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BIOLOGICAL LLC

July 14, 2022

Judy Bendix
Mosaic Associates
3817 Painted Pony Road
Richmond, CA 94803

Re: Special-Status Plant Survey, Tolari Property, Santos Ranch Road, Hayward, Alameda County, California (APN: 946-3800-4-12)

Dear Judy:

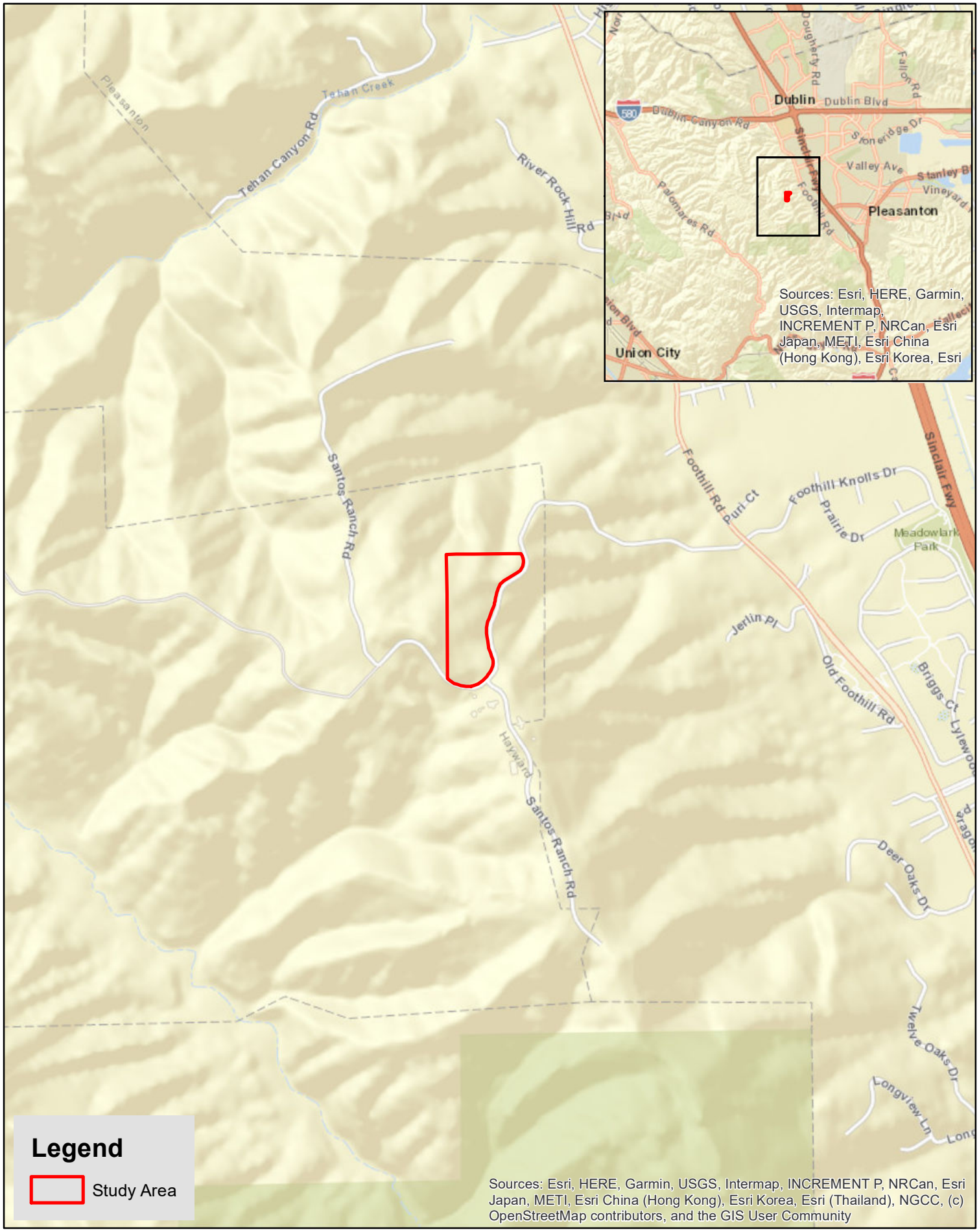
At your request, I conducted a special-status[1] plant survey on and adjacent to the Tolari property (APN: 946-3800-4-12), located on Santos Ranch Road in Hayward, Alameda County, California (Figure 1). The "study area" for the special-status plant survey covers 17-acres and includes the Tolari property and a portion of the adjacent parcel to the south (Bhupinder property, APN: 946-3800-4-9) that extends from the Tolari property south to Santos Ranch Road. The proposed project on the study area consists of development of a single-family residence, driveway, and associated infrastructure on the Tolari property, with a driveway easement crossing the Bhupinder property from Santos Ranch Road, though detailed project plans have not yet been completed.

1.0 METHODS

1.1 Background Literature Search

Prior to the field visits, a background literature search was conducted to determine which special-status plants have potential to occur on the study area (Appendix A). The sources for the background literature search included the California Natural Diversity Database (CDFW 2022) (Dublin 7.5' USGS quad and eight surrounding quads), the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2022a), and the U.S. Fish and Wildlife Service (USFWS) list of threatened or endangered species (USFWS 2022a). The background literature search identified documented species in the region with potential to occur on the study area and helped guide the timing and focus of the surveys, but the surveys were floristic, spaced throughout the spring-summer blooming period of potentially occurring special-status plants, and all plant species observed were identified to the level necessary to determine rarity and listing status (CDFW 2018).

[1] Special-status plant species are defined here to include: (1) all plants that are federal or state-listed as threatened or endangered; (2) all federal and state candidates for listing; (3) plants listed as "rare" under the California Native Plant Protection Act; (4) plants that qualify under the definition of "rare" in the California Environmental Quality Act (CEQA), section 15380, including all plants with a Rare Plant Rank of 1 or 2 (and 3 or 4 when they meet the definition of "rare") of the California Native Plant Society Inventory of Rare and Endangered Plants (CNPS 2022a); and (5) locally significant plants (which are rare or uncommon in a local context or as designated in local or regional plans, policies, or ordinances) (CDFW 2018).



Mapscale: 1:16,000

0 750 1,500 3,000 Feet

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Figure 1. Study area locality map.

1.2 Field Surveys

The plant surveys were conducted on April 6 and June 2, 2022 by botanists Tom Mahony and Neal Kramer and on July 13, 2022 by Tom Mahony. During the surveys, the study area was traversed systematically on foot using intuitive-controlled methodology as outlined in Nelson (1987), CNPS (2001), and CDFW (2018). All species observed on the study area were noted (Appendix B). Plants that could not be identified in the field were taken back to the lab and keyed using Baldwin et al. (2012), along with taxonomic updates in the *Jepson eFlora* (Jepson Flora Project 2022).

Vegetation types on the study area were either mapped on the ground with a Trimble GPS unit or drawn onto an orthophoto in the field based on variations in texture, color, and structure observable on the orthophoto, and subsequently digitized using ArcGIS mapping software. A minimum mapping unit of ~0.1-acre was used for vegetation mapping,

2.0 STUDY AREA

The study area consists of undeveloped land with some areas of disturbance, including a graded hillside above Santos Ranch Road. Based on an analysis of historical aerial imagery, the road appears to have been constructed in the 1960s, with the hillside graded as part of road construction. Additional historic disturbance, dating to the 1960s, is present in the southern portion of the study area from apparent dirt roads and associated grading. Most of the study area was relatively undisturbed at the time of the April-July 2022 plant surveys, though minor ground disturbance had occurred around the proposed homesite area, associated with story pole construction, prior to the July 13, 2022 survey.

Land uses surrounding the study area consist of undeveloped land in Pleasanton Ridge Regional Park (owned by East Bay Regional Park District) to the west, private undeveloped land to the north, Santos Ranch Road and undeveloped private land to the east, and residential development and Pleasanton Township County Water District property to the south (Figure 1). Photographs of the study area are included in Appendix C.

2.1 Vegetation

Six vegetation types are present on the study area: Coast Live Oak Woodland and Forest, Non-Native Grassland, Purple Needlegrass Grassland, Coyote Brush Scrub, Willow Scrub, and Ruderal Herbaceous (Figure 2; Table 1; Appendix C). Coast Live Oak Woodland and Forest, composed of the *Quercus agrifolia* - *Quercus kelloggii* Association[2] within the *Quercus agrifolia* Forest and Woodland Alliance[3], covers the northern portion of the study area on moderate to steep slopes (Appendix C-1, C-2). Coast Live Oak Woodland and Forest is dominated by a canopy of coast live oak (*Quercus agrifolia*[4]), with patchy dense areas of California black oak

[2] Association nomenclature follows the California Natural Community List (CDFW 2021).
[3] Alliance nomenclature follows *A Manual of California Vegetation* (Sawyer et al. 2009) and nomenclatural updates in CNPS (2022b).
[4] Botanical nomenclature follows Baldwin et al. (2012), along with taxonomic updates in the *Jepson eFlora* (The Jepson Flora Project 2022).

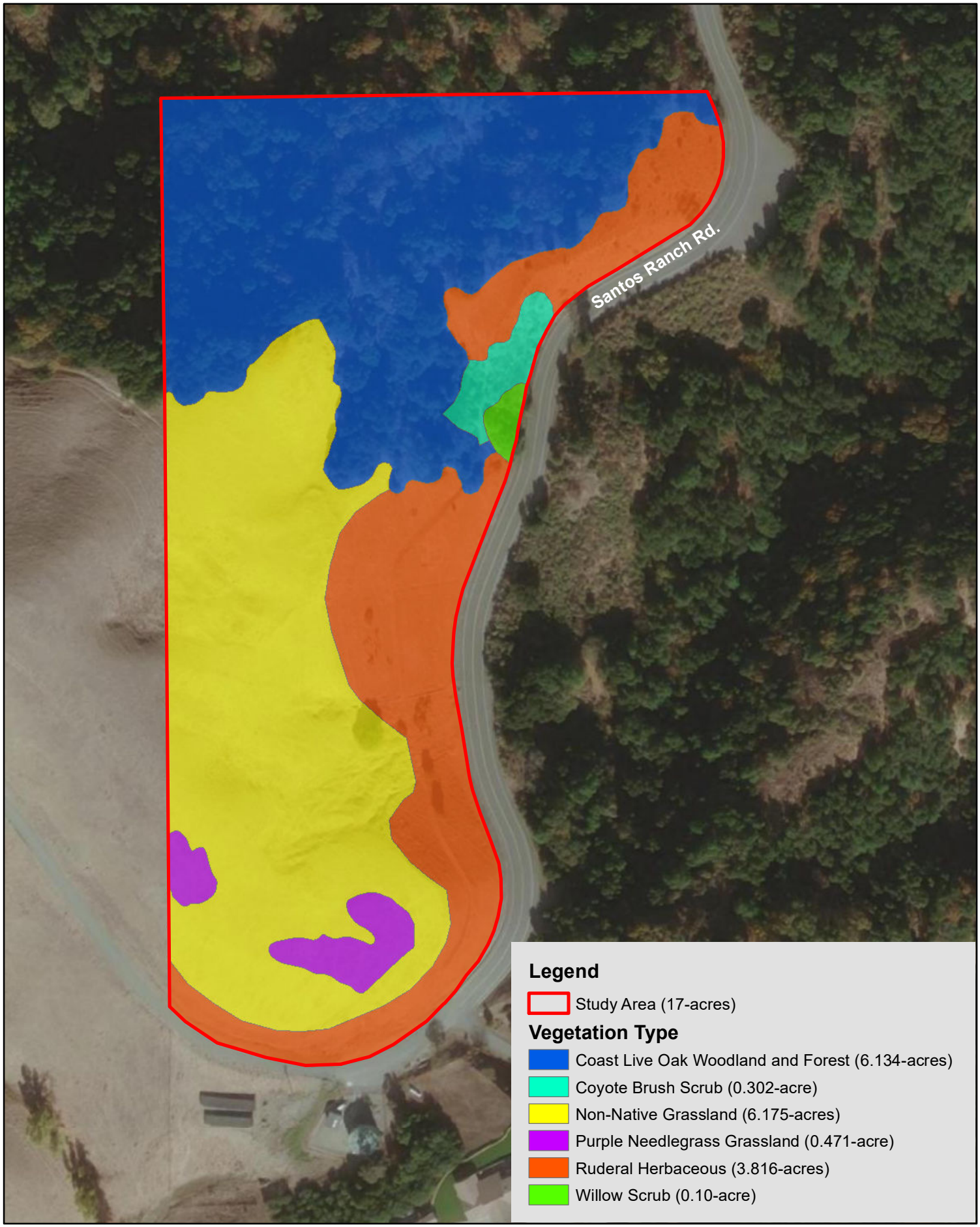

Figure 2. Vegetation on the Santos Ranch Road study area, Hayward.

Image Date: 11/4/19; Map Date: 6/3/22

Mapscale: 1:2,200

0 100 200 400 Feet

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Table 1. Vegetation types present on the study area.

Vegetation Type	Alliance	Association	Global/State Rarity Rank[5]	Sensitive Natural Community	Acres on Study Area
Non-Native Grassland	*Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance	Various (42.027.00)	None	N	6.175
Coast Live Oak Woodland and Forest	*Quercus agrifolia* Forest & Woodland Alliance	*Quercus agrifolia – Quercus kelloggii* (71.060.18)	Alliance: G5/S4 Association: S3?	Alliance: N Association: Y	6.134
Purple Needlegrass Grassland	*Nassella* spp.-*Melica* spp. Herbaceous Alliance	*Nassella pulchra – Avena* spp. *– Bromus* spp. (41.150.05)	G3/S3	Y	0.471
Coyote Brush Scrub	*Baccharis pilularis* Shrubland Alliance	*Baccharis pilularis* (32.060.23)	G4/None	N	0.302
Willow Scrub	*Salix lasiolepis* Shrubland Alliance	*Salix lasiolepis* (61.201.01)	Alliance: G4/S4 Association: S3?	Y	0.10
Ruderal Herbaceous	None	None	None	N	3.816

(*Quercus kelloggii*) and California bay (*Umbellularia californica*). Valley oak (*Quercus lobata*) and big-leaf maple (*Acer macrophyllum*) are occasionally present in the canopy and California buckeye (*Aesculus californica*) is scattered in the subcanopy. The understory consists of shrubs and herbaceous species, including poison oak (*Toxicodendron diversilobum*), creeping snowberry (*Symphoricarpos mollis*), oceanspray (*Holodiscus discolor*), California coffeeberry (*Frangula californica*), oso berry (*Oemleria cerasiformis*), soap plant (*Chlorogalum pomeridianum*), wild pea (*Lathyrus vestitus*), goose grass (*Galium aparine*), yarrow (*Achillea millefolium*), hound's tongue (*Cynoglossum grande*), wood fern (*Dryopteris arguta*), goldback fern (*Pentagramma triangularis*), California polypody (*Polypodium californicum*), California maidenhair (*Adiantum jordanii*), California man-root (*Marah fabacea*), Chinese houses (*Collinsia heterophylla* var. *heterophylla*), Pacific snakeroot (*Sanicula crassicaulis*), milk maids (*Cardamine californica*), blue wildrye (*Elymus glaucus*), and Bermuda buttercup (*Oxalis pes-caprae*).

Non-Native Grassland, composed of the *Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance, occurs on slopes in the western and southern portion of the study area (Appendix C-2, C-3). Non-Native Grassland consists primarily of non-native grasses and forbs adapted to disturbance, including slender wild oat (*Avena barbata*), soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), red brome (*Bromus rubens*), hedgehog dogtail (*Cynosurus echinatus*), Italian ryegrass (*Festuca perennis*), rattail fescue (*Festuca myuros*), barley (*Hordeum murinum* subsp. *leporinum*), silver hair grass (*Aira caryophyllea*), annual bluegrass (*Poa annua*), filaree (*Erodium botrys*), sheep sorrel (*Rumex acetosella*), cutleaf geranium (*Geranium dissectum*), vetch (*Vicia sativa*), hairy vetch (*Vicia villosa*), rose clover (*Trifolium hirtum*), narrow leaf

[5] Vegetation types listed with a Rarity Rank of S1-S3 are typically considered Sensitive Natural Communities. Some vegetation types lack a Rarity Rank but are listed as Sensitive Natural Communities in the California Natural Community List (CDFW 2021).

clover (*Trifolium angustifolium*), subterranean clover (*Trifolium subterraneum*), Italian thistle (*Carduus pycnocephalus*), smooth cat's ear (*Hypochaeris glabra*), and bur clover (*Medicago polymorpha*). Native grasses and forbs are widely scattered throughout the grassland, including purple needlegrass (*Stipa pulchra*), California brome (*Bromus sitchensis* var. *carinatus*), small fescue (*Festuca microstachys*), California poppy (*Eschscholzia californica*), miniature lupine (*Lupinus bicolor*), Q-tips (*Micropus californicus*), rusty popcornflower (*Plagiobothrys nothofulvus*), dwarf plantain (*Plantago erecta*), purple sanicle (*Sanicula bipinnatifida*), blue dicks (*Dipterostemon capitatus*), narrowleaf mules ears (*Wyethia angustifolia*), and western blue-eyed-grass (*Sisyrinchium bellum*). Areas where native grasses had sufficient cover (generally greater than 10 percent relative cover) across an area larger than the minimum mapping unit were mapped separately (Purple Needlegrass Grassland, described below).

Purple Needlegrass Grassland, composed of the *Nassella pulchra – Avena* spp. – *Bromus* spp. Association within the *Nassella* spp. - *Melica* spp. Herbaceous Alliance, was mapped in two areas where purple needlegrass formed at least 10 percent relative cover in the herbaceous layer (CNPS 2022b; Figure 2). Purple Needlegrass Grassland is dominated by purple needlegrass, along with native forbs including fiddleneck (*Amsinckia menziesii*), ear-shaped wild buckwheat (*Eriogonum nudum* var. *auriculatum*), Ithuriel's spear (*Triteleia laxa*), spikeweed (*Centromadia fitchii*), vinegar weed (*Trichostema lanceolatum*), California poppy, and miniature lupine. Non-native grasses and forbs are also present, including slender wild oat, filaree, and sheep sorrel (Appendix C-4).

Coyote Brush Scrub, composed of the *Baccharis pilularis* Shrubland Alliance, is located on a slope above Santos Ranch Road (Appendix C-5). Coyote Brush Scrub is dominated by a dense cover of coyote brush (*Baccharis pilularis* subsp. *consanguinea*), with California sagebrush (*Artemisia californica*), sticky monkeyflower (*Diplacus aurantiacus*), silver lupine (*Lupinus albifrons* var. *albifrons*), deerweed (*Acmispon glaber*), French broom (*Genista monspessulana*), California figwort (*Scrophularia californica*), chaparral clarkia (*Clarkia affinis*), poison oak, California poppy, and soap plant scattered throughout openings in the shrub canopy.

Willow Scrub, composed primarily of the *Salix lasiolepis* Shrubland Alliance, occurs in a potential seep at the toe of a graded slope west of Santos Ranch Road (Appendix C-6). Willow Scrub is dominated by a canopy of arroyo willow (*Salix lasiolepis*) and red willow (*Salix laevigata*), along with occasional big-leaf maple, California bay, and coast live oak. The understory consists of shrubs—including Himalayan blackberry (*Rubus armeniacus*), poison oak, coyote brush, and French broom—as well as occasional hydrophytic herbaceous species including brown-head rush (*Juncus phaeocephalus*). Evidence of a seep was observed at the toe of the slope. The seep appears to discharge into a concrete roadside ditch, which drains into a culvert downslope. However, an aquatic resource delineation was not conducted, and no determination is made in this report regarding the jurisdictional status of Willow Scrub or other potential aquatic resources on the study area.

Ruderal Herbaceous habitat, conforming to no recognized vegetation classification system but containing ruderal elements of Non-Native Grassland and Coyote Brush Scrub, occurs on the graded slope above Santos Ranch Road (Appendix C-7). Ruderal Herbaceous habitat consists of abundant bare ground from the graded slope, along with a mix of native and non-native grasses

and forbs described above for Non-Native Grassland and Coyote Brush Scrub, including wild oats, filaree, soft chess, red brome, rattail fescue, coyote brush, California sagebrush, sticky monkeyflower, California poppy, deerweed, and ear-shaped wild buckwheat.

2.2 Topography, Geology, and Soils

The study area is located between ~1,000 and ~1,400-feet elevation (NAVD 88; USGS 2018) and consists of hilly, ridgeline and upper slope topography sloping toward the north and east. The study area is underlain by marine sedimentary and metasedimentary rocks (undivided Cretaceous sandstone, shale, and conglomerate; California Geological Survey 2010).

Three soil types have been mapped on the study area in the Web Soil Survey (NRCS 2022):

LpF2—Los Gatos-Los Osos complex, 30 to 75 percent slopes, eroded, MLRA 15
LsC—Los Osos loam, seeped variant, 3 to 15 percent slopes
MhE2—Millsholm silt loam, 30 to 45 percent slopes, eroded

Los Gatos-Los Osos complex, 30 to 75 percent slopes, eroded, MLRA 15, consists of 45 percent Los Gatos and similar soils, 35 percent Los Osos and similar soils, and 20 percent minor components. Los Gatos Soils are Fine-loamy, mixed, active, mesic Typic Argixerolls. Los Osos Series soils are Fine, smectitic, thermic Typic Argixerolls. Los Gatos-Los Osos complex, 30 to 75 percent slopes, eroded, MLRA 15, is well drained, occurs on mountain slopes and hillslopes, and is derived from residuum weathered from sandstone, shale, and occasionally conglomerate. For the Los Gatos soil, a typical profile consists of loam from 0 to 39 inches and bedrock from 39 to 49 inches. The depth to a restrictive feature (lithic bedrock) is 24 to 39 inches, and the depth to water table is >80 inches. For the Los Osos soil, a typical profile consists of silty clay loam from 0 to 30 inches and weathered bedrock from 30 to 40 inches. The depth to a restrictive feature (lithic bedrock) is 24 to 40 inches, and the depth to water table is >80 inches.

Los Osos loam, seeped variant, 3 to 15 percent slopes, is somewhat poorly drained, occurs in valleys, and is derived from loamy residuum weathered from sandstone and shale. A typical profile consists of loam from 0 to 20 inches, sandy clay loam from 20 to 41 inches, and weathered bedrock from 41 to 45 inches. The depth to a restrictive feature (lithic bedrock) is 18 to 48 inches, and the depth to water table is 24 to 48 inches.

Millsholm Series soils are Loamy, mixed, superactive, thermic Lithic Haploxerepts. Millsholm silt loam, 30 to 45 percent slopes, eroded, is well drained, occurs on hills, and is derived from residuum weathered from sandstone and shale. A typical profile consists of silt loam from 0 to 6 inches, clay loam from 6 to 16 inches, and unweathered bedrock from 16 to 20 inches. The depth to a restrictive feature (lithic bedrock) is 10 to 20 inches, and the depth to water table is >80 inches.

2.3 Hydrology and Climate

No streams, ponds, or wetlands have been mapped on the study area in the USGS 7.5' Dublin topographic quadrangle, the National Hydrography Dataset (NHD; USGS 2022), or the National

Wetlands Inventory (NWI; USFWS 2022b). The principal hydrologic sources for the study area are direct precipitation and surface sheet flow from surrounding uplands. Potential channelized flow was observed along Santos Ranch Road and at least two drainages in the northern portion of the study area. A potential seep was observed at the toe of the slope along Santos Ranch Road in Willow Scrub habitat. In addition, several areas were observed within Non-Native Grassland where topography appears indicative of past slumping or land sliding, potentially resulting in more mesic soil conditions compared to surrounding slopes. However, an aquatic resource delineation was not conducted and no potential jurisdiction of aquatic resources was evaluated for this report.

Rainy season precipitation for the region prior to the plant surveys (October 2021 to March 31, 2022) was: (1) 15.89 inches (97 percent of normal) for Oakland Airport, ~15-miles northwest of the study area; (2) 11.31 inches (85 percent of normal) for Livermore, ~7-miles east of the study area; and (3) 7-inches (60 percent of normal) for San Jose, ~20-miles south of the study area (National Oceanic and Atmospheric Administration 2022). Most of this precipitation occurred prior to January 2022, with relatively dry conditions in January-March. As a result, the field surveys were timed to accommodate phenological development observed in the region. Despite the below average precipitation, vegetation growth on the study area was robust, and the phenology of annual and perennial species appeared normal for the season. Therefore, any special-status plant species present would have likely been evident and identifiable, despite the below-average precipitation year.

3.0 RESULTS AND CONCLUSIONS

3.1 Results of Background Literature Search

Forty-two special-status plant species have been documented in the study area region based on the background literature search discussed in Section 1.1. A list of these species is included in Appendix A. The study area is not located within designated Critical Habitat for any federally-listed plant species (USFWS 2022c). No special-status plants have been documented to occur on the study area in the CNDDB (CDFW 2022). Two special-status plant species have been documented within three miles of the study area: Congdon's tarplant (*Centromadia parryi* subsp. *congdonii*) and Oregon polemonium (*Polemonium carneum*) (Figure 3).

3.2 Results of Floristic Surveys

During the April-July, 2022 plant surveys, 177 plant species were observed on the study area (Appendix B). No special-status plant species were observed on the study area during the surveys. Precipitation in the region was below average for the period of October 2021 to April 2022 (National Oceanic and Atmospheric Administration 2022). However, phenological development of grasses, forbs, shrubs, and trees on the study area appeared typical for the season, and no mowing, disking, or other largescale disturbance on the study area prevented identification of plant species encountered during the floristic surveys, though some minor ground disturbance, associated with story pole construction, had occurred around the proposed homesite area prior to the July 13, 2022 survey.

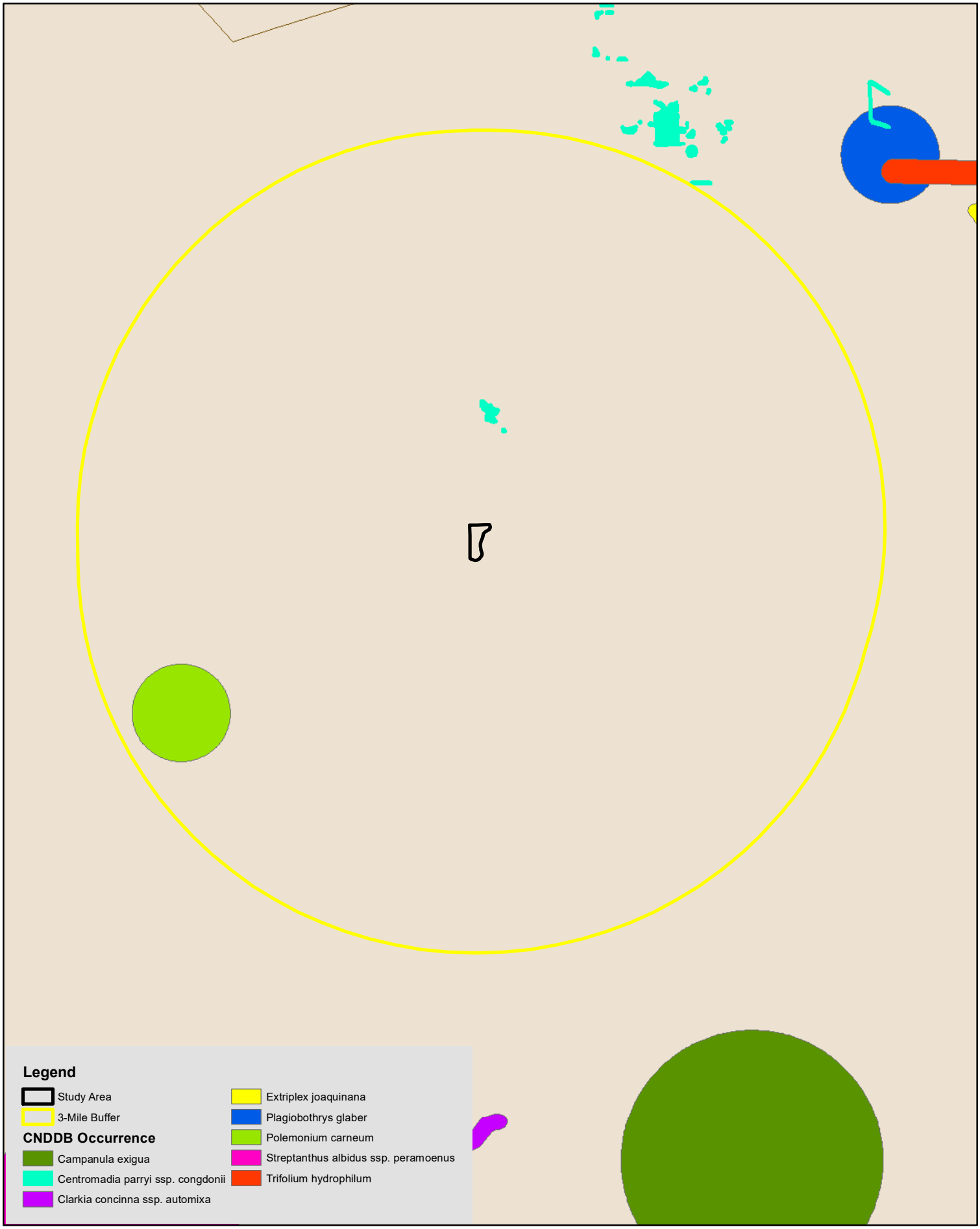

Figure 3. CNDDB map of special-status plant occurrences in the study area region.

Data Source: CNDDB (CDFW 2022).

Mapscale: 1:60,000

0 0.5 1 2 Miles

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Since no special-status plant species were observed during the surveys, which were spaced throughout the blooming season and within the identification period of potentially occurring plant species (Appendix A), special-status plants are unlikely to inhabit the study area and no further botanical surveys are recommended.

3.3 Sensitive Natural Communities

Three potentially Sensitive Natural Communities are present on the study area: the *Quercus agrifolia - Quercus kelloggii* Association within the *Quercus agrifolia* Forest and Woodland Alliance (which generally corresponds to the mapped extent of *Quercus agrifolia* Forest and Woodland Alliance in Figure 2 based on the minimum mapping unit used), Purple Needlegrass Grassland, and Willow Scrub (Figure 2; Table 1). These vegetation types are discussed in detail in Section 2.1. Project impacts to Sensitive Natural Communities could be considered significant under CEQA and require mitigation. Project impacts (such as grading, ground disturbance, vegetation removal) to Sensitive Natural Communities should be avoided to the maximum extent practicable. Once project plans are finalized (including both permanent impacts associated with development and temporary impacts associated with construction), potential impacts to Sensitive Natural Communities on the study area should be analyzed. If one or more Sensitive Natural Communities can't be avoided, project impacts to the habitat should be quantified to determine if they would be considered significant under CEQA, and if mitigation measures are required.

Please contact me if you have questions or need additional information.

Sincerely,

Tom Mahony, MS, PWS
Principal/Plant Ecologist

4.0 LIMITATIONS

The results of this special-status plant survey are based on conditions observed during the field visits. Vegetation is dynamic, and plants that are present and/or dominant at the time of this survey may shift in importance depending on rainfall conditions and season, population shifts over time, and/or natural or human disturbance. Species not observed during this survey could establish on the study area due to natural recruitment from offsite sources and/or the soil seed bank. Regulatory agencies make the final determination regarding botanical resources on the study area. This report does not constitute authorization to conduct the project, and all necessary permits and approvals should be obtained from regulatory agencies prior to project implementation.

5.0 REFERENCES

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Appendix A. Special-status plant species documented to occur in the study area region.

List compiled from searches of the CNDDB (CDFW 2022) records for the Dublin, Niles, Newark, Hayward, Las Trampas Ridge, Diablo, Tassajara, Livermore, and La Costa Valley, CA 7.5' USGS quadrangles, the CNPS Inventory of Rare and Endangered Plants (CNPS 2022a), USFWS (2022a), and other publications.

Species	Status	Typical Habitat	Habitat Assessment of the Study Area
Amsinckia grandiflora large-flowered fiddleneck	FE, SE, 1B.1	Cismontane woodland, valley and foothill grassland, 270-550 m. Blooms April-May.	Suitable habitat present on the study area, but species not observed during 2022 floristic surveys. Not expected to occur.
Amsinckia lunaris bent-flowered fiddleneck	1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland, 3-500 m. Blooms March-June.	Suitable habitat present on the study area, but species not observed during 2022 floristic surveys. Not expected to occur.
Arctostaphylos auriculata Mt. Diablo manzanita	1B.3	Chaparral (sandstone), cismontane woodland, 135-650 m. Blooms January-March.	No *Arctostaphylos* observed on the study area during 2022 floristic surveys. Absent.
Arctostaphylos manzanita subsp. *laevigata* Contra Costa manzanita	1B.2	Chaparral, coastal prairie, coastal scrub (serpentinite outcrop), 45-215 m. Blooms February-March.	No *Arctostaphylos* observed on the study area during 2022 floristic surveys. Absent.
Astragalus tener var. *tener* alkali milk-vetch	1B.2	Playas, valley and foothill grassland (adobe clay), vernal pools, 1-60 m. Blooms March-June.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.
Atriplex depressa brittlescale	1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools, 1-320 m. Blooms April-October.	No suitable alkaline habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.
Atriplex minuscula lesser saltscale	1B.1	Chenopod scrub, playas, valley and foothill grassland, 15-200 m. Blooms May-October.	No suitable alkaline habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.
Balsamorhiza macrolepis big-scale balsamroot	1B.2	Chaparral, cismontane woodland, valley and foothill grassland, 45-1,555 m. Blooms March-June.	Suitable habitat present on the study area, but species not observed during 2022 floristic surveys. Not expected to occur.
Calochortus pulchellus Mt. Diablo fairy-lantern	1B.2	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland, 30-840 m. Blooms April-June.	Suitable habitat present on the study area, but species not observed during 2022 floristic surveys. Not expected to occur.
Campanula exigua chaparral harebell	1B.2	Chaparral (rocky, usually serpentinite), 275-1,250 m. Blooms May-June.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.
Centromadia parryi subsp. *congdonii*	1B.1	Valley and foothill grassland (alkaline), 0-230 m. Blooms May-November.	Marginal suitable habitat along Santos Ranch Road and adjacent areas, where *Centromadia fitchii*

Species	Status	Typical Habitat	Habitat Assessment of the Study Area
Congdon's tarplant			observed. Documented CNDDB Occurrence ~0.75-mile north of the study area. Not observed during 2022 floristic surveys. Not expected to occur.
Chloropyron maritimum subsp. *palustre* Point Reyes salty bird's-beak	1B.2	Marshes and swamps (coastal salt), 0-10 m. Blooms June-October.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Absent.
Chloropyron palmatum palmate-bracted bird's-beak	FE, SE, 1B.2	Chenopod scrub, valley and foothill grassland (alkaline), 5-155 m. Blooms May-October.	No suitable alkaline habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.
Clarkia concinna subsp. *automixa* Santa Clara red ribbons	4.3	Chaparral, cismontane woodland, 90-1,500 m. Blooms April-June.	Marginal suitable habitat present on the study area, but species not observed during 2022 floristic surveys. Not expected to occur.
Delphinium californicum subsp. *interius* Hospital Canyon larkspur	1B.2	Chaparral (openings), cismontane woodland (mesic), coastal scrub, 195-1,095 m. Blooms April-June.	Marginal suitable habitat present on the study area, but species not observed during 2022 floristic surveys. Not expected to occur.
Eriogonum truncatum Mt. Diablo buckwheat	1B.1	Chaparral, coastal scrub, valley and foothill grassland, 3-350 m. Blooms April-September.	Marginal suitable habitat present on the study area, but species not observed during 2022 floristic surveys. Not expected to occur.
Eryngium aristulatum var. *hooveri* Hoover's button-celery	1B.1	Vernal pools, 3-45 m. Blooms July.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Absent.
Eryngium jepsonii Jepson's coyote-thistle	1B.2	Valley and foothill grassland, vernal pools (clay), 3-300 m. Blooms April-August.	Marginal suitable habitat present on the study area, but species not observed during 2022 floristic surveys. Not expected to occur.
Extriplex joaquinana San Joaquin spearscale	1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland (alkaline), 1-835 m. Blooms April-October.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Absent.
Fritillaria liliacea fragrant fritillary	1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland (often serpentinite), 3-410 m. Blooms February-April.	Some marginal habitat components present in grassland but serpentinite lacking. Not observed during 2022 floristic surveys. Not expected to occur.
Helianthella castanea Diablo helianthella	1B.2	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland (usually rocky, axonal soils, often in partial shade), 60-1,300 m. Blooms March-June.	Suitable habitat present on the study area, but species not observed during 2022 floristic surveys. Not expected to occur.
Hesperolinon breweri Brewer's western flax	1B.2	Chaparral, cismontane woodland, valley and foothill grassland, 30-945 m. Blooms May-July.	Suitable habitat present on the study area, but species not observed during 2022 floristic surveys. Not expected to occur.

Species	Status	Typical Habitat	Habitat Assessment of the Study Area
Hoita strobilina Loma Prieta hoita	1B.1	Chaparral, cismontane woodland, riparian woodland (usually serpentinite, mesic), 30-860 m. Blooms May-October.	No suitable serpentinite habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.
Holocarpha macradenia Santa Cruz tarplant	FT, SE, 1B.1	Coastal prairie, coastal scrub, valley and foothill grassland (often clay, sandy), 10-220 m. Blooms June-October.	Marginal suitable habitat present in Non-Native Grassland, but underlain by loam-textured soils. No CNDDB occurrences within 3-miles of study area. Last remaining natural population in SF Bay Area extirpated in 1993 (CNPS 2022). Not observed during 2022 floristic surveys. Not expected to occur.
Lasthenia conjugens Contra Costa goldfields	FE, 1B.1	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools (mesic), 0-470 m. Blooms March-June.	Marginal suitable habitat present on the study area, but species not observed during 2022 floristic surveys. Not expected to occur.
Malacothamnus hallii Hall's bush-mallow	1B.2	Chaparral, coastal scrub, 10-760 m. Blooms May-September.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Absent.
Monolopia gracilens woodland woollythreads	1B.2	Broadleafed upland forest (openings), chaparral (openings), cismontane woodland, North Coast coniferous forest (openings), valley and foothill grassland (serpentine), 100-1,200 m. Blooms March-July.	Marginal suitable habitat present on the study area, but species not observed during 2022 floristic surveys. Not expected to occur.
Navarretia prostrata prostrate vernal pool navarretia	1B.2	Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools, 3-1,210 m. Blooms April-July.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.
Phacelia phacelioides Mt. Diablo phacelia	1B.2	Chaparral, cismontane woodland, 500-1,370 m. Blooms April-May.	Marginal suitable habitat present on the study area, but species not observed during 2022 floristic surveys. Not expected to occur.
Plagiobothrys glaber hairless popcornflower	1A	Meadows and seeps (alkaline), marshes and swamps (coastal salt), 15-180 m. Blooms March-May.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Presumed extinct. Not expected to occur.
Polemonium carneum Oregon polemonium	2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest, 0-1,830 m. Blooms April-September.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur
Puccinellia simplex California alkali grass	1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools, 2-930 m. Blooms March-May.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.
Senecio aphanactis chaparral ragwort	2B.2	Chaparral, cismontane woodland, coastal scrub (sometimes alkaline), 15-800 m. Blooms January-May.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.

Species	Status	Typical Habitat	Habitat Assessment of the Study Area
Spergularia macrotheca var. longistyla long-styled sand-spurrey	1B.2	Meadows and seeps, marshes and swamps (alkaline), 0-255 m. Blooms February-May.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.
Streptanthus albidus subsp. *peramoenus* most beautiful jewelflower	1B.2	Chaparral, cismontane woodland, valley and foothill grassland (serpentinite), 95-1,000 m. Blooms March-October.	No suitable serpentinite habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.
Streptanthus hispidus Mt. Diablo jewelflower	1B.3	Chaparral, valley and foothill grassland, 365-1,200 m. Blooms March-June.	Marginal suitable habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.
Stuckenia filiformis subsp. *alpina* slender-leaved pondweed	2B.2	Marshes and swamps (assorted shallow freshwater), 300-2,150 m. Blooms May-July.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Absent.
Suaeda californica California seablite	FE, 1B.1	Marshes and swamps (coastal salt), 0-15 m. Blooms July-October.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Absent.
Trifolium hydrophilum saline clover	1B.2	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools, 0-300 m. Blooms April-June.	No suitable alkaline habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.
Triquetrella californica coastal triquetrella	1B.2	Coastal bluff scrub, coastal scrub, 10-100 m.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.
Tropidocarpum capparideum caper-fruited tropidocarpum	1B.1	Valley and foothill grassland (alkaline hills), 1-455 m. Blooms March-April.	No suitable alkaline habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.
Viburnum ellipticum oval-leaved viburnum	2B.3	Chaparral, cismontane woodland, lower montane coniferous forest, 215-1,400 m. Blooms May-June.	No suitable habitat present on the study area. Not observed during 2022 floristic surveys. Not expected to occur.

Key to Status:	
FE	Federal Endangered
FT	Federal Threatened
SE	State Endangered
ST	State Threatened
SR	State Rare
1A	CNPS Rare Plant Rank of plants presumed extirpated in California and either rare or extinct elsewhere
1B	CNPS Rare Plant Rank of plants rare, threatened, or endangered in California and elsewhere
2	CNPS Rare Plant Rank of plants rare, threatened, or endangered in California but more common elsewhere
4	CNPS Rare Plant Rank of plants of limited distribution, a watch list
.1/.2/.3	Seriously endangered in California/Fairly endangered in California/ Not very endangered in California

Appendix B. Plant species observed on the study area on April 6, June 2, and July 13, 2022.

Scientific Name	Common Name
Acer macrophyllum	big-leaf maple
Achillea millefolium	yarrow
Achyrachaena mollis	blow-wives
Acmispon americanus var. *americanus*	Spanish clover
Acmispon glaber	deerweed
Acmispon strigosus	strigose trefoil
Acmispon wrangelianus	California lotus
Adiantum jordanii	California maidenhair
Aesculus californica	California buckeye
*Aira caryophyllea**	silver hair grass
Amsinckia menziesii	fiddleneck
*Anthriscus caucalis**	bur-chervil
Artemisia californica	California sagebrush
Asclepias fascicularis	narrow-leaved milkweed
*Avena barbata**	slender wild oat
*Avena fatua**	wild oat
Baccharis pilularis subsp. *consanguinea*	coyote brush
*Brachypodium distachyon**	false brome
*Briza minor**	little quaking grass
Brodiaea elegans	elegant brodiaea
*Bromus diandrus**	ripgut brome
*Bromus hordeaceus**	soft chess
*Bromus madritensis**	Spanish brome
*Bromus rubens**	red brome
Bromus sitchensis var. *carinatus*	California brome
Calandrinia menziesii	redmaids
Calochortus albus	white globe lily
Calochortus luteus	yellow mariposa
Calystegia subacaulis	hill morning glory
Cardamine californica	milk maids
Cardamine oligosperma	bitter cress
*Carduus pycnocephalus**	Italian thistle
*Carduus tenuiflorus**	plumeless thistle
Castilleja attenuate	valley tassels
*Centaurea solstitialis**	yellow star-thistle
Centromadia fitchii	spikeweed
*Cerastium glomeratum**	mouse-eared chickweed
Chlorogalum pomeridianum	soap plant
Clarkia affinis	chaparral clarkia
Clarkia purpurea var. *quadrivulnera*	wine cup clarkia
Claytonia perfoliata subsp. *perfoliata*	miner's lettuce
Collinsia heterophylla var. *heterophylla*	Chinese houses
*Convolvulus arvensis**	field bindweed
Corethrogyne filaginifolia	common sand aster
*Crepis capillaris**	smooth hawksbeard
Croton setiger	turkey-mullein

Scientific Name	Common Name
Cynoglossum grande	hound's tongue
*Cynosurus echinatus**	hedgehog dogtail
*Dactylis glomerata**	orchard grass
Daucus pusillus	wild carrot
Diplacus aurantiacus	sticky monkeyflower
Dipterostemon capitatus	blue dicks
*Dittrichia graveolens**	stinkwort
Drymocallis glandulosa subsp. *wrangelliana*	sticky cinquefoil
Dryopteris arguta	wood fern
*Elymus caput-medusae**	Medusa head
Elymus glaucus	blue wildrye
Elymus multisetus	big squirreltail
Elymus triticoides	creeping wildrye
Epilobium brachycarpum	autumn willowherb
Epilobium canum subsp. *canum*	California fuchsia
Eriogonum nudum var. *auriculatum*	ear-shaped wild buckwheat
*Erodium botrys**	filaree
*Erodium cicutarium**	redstem filaree
*Erodium moschatum**	whitestem filaree
Eschscholzia californica	California poppy
*Euphorbia peplus**	petty spurge
Eurybia radulina	roughleaf aster
*Festuca bromoides**	brome fescue
Festuca microstachys	small fescue
*Festuca myuros**	rattail fescue
*Festuca perennis**	Italian ryegrass
*Foeniculum vulgare**	fennel
Frangula californica	California coffeeberry
Galium aparine	goose grass
Galium porrigens var. *porrigens*	climbing bedstraw
*Genista monspessulana**	French broom
*Geranium dissectum**	cutleaf geranium
*Geranium molle**	dove's foot geranium
Grindelia camporum	gum plant
*Hirschfeldia incana**	summer mustard
Holodiscus discolor	oceanspray
Hordeum marinum subsp. *gussoneanum**	Mediterranean barley
Hordeum murinum subsp. *leporinum**	barley
*Hypochaeris glabra**	smooth cat's ear
Juncus occidentalis	western rush
Juncus patens	spreading rush
Juncus phaeocephalus	brown-head rush
Koeleria macrantha	junegrass
*Lactuca serriola**	prickly lettuce
Lagophylla ramosissima	common hareleaf
*Lamarckia aurea**	goldentop
Lathyrus vestitus	wild pea
Lepidium nitidum	shining peppergrass

Scientific Name	Common Name
Lithophragma affine	woodland star
*Logfia gallica**	narrow-leaved cottonrose
Lupinus albifrons var. *albifrons*	silver bush lupine
Lupinus bicolor	miniature lupine
Lupinus succulentus	arroyo lupine
Luzula comosa	wood rush
*Lysimachia arvensis**	scarlet pimpernel
Madia elegans	common madia
Madia gracilis	slender tarweed
Marah fabacea	California man-root
*Medicago polymorpha**	bur clover
Melica californica	California melicgrass
Melica imperfecta	little California melica
Micranthes californica	California saxifrage
Micropus californicus	Q-tips
Monardella villosa subsp. *villosa*	coyote mint
Navarretia pubescens	downy pincushion plant
Navarretia squarrosa	skunkweed
Nemophila pedunculata	littlefoot nemophila
Oemleria cerasiformis	oso berry
*Oxalis pes-caprae**	Bermuda buttercup
Pellaea andromedifolia	coffee fern
Pentagramma triangularis	goldback fern
Perideridia kelloggii	Kellogg's yampah
Phacelia imbricata var. *imbricata*	imbricate scorpionweed
Plagiobothrys nothofulvus	rusty popcornflower
Plantago erecta	dwarf plantain
Plectritis ciliosa	long-spurred plectritis
*Poa annua**	annual bluegrass
Poa secunda	Nevada bluegrass
Pogogyne serpylloides	thyme-leaf pogogyne
Polypodium californicum	California polypody
Pseudognaphalium californicum	California cudweed
*Pseudognaphalium luteoalbum**	annual cudweed
Pterostegia drymarioides	woodland threadstem
Quercus agrifolia	coast live oak
Quercus kelloggii	California black oak
Quercus lobata	valley oak
Ranunculus californicus	California buttercup
Ranunculus hebecarpus	downy buttercup
*Rubus armeniacus**	Himalayan blackberry
*Rumex acetosella**	sheep sorrel
*Rumex pulcher**	fiddle dock
Rupertia physodes	Rupert’s scruf-pea
Salix laevigata	red willow
Salix lasiolepis	arroyo willow
Sambucus nigra	blue elderberry
Sanicula bipinnata	poison sanicle

Scientific Name	Common Name
Sanicula bipinnatifida	purple sanicle
Sanicula crassicaulis	Pacific snakeroot
*Scandix pecten-veneris**	shepherd's needle
Scrophularia californica	California figwort
*Senecio vulgaris**	common groundsel
*Sherardia arvensis**	field madder
*Silybum marianum**	milk thistle
Sisyrinchium bellum	western blue-eyed-grass
Solidago velutina subsp. *californica*	California goldenrod
Sonchus asper subsp. *asper**	prickly sow thistle
*Stellaria media**	common chickweed
Stipa pulchra	purple needlegrass
Symphoricarpos mollis	creeping snowberry
Tauschia hartwegii	Hartweg's tauschia
Thysanocarpus curvipes	lacepod
*Torilis arvensis**	field hedge parsley
Toxicodendron diversilobum	poison oak
Toxicoscordion sp.	death camas
Trichostema lanceolatum	vinegar weed
Trifolium albopurpureum	rancheria clover
*Trifolium angustifolium**	narrow leaf clover
Trifolium bifidum var. *decipiens*	deceptive clover
Trifolium ciliolatum	foothill clover
*Trifolium dubium**	little hop clover
*Trifolium glomeratum**	clustered clover
*Trifolium hirtum**	rose clover
*Trifolium subterraneum**	subterranean clover
Trifolium willdenovii	tomcat clover
Triteleia laxa	Ithuriel's spear
Umbellularia californica	California bay
Uropappus lindleyi	Lindley's silverpuffs
*Vicia sativa**	vetch
*Vicia villosa**	hairy vetch
Wyethia angustifolia	narrowleaf mules ears
Wyethia glabra	smooth mules ears
* = non-native species	

Appendix C. Photographs of the study area.

Appendix C-1. Coast Live Oak Woodland and Forest in the northern portion of the study area.

Appendix C-2. Coast Live Oak Woodland and Forest (background) and Non-Native Grassland (foreground) in the northern portion of the study area, looking north.

Appendix C-3. Non-Native Grassland in the central portion of the study area, looking south.

Appendix C-4. Purple Needlegrass Grassland in the southern portion of the study area, looking south to Santos Ranch Road.

Appendix C-5. Coyote Brush Scrub in the northeastern portion of the study area, looking south.

Appendix C-6. Willow Scrub in potential seep at toe of graded slope west of Santos Ranch Road, looking north.

Appendix C-7. Ruderal Herbaceous habitat on graded slope west of Santos Ranch Road, looking south.