as a single small patch in the southern portion of the site.

Northern Mixed Chaparral

Northern mixed chaparral is a tall, dense, closed-canopy chaparral that typically occurs at less xeric sites in the region that are either higher elevation or associated with north-facing slopes. When mature, this community may be impenetrable with very little or no understory. Dominant species observed include chamise, chaparral whitethorn (*Ceanothus leucodermis*), scrub oak, birch-leaf mountain mahogany (*Cercocarpus betuloides*), hoary-leaf ceanothus, Mexican elderberry (*Sambucus Mexicana*), holly-leaf redberry (*Prunus ilicifolia*), toyon, and skunkbush. Northern mixed chaparral has been mapped for the majority of the steeper, rocky slopes in the northern and eastern portions of the project site.

Ornamental

Ornamental areas are characterized by isolated stands of non-native vegetation typically associated with landscaping improvements, including ornamental tree- and shrub-vegetated slopes and right-of-ways, and groundcover-vegetated parks. Non-native species typical of ornamental areas may include ornamental trees such as gum, pepper (*Schinus* spp.), and palms (Arecaceae family), ornamental shrubs such as oleander (*Nerium oleander*), pittosporum (*Pittosporum* spp.), and tea tree (*Leptospermum* spp.), and non-native groundcover species such as freeway ice plant (*Carpobrotus edulis*), crystalline ice plant (*Mesembryanthemum crystallinum*), and various turf grasses (*Fescuta* spp., *Cynodon* spp., *Digitaria* spp., *Eremochloa* spp., *Zoysia* spp., etc.). Ornamental is mapped at a single location in the northern portions of the site dominated by tree of heaven (*Ailanthis altissima*), olive (*Olea europaea*), eucalyptus, southern California black walnut, and incense cedar (*Calacedrus decurrens*).

Riversidean Sage Scrub

Riversidean sage scrub (RSS) is the most xeric form of coastal sage scrub in southern California. The majority of RSS on site has a history of disturbance. RSS is mapped as the predominate community throughout the project site. Dominate species include California buckwheat, deer

weed, white sage, shiny-leaf yerba santa (*Eriodictyon trichocalyx*), pine goldenbush (*Ericameria pinifolia*), and black sage (*Salvia mellifera*).

Riversidean Alluvial Fan Sage Scrub

Riversidean alluvial fan sage scrub (RAFSS) is an open plant community adapted to disturbance related to occasional flooding, scour, erosion and alluvial deposition. This community has been mapped within the floodplain of Cable Creek in the southern portions of the site. Dominant species include scalebroom (*Lepidospartum squamatum*), California croton (*Croton californicus*), deer weed, spiny redberry (*Rhamnus crocea*), chaparral yucca (*Yucca whipplei*), birch-leaf mountain mahogany, and shiny-leaf yerba santa. This community also contained a number of emergent tree species, including California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), Mexican elderberry, and southern California black walnut.

Riversidean Sage Scrub/California Walnut Woodland

Riversidean sage scrub/California walnut woodland is generally described as an open-canopy woodland dominated by southern California black walnut, California buckwheat, California sagebrush, white sage, and deerweed. This community has been mapped within the large east-to-west trending tributary to Cable Creek that traverses the northern portions of the site.

Riversidean Sage Scrub/Eucalyptus

This community is similar to eucalyptus/Riversidean sage scrub; however, it has a higher scrub species coverage and a more open canopy. This community is mapped within three relatively small stands in the southern half of the site.

Southern Sycamore-Alder Riparian Woodland

This riparian community is defined as a tall, open, broad-leafed, deciduous, streamside woodland dominated by white alder (*Alnus rhombifolia*) and western sycamore. The understory consists of California blackberry (*Rubus ursinus*), poison oak (*Toxicodendron diversilobum*), wild grape (*Vitis californicus*), and mugwort (*Artemisia douglasiana*). This community has been mapped within the upper reach of Cable Creek, and within the East Fork and West Fork of Cable Canyon.

Southern Willow Scrub

Southern willow scrub is generally described as a relatively short, and often sparse, riparian habitat that is adapted to flooding and scour events that are frequent enough to prevent the establishment of larger tree species. This riparian scrub is mapped as a few small stands within the northern and central portions of the site. Dominant species observed include arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), mulefat (*Baccharis salicifolia*), Freemont cottonwood, Mexican elderberry, wild grape, poison oak, and California blackberry.

Southern Willow Scrub/California Walnut Woodland

This riparian community is generally defined as an even coverage of species associated with southern willow scrub and California walnut woodland communities. This community has been mapped as a single large stand in the southern-central portion of the site.

Sycamore Alluvial Woodland

Sycamore alluvial woodland is generally described as a tall, mature woodland dominated by western sycamore, scrub oak, and Mexican elderberry. This community is mapped within the drainage feature associated with Meyers Canyon in the southern portion of the project site.

TARGET RARE PLANT SPECIES

Based on previous determinations made regarding species habitat suitability and likelihood of occurrence within the project site, as well as a thorough review of relevant databases and literature pertaining to rare plant species known to occur in the region, the following 16 rare plant species were selected to be targeted during the 2009 rare plant surveys: marsh sandwort (*Arenaria paludicola*), Nevin's barberry (*Berberis nevinii*), Plummer's mariposa lily (*Calochortus plummerae*), San Bernardino owl's clover (*Castilleja lasiorhyncha*), smooth tarplant (*Centromadia pungens* ssp. *laevis*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), slender-horned spineflower (*Dodecahema leptoceras*), many-stemmed dudleya (*Dudleya multicaulis*), Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*), hot springs fimbristylis (*Fimbristylis thermalis*), southern California black walnut (*Juglans californica* var. *californica*), mesa horkelia (*Morelia cuneata* ssp. *puberula*), occelated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*), California muhly (*Muhlenbergia californica*), California spineflower (*Mucronea californica*), and Parish's gooseberry (*Ribes divaricatum* var. *parishii*). A description of these 16 species' listing status, distribution, life history, and preferred habitats are discussed in below.

Marsh Sandwort (*Arenaria paludicola*)

Marsh sandwort is listed a federally endangered and California State endangered. It is also designated by the CNPS as a List 1B.1 plant. This species has likely been extirpated from the Southern California region, with the remaining extant populations occurring within coastal San Luis Obispo County (USFWS 2008). This species blooms from May to August and occurs from approximately 10 to 560 feet amsl.

The preferred habitats for the marsh sandwort are freshwater and brackish marshes, swamps, and bogs. This species grows within sandy openings and within dense mats of emergent herbaceous vegetation in marsh habitats (CNDDB 2009, CNPS 2009, USFWS 2008, USFWS 1998).

Nevin's Barberry (*Berberis nevinii*)

Nevin's barberry is listed as a federally endangered and California State endangered plant species, and is also designated by the CNPS as a List 1B.1 plant. This relatively tall, rhizomatous, evergreen shrub is endemic to southern California and has a relatively limited natural distribution that is restricted to a handful of scattered inland locations that range from the

foothills of the San Gabriel Mountains in northern Los Angeles County, south and east to the Loma Linda Hills in southern San Bernardino County, and south to near the foothills of the Peninsular Ranges of southwestern Riverside County (USFWS 2007). It typically occurs in small stands of less than 20 individuals, and often supporting only one or two individuals (USFWS 2007). The largest native occurrence is located south of Vail Lake in Riverside County and consists of several stands totaling approximately 134 individuals (USFWS 2008; CNDDB 2009). This evergreen species blooms from March through June in typical years; however, it can be positively identified throughout the year due to its evergreen shrub life form (CNPS 2009). Its known elevation range occurs between 900 feet and 2,000 feet amsl.

The preferred habitat types for Nevin's barberry include alluvial scrub, coastal sage scrub, chaparral, oak woodland, cismontane woodland, and riparian scrub habitats (CNPS 2009, CNDDB 2009, and USFWS 2007). This species is most often associated with low-growing chaparral types, and is typically emergent and taller-growing than the surrounding subshrubs (Reiser 1994). Nevin's barberry is typically associated with steep north-facing slopes, or with low grade sandy washes, alluvial terraces, canyon bottoms, and along gravelly wash margins. Known locations are generally supported by sandy, coarse, or gravelly soils of sedimentary origin; however, it is also found on clay soils originating from gabbro bedrock and in association with meta-sedimentary substrates, and springs or seeps (USFWS 2007).

Plummer's Mariposa Lily (*Calochortus plummerae*)

Plummer's mariposa lily is not federally or State listed as threatened or endangered; however, it is designated by the CNPS as a List 1B.2 plant. Plummer's mariposa lily is a bulbiferous herb that is endemic to southern California, from locations within Ventura, Los Angeles, Orange, Riverside, and San Bernardino Counties (CNDDB 2009, CNPS 2009). This species blooms from May through July during typical years (CNPS 2009). It is known to occur from approximately 325 feet to 5,575 feet amsl.

The preferred habitat types for this species include valley and foothill grassland, coastal sage scrub, chaparral, cismontane woodland, and lower montane coniferous forest (CNDDB 2009, CNPS 2009). In the region, this species is most commonly found within open canopy coastal sag scrub, open canopy chaparral, and Riversidean alluvial fan sage scrub (CNDDB 2009). Known locations are generally supported by rocky and sandy soils, usually of granitic or alluvial material (CNDDB 2009).

San Bernardino Owl's Clover (*Castilleja lasiorhyncha*)

The San Bernardino owl's clover is not federally or State listed as threatened or endangered; however, it is designated by the CNPS as a List 1B.2 plant. This species is a hemiparasitic, showy, annual herb that is endemic to higher elevations within San Bernardino, Riverside, and San Diego Counties (CNPS 2009). It blooms from May to August during a typical year and has a known elevation range of approximately 4,265 feet to 7,840 feet amsl (CNPS 2009).

This species preferred habitat types include montane meadows and pebble pavement plains, but is also known to occur within chaparral, riparian woodland, upper montane coniferous forest, and seeps (CNDDB 2009, CNPS 2009, Reiser 1994). This species has been reported as occurring at

the moist edges of springs and seeps on clay soil in the San Bernardino Mountains (Resier 1994). Also utilized are wet meadows and openings in coniferous forest. Sites are mesic, vernally wet, and are supported by drying soils typically along the margins of inundated or saturated areas.

Smooth Tarplant (*Centromadia pungens* ssp. *laevis*)

Smooth tarplant is not federally or State listed as threatened or endangered; however, it is designated by the CNPS as a List 1B.1 plant. This species is known from Kern, San Bernardino, Riverside, Los Angeles, Orange, and San Diego Counties (CNPS 2009, Reiser 1994). This tarplant blooms from April to September during a typical year and has a known elevation range of approximately 0 feet to 2,100 feet amsl (CNPS 2009).

This species preferred habitats are valley and foothill grasslands at or near alkaline locales (CNDDB 2009, Reiser 1994). Chenopod scrub, meadows, playas, and riparian woodlands supported by alkaline conditions are also known to be occupied by this species. Smooth tarplant is known to occur within disturbed sites at suitable locations as well.

Parry's Spineflower (*Chorizanthe parryi* var. *parryi*)

Parry's spineflower is not federally or State listed as threatened or endangered; however, it is designated by the CNPS as a List 1B.1 plant. This spineflower is an annual herb that is endemic to southern California, from locations within Los Angeles, Riverside, and San Bernardino Counties (CNDDB 2009, CNPS 2009). This species blooms from April through June during typical years (CNPS 2009). It is known to occur from approximately 900 feet to 4,000 feet amsl.

The preferred habitat types for Parry's spineflower include valley and foothill grassland, coastal sage scrub, chaparral, and cismontane woodland (CNDDB 2009, CNPS 2009). This spineflower requires openings in the canopies and is often associated with ecotonal and transitional areas between two adjacent plant communities. It is also associated with dry slopes and exposed flats. Known locations are generally supported by sandy or rocky soils (CNDDB 2009).

Slender-horned Spineflower (*Dodecahema leptoceras*)

Slender-horned spineflower is listed as a federally endangered and California State endangered plant species, and is also designated by the CNPS as a List 1B.1 plant. This small, prostrate annual is endemic to southwestern cismontane California, ranging from central Los Angeles County east to San Bernardino County, and south to southwestern Riverside County in the foothills of the Transverse and Peninsular Ranges (Riverside County 2003). The species blooms from April to June during a typical year. It is known to occur within an elevation range of approximately 650 feet to 2,500 feet amsl.

The preferred habitat types for this species include alluvial fan sage scrub, coastal sage scrub, chaparral, and cismontane woodland (USFWS 1987, CNDDB 2009, CNPS 2009). This species is most often associated with RAFSS associated with flood deposited terraces, sandy benches, and washes. Known locations are generally supported by sandy or gravelly alluvial substrate and terraced fluvial deposits (CNDDB 2009, CNPS 2009).

Many-stemmed Dudleya (*Dudleya multicaulis*)

Many-stemmed dudleya is not federally or State listed as threatened or endangered; however, it is designated by the CNPS as a List 1B.2 plant. This perennial species is endemic to southwestern California from western Los Angeles County, through extreme southwestern portions of San Bernardino and Orange Counties, and western Riverside County south to the northern edge of San Diego County (Riverside County 2003, CNPS 2009). During a typical year, this species blooming period extends from April to July. Many-stemmed dudleya has a known elevation range of approximately 50 feet to 2,590 feet amsl (CNPS 2009).

The preferred habitat of many-stemmed dudleya is open coastal sages scrub supported by clay soils (CNDDB 2009, CNPS 2009, Riverside County 2003, Reiser 1994). It is often associated with barrens, rocky places, and ridgelines supporting clay soils, as well as thinly vegetated openings in chaparral, coastal sage scrub, and southern needlegrass grasslands on clay soils (Riverside County 2003).

Santa Ana River Woollystar (*Eriastrum densifolium* ssp. *sanctorum*)

Santa Ana River woollystar is listed as a federally endangered and California State endangered plant species, and is also designated by the CNPS as a List 1B.1 plant. This perennial herb or subshrub is endemic to the Santa Ana River drainage of southern California, having historically occurred throughout Orange, Riverside, and San Bernardino Counties (USFWS 1987). This perennial species blooms from May through September during typical years; however, it is conspicuous and identifiable year-round due to its perennial life form (CNPS 2009). It is known to occur from approximately 500 feet to 2,000 feet amsl.

The preferred habitat types for Santa Ana River woollystar include alluvial fan sage scrub, coastal sage scrub, and chaparral (CNPS 2009, CNDDB 2009, USFWS 1987). This species is most often associated with Riversidean alluvial fan scrub associated with higher floodplain terraces of the Santa Ana River and its tributaries. Known locations are generally supported by sandy or gravelly alluvial substrate and terraced fluvial deposits (CNDDB 2009, CNPS 2009).

Hot Springs Fimbristylis (*Fimbristylis thermalis*)

Hot springs fimbristylis is not federally or State listed as threatened or endangered; however, it is designated by the CNPS as a List 2.2 plant. This rhizomatous herb is endemic to locales within the Los Angeles Basin and Mojave Desert bioregion (CNPS 2009). This species blooms from July to September and occurs from approximately 360 to 4,400 feet amsl.

The preferred habitats for this species are meadows and seeps that occur within or near hot springs (CNDDB 2009, CNPS 2009). This species is specifically associated with alkaline conditions.

Southern California Black Walnut (*Juglans californica* var. *californica*)

Southern California black walnut is not federally or State listed as threatened or endangered; however, it is designated by the CNPS as a List 4.2 plant. This species is a deciduous tree that is endemic to southern California from Santa Barbara County, east to San Bernardino County, and

south to San Diego County in southern California (CNPS 2009). This walnut blooms from March to August during typical years (CNPS 2009). It has a known elevation range of approximately 165 feet to 2,950 feet amsl.

Southern California black walnut prefers open coastal sage scrub, chaparral, and cismontane woodland habitat types that are generally supported by alluvial substrates (CNDDB 2009, CNPS 2009). Monotypic stands of open-canopy California walnut woodlands once fairly common throughout the State, however, have declined and are now considered a sensitive natural community by the CDFG (CNDDB 2009).

Mesa Horkelia (*Horkelia cuneata* ssp. *puberula*)

Mesa horkelia is not federally or State listed as threatened or endangered; however, it is designated by the CNPS as a List 1B.1 plant. This species is a perennial herb that is endemic to southern California from San Luis Obispo County, south to San Diego County, and as far inland as the San Bernardino Mountains in western Riverside County (CNPS 2009). Mesa horkelia blooms from February to July, and uncommonly into September, during typical years (CNPS 2009). It has a known elevation range of approximately 230 feet to 2,660 feet amsl.

Mesa horkelia prefers open coastal sage scrub, chaparral, and cismontane woodland habitat types that are generally supported by sandy or gravelly soils (CNDDB 2009, CNPS 2009).

Occelated Humboldt Lily (*Lilium humboldtii* ssp. *ocellatum*)

The occelated Humboldt lily is not federally or State listed as threatened or endangered; however, it is designated by the CNPS as a List 4.2 plant. This species is a showy bulbiferous herb that is endemic to southern California and the Channel Islands. This species blooms between March and July during typical years, with uncommon blooms extending into August. It is known to occur from approximately 100 feet to 5,900 feet amsl.

The preferred habitat for the occelated Humboldt lily includes openings in coastal sage scrub, chaparral, cismontane woodland, riparian woodland, and lower montane coniferous forest. This species is most commonly associated with yellow-pine forest and oak canyons (CNDDB 2009).

California Muhly (*Muhlenbergia californica*)

The occelated Humboldt lily is not federally or State listed as threatened or endangered; however, it is designated by the CNPS as a List 4.3 plant. This rhizomatous herb is endemic to Los Angeles, Riverside and San Bernardino Counties in southern California (CNPS 2009). This species blooming period extends from June to September during typical years, but may be identifiable outside its blooming period due to its perennial conspicuous nature. It is known to occur from approximately 100 feet to 5,900 feet amsl.

The preferred habitat types for this species include meadows and understory strata of coastal sage scrub, chaparral, and lower montane coniferous forest (CNDDB 2009). It is most often found at mesic sites near streams or seeps (CNDDB 2009).

California Spineflower (*Mucronea californica*)

This spineflower species is not federally or State listed as threatened or endangered; however, it is designated by the CNPS as a List 4.2 plant. It is endemic to central and southern California, from Monterey County south to San Diego County, and east into locations within Kern County and San Bernardino County (CNPS 2009, Reiser 1994). This annual herb blooms from March to July, and uncommonly into August during typical years (CNPS 2009). It has a known elevation range of approximately 0 feet to 4,600 feet amsl.

California spineflower is specifically associated with very sandy microhabitats that include coastal dunes and openings in coastal sage scrub and chaparral (CNDDB 2009, CNPS 2009, Reiser 1994). It has also been reported as occurring within valley and foothill grasslands and cismontane woodlands (CNPS 2009, Reiser 1994).

Parish's Gooseberry (*Ribes divaricatum* var. *parishii*)

Although not federally or State listed as threatened or endangered, Parish's gooseberry is designated as a CNPS List 1A species that is considered very rare and presumed to be extinct in California. This deciduous shrub is endemic and narrowly distributed within San Bernardino and Los Angeles Counties. This gooseberry blooms from February to April during a typical year and has a known elevation range of approximately 210 feet to 980 feet amsl (CNPS 2009).

The preferred habitat for Parish's gooseberry is riparian woodland and swales dominated by willows (CNDDB 2009). This species has been recorded on the banks of creeks, in swamps, and in meadows at only a few locales (CNDDB 2009).

RESULTS

Qualified PBS&J biologists May Lau, Marnie McKernan, and Karl Osmundson completed the spring 2009 rare plant survey for the Spring Trails Specific Plan on July 6, 7, 8 and 9, 2009. The results of the surveys are summarized below within Table 1.

Table 1: Spring 2009 Rare Plant Survey Results

Date	Biologists	Time	Temp (ºF)	Wind (mph)	% Clouds	Rare Plants Observed/ Number of Individuals
7/6/2009	May Lau, Karl Osmundson	1000 - 1830	85 - 95	0 - 1	0	None
7/7/2009	May Lau, Karl Osmundson	0900 - 1830	80 - 95	0 - 1	0	*Juglans californica* / 50 - 100
7/8/2009	Marnie McKernan, Karl Osmundson	0800 - 1230	79 - 85	1 - 2	0	None
7/9/2009	Marnie McKernan, Karl Osmundson	0855 - 1400	80 - 85	1 - 2	0	*Juglans californica* / 300 - 500

Rare Plant Species Observed within the Survey Area

A single rare tree species, Southern California black walnut (*Juglans californica*), and its associated sensitive natural community, California walnut woodland, were confirmed within the project site. Southern California black walnut is not federally or State listed as endangered or threatened under FESA or CESA; however, it has been designated by the CNPS as a List 4.2 species, having limited distribution and considered fairly endangered in California (CNPS 2009). California walnut woodland is considered a sensitive natural community by the CDFG, having a State sensitivity ranking of S2.1 (considered very threatened in California; approximately 2,000 to 10,000 acres exist statewide) and a global sensitivity ranking of G2 (approximately 2,000 to 10,000 acres exist worldwide) (CNDDB 2009, CDFG 2003). This community has been mapped at a single location within the project site, containing an estimated 100 to 200 individual Southern California black walnut trees within the woodland stand (Exhibit 7). A smaller stand of approximately 50 to 100 individuals is located within the western portions of the site, mapped within an area characterized by southern sycamore-alder riparian woodland and northern mixed chaparral (Exhibit 7). In addition, an unknown number of individual Southern California black walnut trees are scattered within other areas of the site. It is estimate that the number of individuals that occur outside the two larger stands that have been mapped is between 200 and 300 individuals. Recommendations are provided herein that address potential impacts to Southern California black walnut trees and California walnut woodland habitat.

Rare Plant Species Not Observed, but Previously Recorded within the Survey Area

Although not observed during the 2009 rare plant surveys, Plummer's mariposa lily has been previously observed within unconfirmed areas of the project site, none of which have ever been formally mapped or reported. This species is not federally or State listed as endangered or threatened under FESA or CESA; however, it has been designated by the CNPS as a List 1B.2 species, considered fairly endangered in California and rare, threatened, or endangered elsewhere within its known range (CNPS 2009). Anecdotal records of this species' occurrence within the site have been documented on a number of occasions in previous biological resources technical reports prepared for various versions of the proposed project (White and Leatherman 2002a, PCR 1999). The specific locations of these previous observations are not known. The species may have also been observed incidentally during general biological surveys conducted by Michael Brandman Associated in 2007 (pers. comm. McKernan). The approximate locations of these observations have been plotted on Exhibit 7. It is estimated that the total population observed onsite was relatively small, having comprised of approximately 100 to 300 individuals.

With the exception of marginal habitat, no diagnostic sign of this species or any other mariposa lilies (*Calochortus* spp.) was observed within the project site during the 2009 surveys. Possible explanations include changes in habitat suitability since previous surveys, individuals onsite experienced an early 2009 bloom (prior to July survey), and/or the area experienced poor environmental conditions which completely inhibited the 2009 bloom. More likely than the latter two explanations, the negative finding during 2009 is probably a result of the former. Refuting the argument that individuals onsite have already bloomed and senesced, PBS&J biologists observed early- and mid-bloom splendid (*Calochortus splendens*) and golden-bowl

(*Calochortus concolor*) mariposa lilies on June 24, 2009 approximately 20 miles southeast of the site near Mill Creek occupying similar habitat (chaparral) and similar elevations (approximately 3,000 feet amsl). The observation of these like-species in bloom in the region would suggest that any other mariposa lilies, including Plummer's, would be in bloom on the project site during the July 2009 surveys. This was not the case, and no mariposa lilies were observed within any portions of the survey area. In support of the argument that previously occupied areas are no longer currently suitable, much of the chaparral and coastal sage scrub-type habitats have recovered successfully since the most recent fire event on the property, displaying closed-canopy and near-closed-canopy growth within the large majority of stands. Most stands provided little understory opportunity between shrubs, and the species that were observed in the understory were predominately non-native grasses. Being an opportunistic species that occurs within the herbaceous understory of fairly open canopy habitats, Plummer's mariposa lilies may have been choked-out of previously suitable and occupied areas as a result of the dense shrub strata and/or establishment of non-native competitors.

Despite the negative findings in 2009, Plummer's mariposa lily is presumed to occupy portions of the project site in unknown numbers based on previous observations. The total population size is estimated to be relatively small within the survey area, consisting of 100 to 300 individuals. Recommendations are provided herein that address potential impacts to Plummer's mariposa lily.

Rare Plant Species Not Observed and Not Likely to Occur within the Survey Area

Fourteen of the sixteen target rare plant species were not observed during the 2009 surveys: Nevin's barberry, Santa Ana River woollystar**,** slender-horned spineflower, Parry's spineflower, California muhly, occelated Humboldt lily, mesa horkelia, California spineflower, San Bernardino owl's clover, smooth tarplant, many-stemmed dudleya, Parish's gooseberry, marsh sandwort, and hot springs fimbristylis. These species are considered absent or not likely to occur within the survey area based on further investigation of habitat suitability, the negative 2009 survey findings, as well as previous survey findings and determinations that have repeatedly concluded their absence or low probability of occurrence. Further discussion is provided below for each of these species.

Nevin's barberry is a conspicuous evergreen shrub that is readily identifiable in the field year-round. Although suitable habitat existing throughout the project site, and particularly the chaparral in the northern portions of the site, this listed species is considered absent based on the fact it has never been observed onsite after numerous surveys conducted between 1999 and 2009.

Similarly, the Santa Ana River woollystar is a conspicuous perennial herb that is highly detectable during the appropriate times of year. The southern portions of the survey area that occur within the Cable Creek floodplain and adjacent alluvial benches and terraces are suitable for this species. The very high level of disturbance, high elevations, and the fact that the survey area is located relatively far from occupied habitats further downstream in the Santa Ana River watershed strongly reduce the potential for this species to occur. This listed species is also considered absent from the survey area based on disturbance and range factors that limit its potential, and the fact it has never been observed after numerous surveys.

No sign of the listed slender-horned spineflower, or non-listed Parry's spineflower and California spineflower were observed during the 2009 surveys. These species has never been observed on the project site during previous surveys either. Although 2009 surveys were conducted just after the slender-horned spineflower and Parry's spineflower blooming periods (April to June), it can be expected that some individuals of either of these species would still be identifiable in July this year if present. Similar to the Santa Ana River woollystar, suitable habitat for the listed slender-horned spineflower and non-listed California spineflower occurs within the Cable Creek floodplain and adjacent alluvial benches and terraces in the southern portions of the survey area. Marginal habitat for slender-horned, as well as Parry's and California spineflower, occurs within alluvial fan sage scrub and coastal sage scrub habitat within other areas of the site as well. However, many of these areas contain a dense overstory shrub layer with limited canopy openings. or include a herbaceous layer that is densely occupied by non-native grasses. These limiting factors would most likely preclude these species from occurring. Slender-horned spineflower, Parry's spineflower, and California spineflower are, therefore, considered not likely to occur within the survey area based on the negative 2009 surveys and the fact they have never been observed in the past.

Surveys were conducted within the appropriate time of year, and within marginal habitat for the occelated Humboldt lily. However, this species was not observed within any portions of the survey area during 2009 surveys. This species is a showy bulbiferous herb that is readily identifiable. PBS&J biologists observed pre-, early-, and mid-bloom leopard lilies (*Lilium pardalinum* ssp. *pardilinum*) on June 24, 2009 approximately 20 miles southeast of the site near Mill Creek occupying similar habitat (riparian woodland, chaparral) and similar elevations (approx. 3,000 feet amsl). Had this species been present within the survey area it would have been positively identified. Furthermore, this species has been reported as occurring most often in yellow-pine forest and oak canyons, both of which are absent from the survey area. This species is considered absent from the survey area based on negative findings in 2009 and the fact it had never been observed during previous surveys.

Limited suitable habitat occurs within the project site for California muhly grass, and many of these suitable areas are inaccessible due to dense vegetation. However, this species was not observed within the survey area itself and considered not likely to occur within these portions of the site. The far northern portions of the site within the East Fork and West Fork of Cable Canyon that could not be surveyed due to inaccessibility provide the highest quality habitat for this species onsite. Based on current plans, these areas would incur very limited impacts as a result of small trails and equestrian staging areas.

Mesa horkelia was not observed during the 2009 surveys, and has never been observed on the project site during previous surveys either. This species was positively identified in bloom by PBS&J biologists at an alternate location in the region in June 2009, and would have been expected to be showing within suitable portions of the survey area during the July 2009 surveys. This species is considered absent from the survey area based on negative findings in 2009 and the fact it had never been observed during previous surveys.

After further investigation, it was determined that the survey area is not suitable for the San Bernardino owl's clover. This species has a known elevation range of approximately 4,265 feet

to 7,840 feet amsl that is well above the survey area limits. The survey area is also too low to support this species preferred habitat, montane meadows and pebble pavement plains. Had this species been present by some remote possibility it would have been positively identified by its showy display during the peak of the known blooming period. This species is considered absent from the survey area.

Smooth tarplant was not observed during the 2009 surveys, and has never been observed on the project site during previous surveys either. Limited portions of the survey area provide marginal habitat for this species, as the large majority of the site does not lend to alkaline conditions. Furthermore, the marginal habitat that occurs within the survey area falls within the upper elevation limits that are known for this species (approximately 2,000 amsl). Some of the highly disturbed areas within the survey area are marginal for this species as well. However, these areas were densely occupied by non-native grasses, western sunflower (*Helianthus annuus*), mustards (*Brassica nigra*, *Hirschfeldia incana*), Russian thistle (*Salsola tragus*), and other non-natives. This species is, therefore, considered not likely to occur within the survey area based on the negative 2009 surveys and the fact it has never been observed within the project site in the past.

After further investigation, it was determined that the survey area is not suitable for the many-stemmed dudleya. This species' preferred habitats are supported by clay soils which are absent from the project site. Although suitable vegetation associations, barrens, rocky places, and ridgelines occur throughout the site for this species, they are not supported by underlying clay soils. This species is, therefore, considered absent from the survey area.

Parish's gooseberry was not observed during 2009 surveys, nor was it observed in during previous surveys of the project site. This species is extremely rare and potentially extinct. Furthermore, the project site occurs well above the known elevation limits of this species (approximately 210 feet to 980 feet amsl). This species is, therefore, considered not likely to occur within the survey area based on the negative 2009 surveys, range restrictions, extreme rarity and potential extinction, and the fact it has never been observed within the project site in the past.

After further investigation, it was determined that the survey area is not suitable for marsh sandwort. This coastal species' preferred habitats are freshwater and brackish marshes, swamps, and bogs which are absent from the project site. This species is highly restricted in its current range, known only from two locations, the Pismo Dunes area and Oso Flaco Lake in coastal San Luis Obispo County (USFWS 2008). Furthermore, the site occurs well inland and above the known elevation range for this species. This species is, therefore, considered absent from the survey area.

After further investigation, it was determined that the survey area is not suitable for hot springs fimbristylis. This species' preferred habitats are associated with hot springs which are absent from the project site. This species is, therefore, considered absent from the survey area.

CONCLUSIONS AND RECOMMENDATIONS

In conclusion, the spring 2009 rare plant surveys for the Spring Trails Specific Plan resulted in the confirmation of a single special-status plant species within the survey area, the southern California black walnut, a non-listed CNPS List 4.2 species. An estimated 300 to 500 individuals occur within the survey area. Additionally, although not observed during the 2009 surveys, Plummer's mariposa lily, a non-listed CNPS List 1B.2 species, is expected to occur within portions of the survey area based on anecdotal reporting and previous observations that were incidental during general biological resources studies. An estimated 100 to 300 individuals are expected to occur within the survey area.

Based on current plans for the proposed project, both of these species occur within the proposed impact area, and as a result, permanent, direct impacts are anticipated to occur to the large majority of individuals determined present or expected to occur within the survey area. The following recommendations are provided to reduce potential impacts to these two species.

Southern California Black Walnut

Pursuant to the California Environmental Quality Act (CEQA) thresholds of significance for the proposed project, potential impacts to this non-listed CNPS List 4.2 species are not anticipated to be significant due to the relative abundance of this species on a regional scale. This species is known from at least 21 to 80 occurrences throughout its range, which is interpreted as anywhere between 3,000 to 10,000 individuals that are known, or 10,000 to 50,000 occupied acres. The proposed project would result in the removal of approximately 350 to 600 individuals. This represents a small portion of the total known population. These impacts would not jeopardize the existence of this species or elevate its sensitivity or status under the CNPS, CNDDB and global and State heritage rankings, FESA, or CESA.

However, avoidance of these and other native trees should be encouraged in the final project design, and any unavoidable impacts should be minimized and reduced through the salvage and relocation of healthy candidate specimens, and/or the replanting of new specimens within areas to be preserved onsite. Appropriate assessment by a certified arborist should be conducted prior to tree removal. If trees are to be salvaged and relocated they should be conducted according to a relocation plan or similar. Appropriate boxing and relocation and planting techniques should be implemented by qualified personnel. A tree replacement plan, revegetation plan, or similar should be prepared by a qualified landscape architect or arborist and should contain southern California black walnut trees in the prescribed plant palette for the effort. The plan should include performance standards and measures for monitoring success over a minimum of 3 to 5 years.

Plummer's Mariposa Lily

Similar to that which was determined for southern California black walnut, pursuant to CEQA, potential impacts to this non-listed CNPS List 1B.2 species are not anticipated to be significant due to the relative abundance of this species on a regional scale. This species is also known from at least 21 to 80 occurrences throughout its range, interpreted as anywhere between 3,000 to 10,000 individuals or 10,000 to 50,000 occupied acres that are known. The proposed project

may result in the removal of an estimated 100 to 300 individuals, if present. This represents a small portion of the total known population and any impacts would not jeopardize the existence of this species or elevate its sensitivity or listing status under the CNPS, CNDDB and global and State heritage rankings, FESA, or CESA.

However, avoidance of the areas presumed to be occupied by this species should be encouraged in the final project design to minimize impacts to the maximum extent. Preconstruction measures should be encouraged to positively identify and quantify all individuals on or in the immediate vicinity of the proposed impact areas. Surveys for this species should be conducted prior to project construction by a qualified biologist between the months of May and July. Any individuals confirmed within the project impact area should be considered for possible salvage and relocation into suitable receptor sites located onsite within preserved areas, if feasible for this species. Any individuals confirmed in the immediate vicinity of proposed impact areas should be flagged and appropriately fenced off from construction zones to prevent inadvertent impacts. Individuals confirmed within areas proposed for preservation onsite should be properly recorded and avoided during any revegetation or other efforts anticipated in the long-term during project operation. All observations should be accurately reported to the CNDDB, CNPS, Consortium of California Herbarium, and/or other herbarium or sensitive species databases.

If you have any questions or comments regarding this letter, please do not hesitate to contact me at 858.514.1068.

Sincerely,

Karl Osmundson
Project Manager / Senior Scientist

Enclosures: Attachment A: References
Attachment B: Species Compendium
Attachment C: Photographs
Attachment D: Exhibits 1 – 7

Attachment A: References

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Attachment B: Plant Species Compendium

VASCULAR PLANTS

FERNS

Dennstaedtiaceae	**Bracken Family**
Pteridium aquilinum var. *pubescens*	western bracken
Pteridaceae	**Brake Family**
Pellaea andromedifolia	coffee fern

GYMNOSPERMS

Cupressaceae	**Cypress Family**
Calocedrus decurrens	incense cedar
Juniperus californica	California juniper
Pinaceae	**Pine Family**
Pinus sp.	pine
Psuedotsuga macrocarpa	big-cone douglas fir

ANGIOSPERMS (DICOTYLEDONS)

Asteraceae	**Sunflower Family**
**Carduus pycnocephalus*	Italian thistle
**Centaurea melitensis*	tocalote
**Centaurea solstitialis*	yellow star-thistle
Ambrosia acanthicarpa	annual bursage
Ambrosia psilostachya	western ragweed
Artemisia californica	California sagebrush
Artemisia douglasiana	mugwort
Artemisia dracunculus	tarragon
Baccharis salicifolia	mulefat
Brickellia californica	Californica brickelbush
Cirsium occidentale	cobweb thistle
**Cirsium vulgare*	bull thistle
Encelia farinose	brittlebush
Ericameria pinifolia	pine goldenbush
Filago californica	filago
Gnaphalium californicum	California everlasting
Gnaphalium canescens	felty everlasting
Hazardia squarrosa	saw-toothed goldenbush
Helianthus annuus	common sunflower
Hemizonia fasciculata	fascicled tarweed
Heterotheca grandiflora	telegraph weed
Lepidospartum squamatum	scale-broom
Lessingia filaginifolia	California aster
Stephanomeria virgata	twiggy wreathplant
Tetradymia comosa	cotton-thorn
**Xanthium strumarium*	cocklebur
Anacardiaceae	**Sumac or Cashew Family**
Malosma laurina	laurel sumac
Rhus ovata	sugar bush
Rhus trilobata	skunkbrush
Toxicodendron diversilobum	poison oak

Betulaceae	**Birch Family**
Alnus rhombifolia	white alder
Boraginaceae	**Borage Family**
Amsinckia menziesii	rancher's fiddleneck
Brassicaceae	**Mustard Family**
**Brassica nigra*	black mustard
**Brassica rapa*	field mustard
**Hirshfeldia incana*	short-podded mustard
**Lepidium virginicum*	peppergrass
**Raphanus sativus*	radish
Erysimum capitatum	western wallflower
Cactaceae	**Cactus Family**
Cylindropuntia californica var. parkeri	cane cholla
Opunita littoralis	coastal prickly-pear
Caprifoliaceae	**Honeysuckle Family**
Lonicera subsoicata var. denudata	southern honeysuckle
Sambucus mexicana	Mexican elderberry
Symphoricarpos mollis	creeping snowberry
Chenopodiaceae	**Goosefoot Family**
**Chenopodium album*	lamb's quarters
**Salsola tragus*	Russian thistle
Convolvulaceae	**Morning-Glory Family**
Calystegia macrostegia	morning-glory
Crassulaceae	**Stonecrop Family**
Crassula connata	pygmy-weed
Cucurbitaceae	**Gourd Family**
Cucurbita palmata	coyote gourd
Marah macrocarpus	wild cucumber
Cuscutaceae	**Dodder Family**
Cuscuta californica	California dodder
Dennstaedtiaceae	**Bracken Family**
Pteridium aquilinum var. pubescens	western bracken
Ericaceae	**Heath Family**
Arctostaphylos glauca	big-berry manzanita
Euphorbiaceae	**Spurge Family**
Chamaesyce prostrata	prostrate sandmat
Croton californicus	California croton
Eremocarpus setigerus	dove weed
Ricinus communis	castorbean
Fabaceae	**Legume Family**
**Melilotus alba*	white sweetclover
**Melilotus officinalis*	yellow sweet clover

Lotus heermannii	woolly lotus
Lotus scoparius	deerweed
Lotus strigosus	strigose lotus
Lupinus hirsutissimus	stinging lupine
Lupinus sp.	lupine
Fagaceae	**Oak Family**
Quercus agrifolia	coast live oak
Quercus berberidifolia	scrub oak
Quercus chrysolepis	canyon live oak
Quercus wislizenii	interior live oak
Geraniaceae	**Geranium Family**
**Erodium cicutarium*	filaree
Hydrophyllaceae	**Waterleaf Family**
Emmenanthe penduliflora	whispering bells
Eriodictyon trichocalyx	shiny-leaf yerba santa
Phacelia cicutaria	caterpillar phacelia
Phacelia distans	wild heliotrope
Phacelia minor	wild Canterbury bells
Juglandaceae	**Walnut Family**
Juglans californica var. *californica*	southern California black walnut
Lamiaceae	**Mint Family**
**Marrubium vulgare*	horehound
Salvia apiana	white sage
Salvia columbariae	chia
Salvia mellifera	black sage
Stachys ajugoides var. *rigida*	hedge-nettle
Lauraceae	**Laurel Family**
Umbellularia californica	California bay
Malvaceae	**Mallow Family**
Malacothamnus densiflorus	bushmallow
**Malva oarviflora*	cheeseweed
Moraceae	**Mulberry and Fig Family**
Ficus carica	edible fig
Myrtaceae	**Myrtle Family**
Eucalyptus globules	blue gum
Eucalyptus polyanthemos	red box gum
Eucalyptus sideroxylon	red-iron bark
Nyctaginaceae	**Four O'Clock Family**
Mirabilis californica	California wishbone bush
Oleaceae	**Olive Family**
**Olea europaea*	olive
Onagraceae	**Evening Primrose Family**
Camissonia bistorta	California sun cup
Epilobium canum	California fuchsia

Oenothera elata ssp. *hirsutissima*	evening primrose
Paeoniaceae	**Peony Family**
Paeonia californica	California peony
Papaveraceae	**Poppy Family**
Dendromecon rigida	bush poppy
Papaver californicum	fire poppy
Platanaceae	**Sycamore Family**
Platanus racemosa	western sycamore
Polemoniaceae	**Phlox Family**
Eriastrum sapphirinum	sapphire eriastrum
Gilia angelensis	chaparral gilia
Gilia capitata ssp. *abrotanifolia*	globe gilia
Navarretia hamata ssp. *hamata*	hooked skunkweed
Polygonaceae	**Buckwheat Family**
Chorizanthe staticoides	Turkish rugging
**Polygonum arenastrum*	common knotweed
**Rumex crispus*	curly dock
Eriogonum davidsonii	Davidson buckwheat
Eriogonum fasciculatum	California buckwheat
Polygonum amphibium	water smartweed
Polygonum hydropiperoides	water pepper
Polygonum lapathifolium	willow-weed
Rumex salicifolius	willow dock
Portulacaceae	**Purslane Family**
Claytonia perfoliata	miner's lettuce
Primulaceae	**Primrose Family**
Dodecatheon clevelandii ssp. *clevelandii*	shooting star
Ranunculaceae	**Buttercup Family**
Delphinium cardinals	scarlet larkspur
Delphinium parryi ssp. *parryi*	blue larkspur
Rhamnaceae	**Buckthorn Family**
Ceanothus crassifolius	hoary leaf ceanothus
Ceanothus cuneatus	buck brush
Ceanothus leucodermis	chaparral whitethorn
Ceanothus spinosus	spiny ceanothus
Rhamnus californica	California coffeeberry
Rhamnus crocea	spiny redberry
Rhamnus ilicifolia	holly-leaf redberry
Rosaceae	**Rose Family**
Adenostoma fasciculatum	chamise
Cercocarpus betuloides	birch-leaf mountain-mahogany
Heteromeles arbutifolia	toyon
Prunus ilicifolia	holly-leaved cherry
Rosa californica	California wild rose
Rubus ursinus	California blackberry

Rubiaceae	**Madder Family**
**Galium aparine*	goose grass
Salicaceae	**Willow Family**
Populus angustifolia	narrow-leaf cottonwood
Populus fremontii ssp. *Fremontii*	Fremont's cottonwood
Salix exigua	sandbar willow
Salix laevigata	red willow
Salix lasiolepis	arroyo willow
Scrophulariaceae	**Figwort Family**
Keckiella atirrhinoides	chaparral beard-tongue
Mimulus aurantiacus	sticky monkey-flower
Penstemon spectabilis	showy penstemon
Simaroubaceae	**Quassia Family**
**Ailanthus altissima*	Tree-of-Heaven
Solanaceae	**Nightshade Family**
Datura wrightii	jimson weed
**Nicotiana glauca*	tree tobacco
Solanum xanti	purple nightshade
Tamaricaceae	**Tamarisk Family**
****Tamarix* sp.**	**tamarisk**
****Tamarix ramosissima***	**Mediterranean tamarisk**
Urticaceae	**Nettle Family**
Urtica dioica* ssp. *holosericea	**giant creek nettle**
Viscaceae	**Mistletoe Family**
Phoradendron villosum	**mistletoe**
Vitaceae	**Grape Family**
Vitis girdiana	**wild grape**

ANGIOSPERMS (MONOCOTYLEDONS – LILIES AND IRISES)

Liliaceae	**Lily Family**
Chlorogalum pomeridianum	soap plant
Dichelostemma capitatum	blue dicks
Yucca whipplei	Our Lord's candle

ANGIOSPERMS (MONOCOTYLEDONS – SEDGES, RUSHES, AND GRASSES)

Cyperaceae	**Sedge Family**
Scirpus acutus var. *occidentalis*	hard-stemmed bulrush
Juncaceae	**Rush Family**
Juncus bufonius	toad rush
Juncus mexicanus	Mexican rush
Poaceae	**Grass Family**
**Avena fatua*	wild oat
**Bromus diandrus*	ripgut grass
**Bromus hordeaceus*	soft chess

**Bromus madritensis ssp. rubens*	red brome
**Bromus tectorum*	cheat grass
**Echinochloa crus-galli*	barnyard grass
**Lamarckia aurea*	goldentop
**Lolium multiflorum*	Italian ryegrass
**Lolium perenne*	perennial ryegrass
**Poa annua*	annual bluegrass
**Polypogon monspeliensis*	annual beard grass
**Schismus barbatus*	Mediterranean schismus
**Vulpia myuros*	rattail fescue
Agrostis viridis	water bent
Avena sp.	oat
Distichlis spicata	saltgrass
Elymus glaucus	blue wildrye
Hordeum vulgare	barley
Leptochloa uninervia	Mexican sprangletop
Leymus condensatus	giant wild rye
Melica imperfecta	coast melic
Muhlenbergia rigens	deergrass
Piptatherum miliaceum	smilo grass
Typhaceae	**Cattail Family**
Typha angustifolia	Narrow-leaf cattail

*non-native

Attachment C: Photographs

Photo 1: Overview of Riversidean sage scrub, sycamore alluvial woodland, and Ceanothus crassifolius dominated chaparral in the southeastern portions of the survey area, facing southwest.

Photo 2: View of southern willow scrub/California walnut woodland (sparse steep slope in the left of photo), sycamore alluvial woodland (center foreground and midground), and Ceanothus crassifolius dominated chaparral (dense steep slope in right of photo) within the southern-central portions of the survey area, facing east. A number of scattered isolated southern California black walnut trees were observed within this area.

Photo 3: Overview of one the more sparse stands of Riversidean sage scrub (foreground) and dense southern willow scrub/California walnut woodland (midground) within central portions of the survey area, facing northeast. A number of scattered isolated southern California black walnut trees were observed within this area.

Photo 4: Overview of dense Riversidean sage scrub and northern mixed chaparral within the eastern portions of the survey area, facing north. The middle reach of an unnamed drainage feature characterized by sparse scrub is depicted in the foreground of the photo.

Photo 5: Overview looking across the alluvial fan within the central portions of the survey area, facing southwest. This area is characterized by a monotypic, dense Riversidean sage scrub dominated by white sage and California buckwheat, and had previously been reported to support a relatively small population of Plummer's mariposa lily during surveys conducted in 2007.

Photo 6: Downstream overview of lower reach of Cable Creek floodplain as it discharges from the survey area, facing southwest. Note broad cobbley and gravelly bench and terrace in foreground and riparian canopy along main channel in background.

Photo 7: Upstream view of middle reach of Cable Canyon characterized by an open-canopy Riversidean sage scrub/California walnut woodland, facing north. This woodland intergrades with southern sycamore-alder riparian woodland further upstream in the background of photo. A relatively pure stand of southern California black walnut trees occupies the toe-of-slope depicted in the background left of photo.

Photo 8: Typical view of large, northeast-to-southwest trending unnamed drainage feature that traverses the northern portion of the survey area, facing north. This feature is characterized by an open-canopy Riversidean sage scrub/California walnut woodland. The Riversidean sage scrub that occupies its northern embankment and adjacent uplands had previously been reported to support a small population of Plummer's mariposa lily during surveys conducted in 2007.

Photo 9: View of Riversidean sage scrub (foreground and left), Riversidean sage scrub/California walnut woodland (midground and right), and Eucalyptus windrow (background) in the northeastern portion of the survey area, facing west.

Photo 10: View of relatively dense Riversidean sage scrub and northern mixed chaparral in northern portions of the survey area, facing west. Note dead snags of sugar bush and southern California black walnut in midground left of photo remnant from previous fire disturbance.

Photo 11: View of sparse Riversidean sage scrub and portions of pure California walnut woodland stand in the northern portion of the survey area, facing northeast.

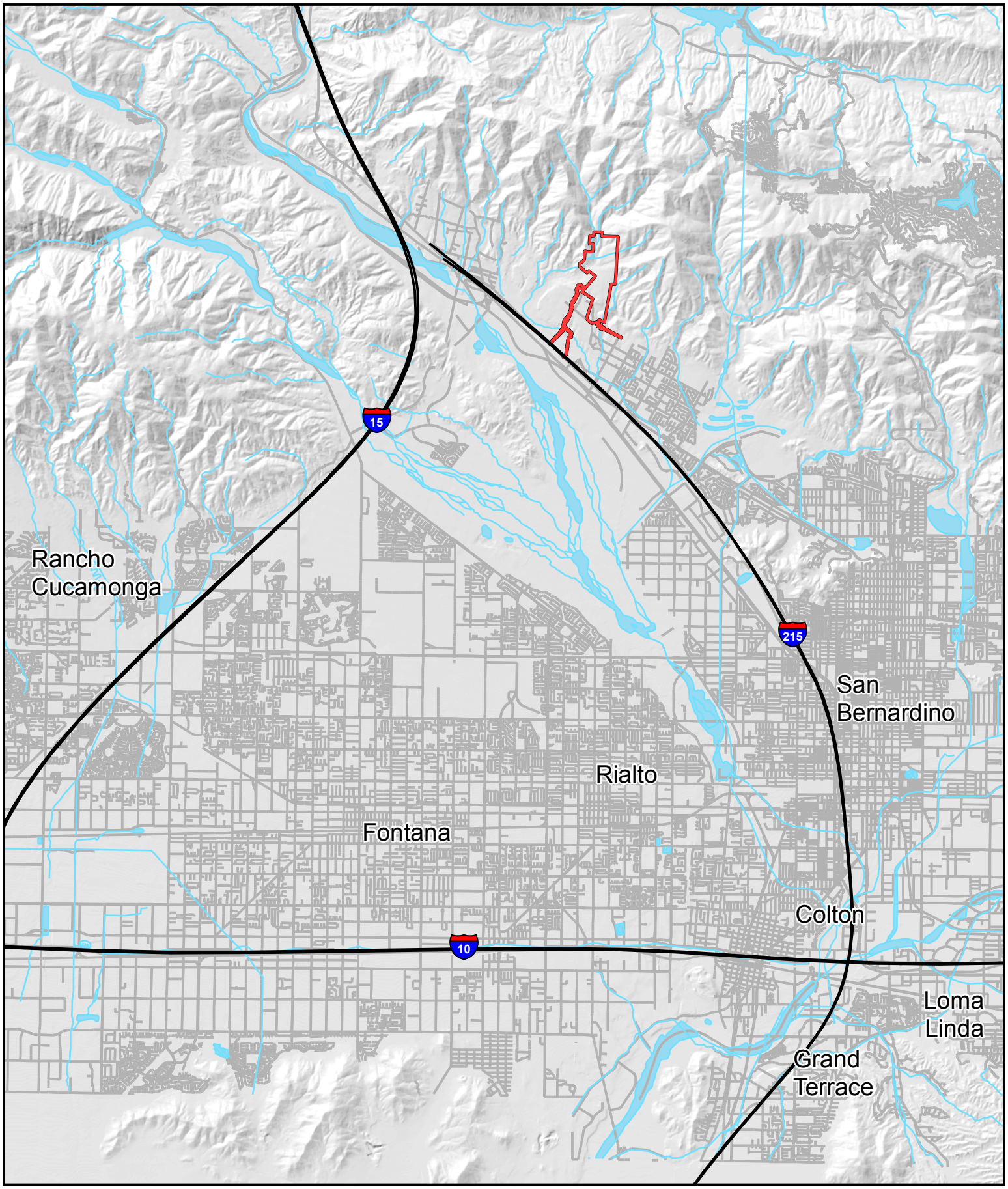
Photo 12: Overview of extreme northern portions of the survey area encompassing upper reaches of East Fork (foreground) and West Fork (background) of Cable Canyon, facing northwest. Binocular surveys were conducted within these areas as portions were inaccessible by foot due to steep terrain and extremely dense vegetation.

Photo 13: View of dense understory of southern sycamore-alder riparian woodland that characterizes Cable Canyon (East Fork), facing northeast. Note perennial flows within this section depicted in the foreground right.

Photo 14: View of southern sycamore-alder riparian woodland within Cable Canyon (West Fork), facing southwest.

Photo 15: View of southern sycamore-alder riparian woodland and canyon live oak woodland (background left) within Cable Canyon (West Fork), facing southwest.

Attachment D: Exhibits 1 – 7



N

0 0.5 1 2 Miles

1 in = 2 miles

Project Site

SPRING TRAILS
RARE PLANT SURVEY REPORT

PBS&J

EXHIBIT 1: REGIONAL LOCATION MAP

Source: PBS&J, USGS| 10/22/2009
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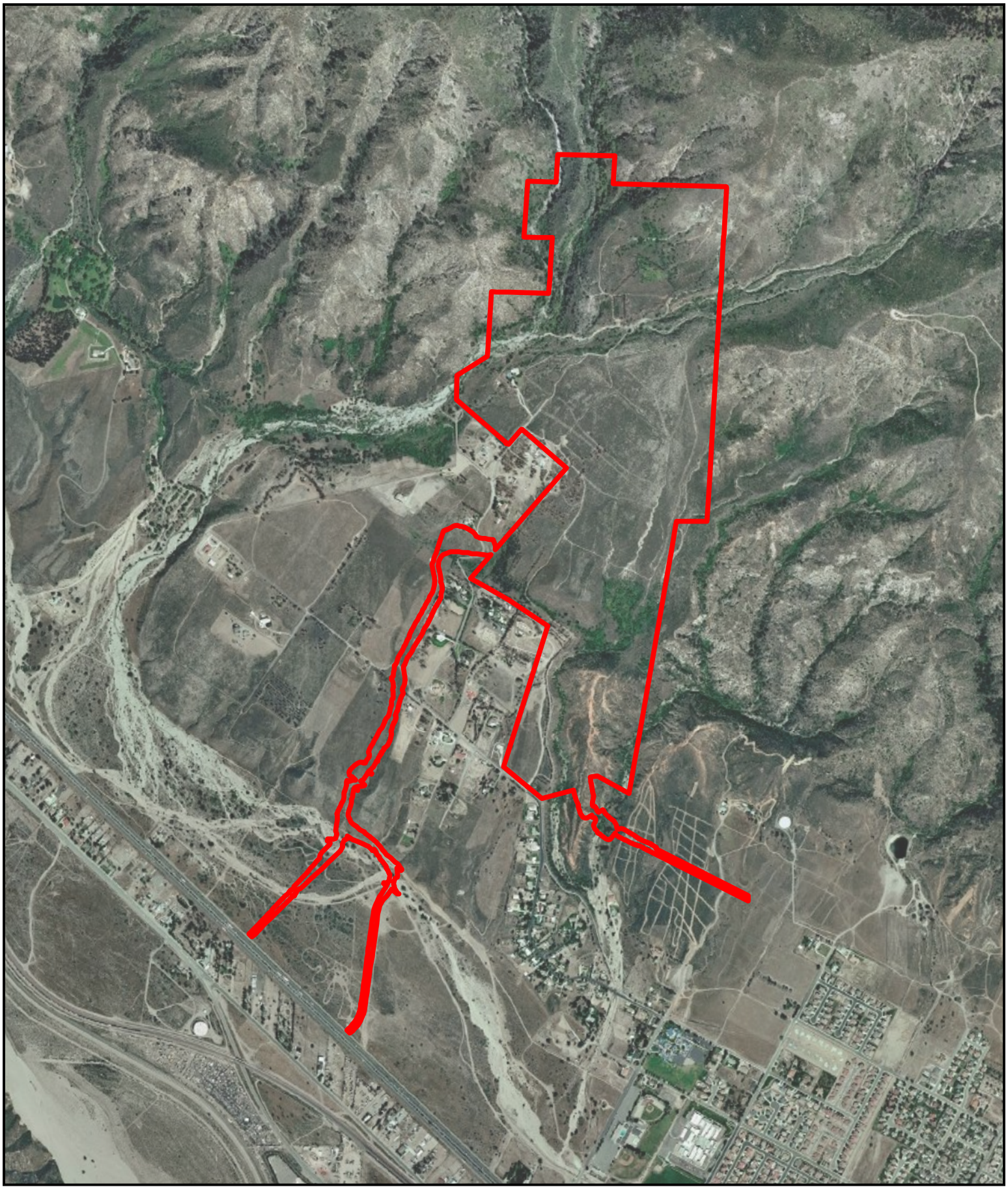

SPRING TRAILS
RARE PLANT SURVEY REPORT

EXHIBIT 2: LOCAL VICINITY AERIAL MAP

PBS&J

Source: PBS&J, USGS| 10/22/2009
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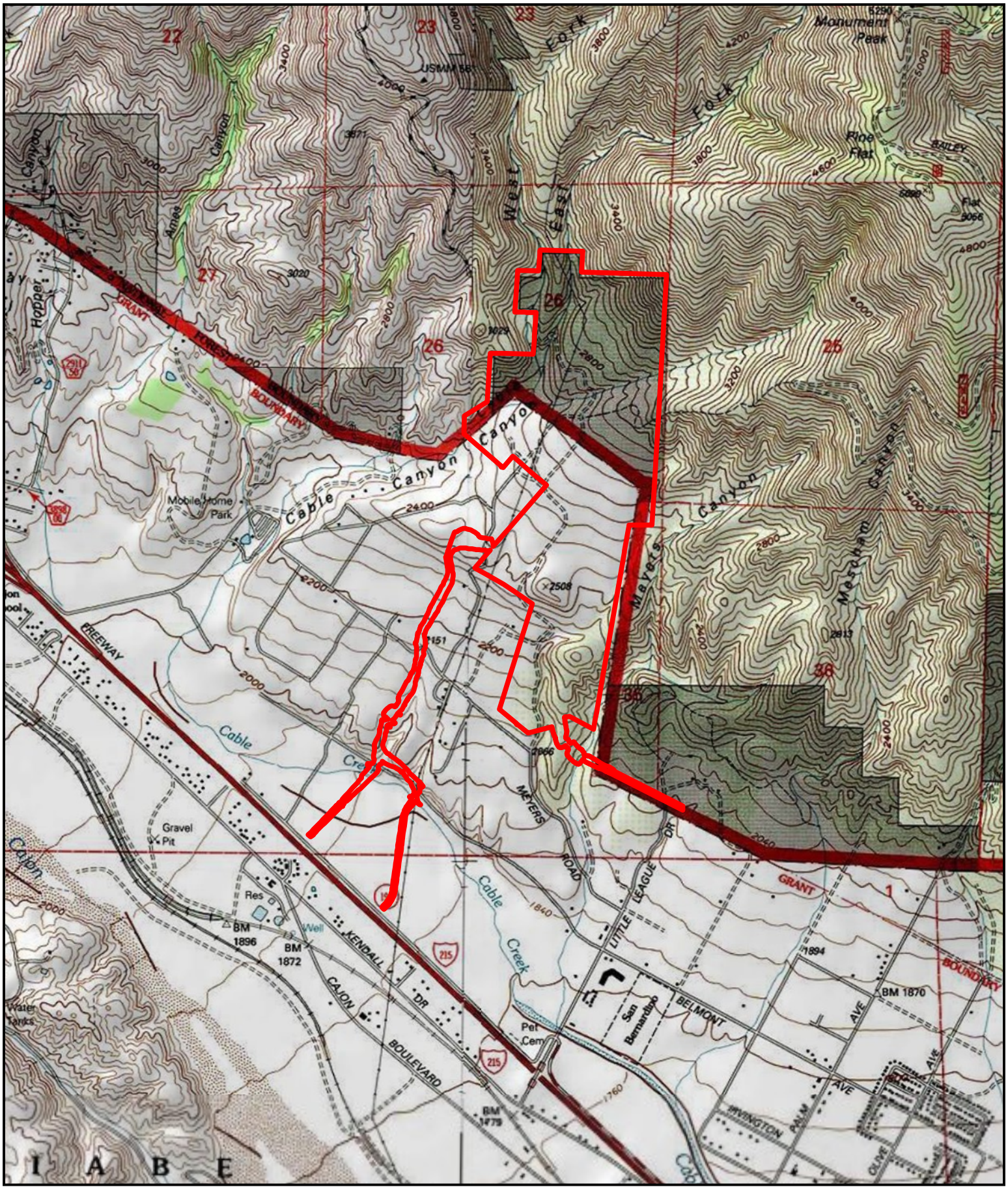

SPRING TRAILS
RARE PLANT SURVEY REPORT

EXHIBIT 3: LOCAL VICINITY TOPOGRAHIC MAP

PBS&J

Source: PBS&J, USGS| 10/22/2009
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SPRING TRAILS
RARE PLANT SURVEY REPORT

EXHIBIT 4: SURVEY AREA MAP

PBS&J

Source: PBS&J, USGS| 10/22/2009
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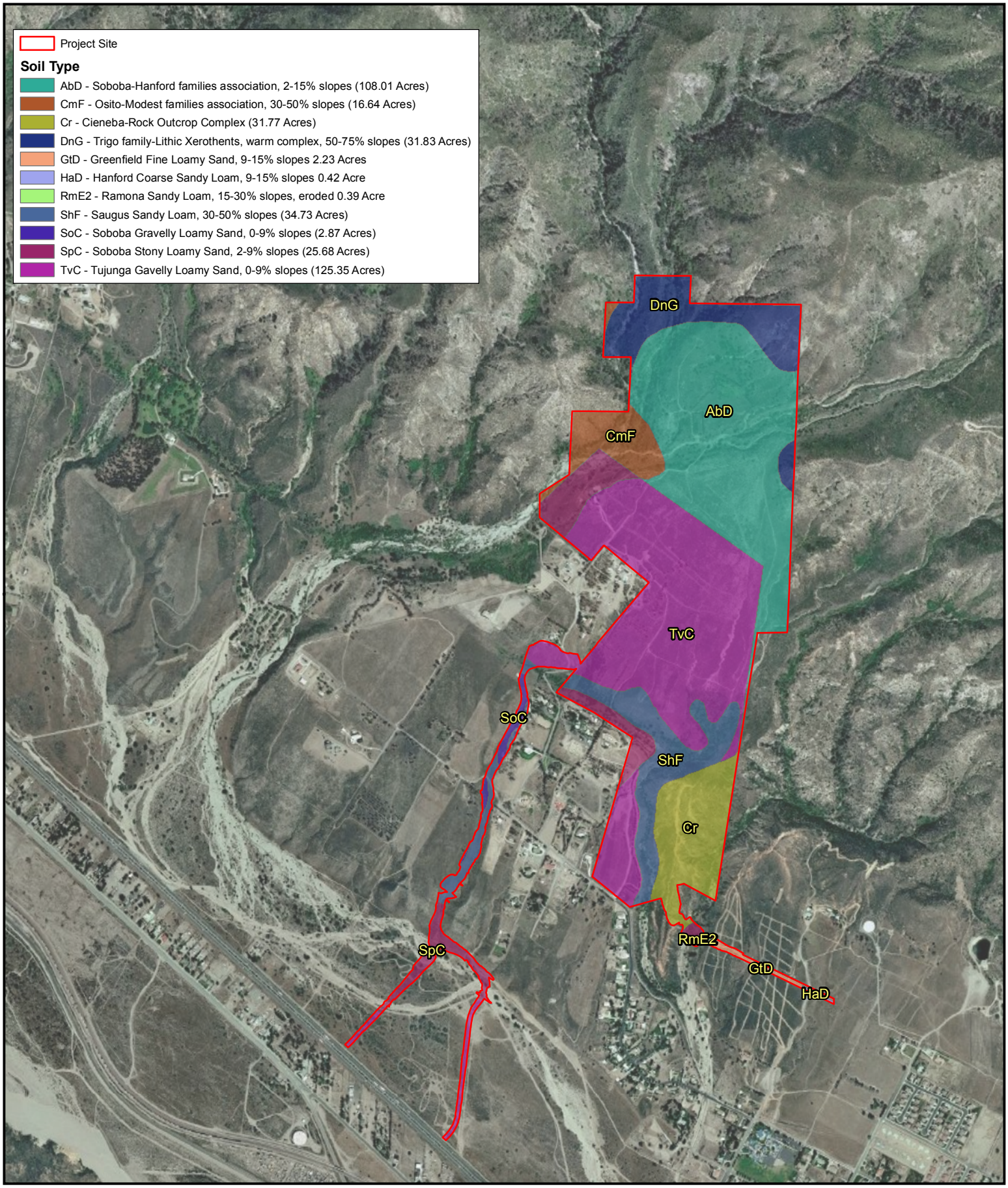

N

0 500 1,000 2,000 Feet

1 in = 1,530 feet

SPRING TRAILS
RARE PLANT SURVEY REPORT

EXHIBIT 5: SOILS MAP

PBS&J

Source: PBS&J, ESRI Streetmap | 07/29/2009
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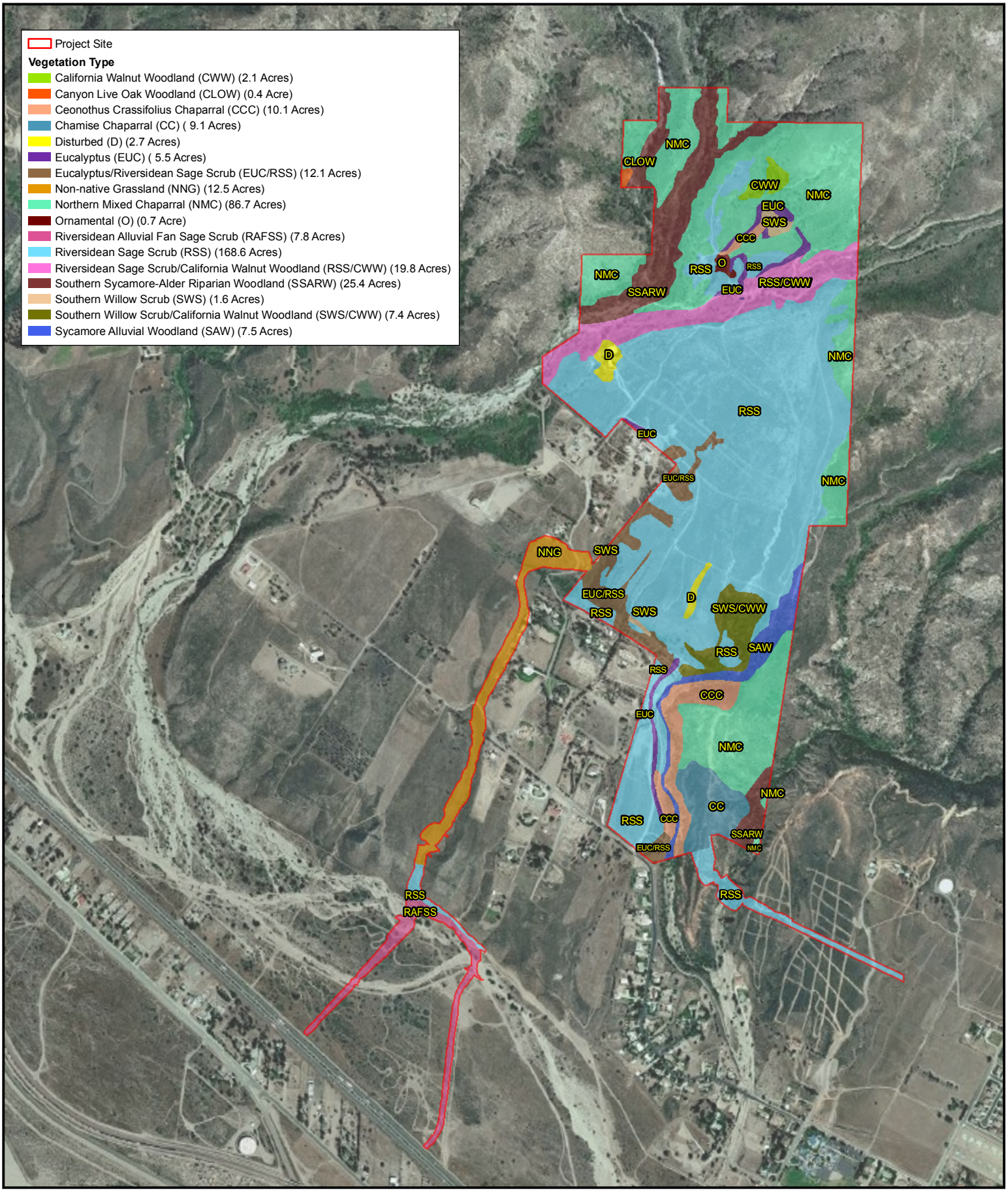

SPRING TRAILS
RARE PLANT SURVEY REPORT

EXHIBIT 6: VEGETATION COMMUNITIES MAP

PBS&J

Source: PBS&J, ESRI Imagery | 10/22/2009
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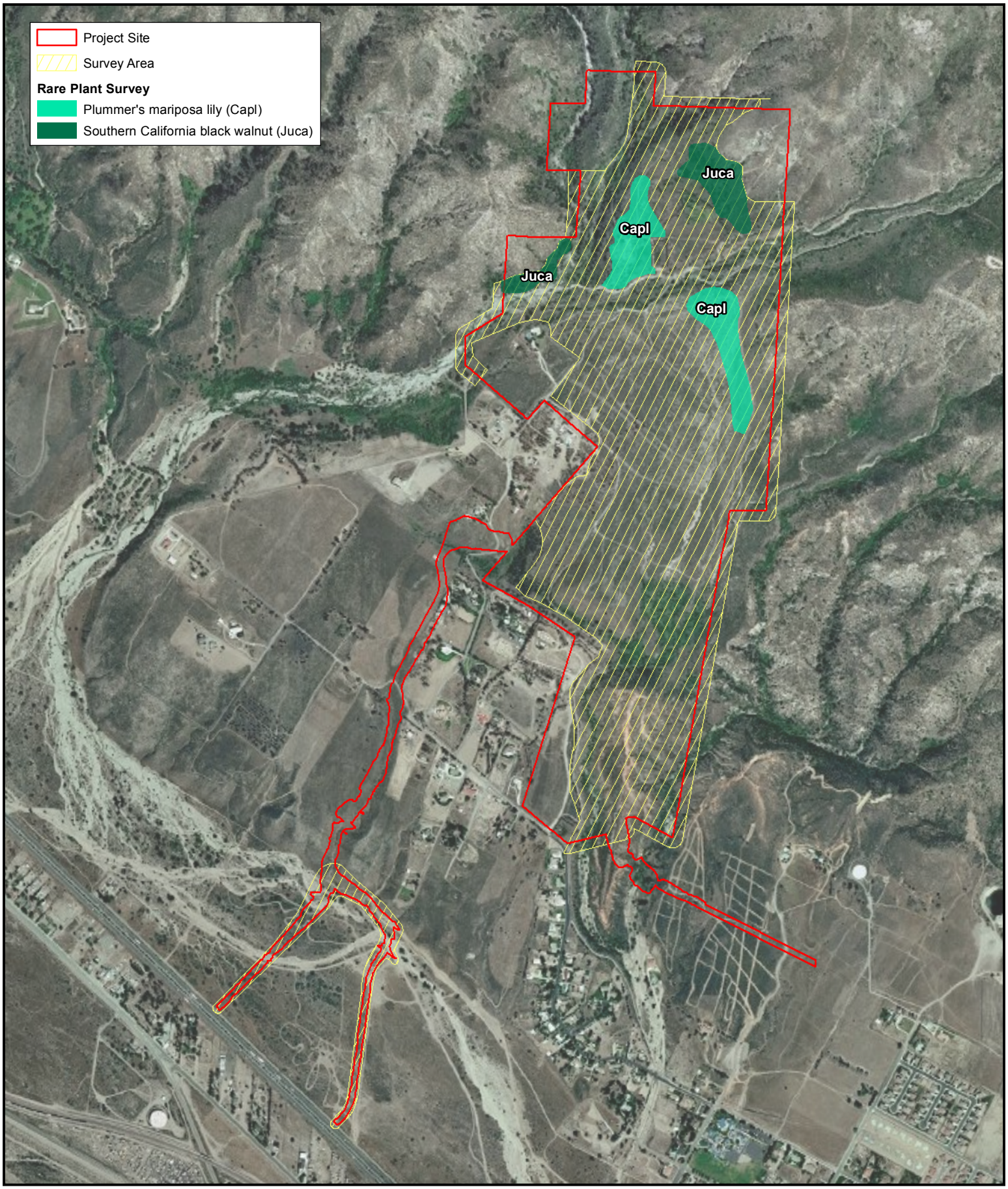

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1 in = 1,250 feet

SPRING TRAILS
RARE PLANT SURVEY REPORT

PBS&J

EXHIBIT 7: SPRING 2009 RARE PLANT SURVEY RESULTS MAP

Source: PBS&J, USGS| 10/22/2009
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