Caltrans District 3 Yolo 80 Corridor Improvement Project



Botanical Resources Survey Report

Sacramento, Yolo, and Solano Counties, California 04-SOL-80-PM 40.7/R44.7; 03-YOL-80-PM 0.00/R11.72; 03-YOL-50-PM 0.00/3.12; 03-SAC-50-PM 0.00/L0.617; 03-SAC-80-PM M0.00/M1.36 EA: 03-3H900 / EFIS: 0318000085

September 2022





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STATE OF CALIFORNIA Department of Transportation

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LIST OF ABBREVIATED TERMS

>	greater than
%	percent
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
ESL	Environmental Study Limits
I-80	Interstate 80
IPaC	Information, Planning, and Conservation System
MCV	Manual of California Vegetation, Online Edition
Project	Yolo 80 Corridor Improvement Project
Report	Botanical Resources Survey Report
Stantec	Stantec Consulting Services Inc.
US-50	United States Route 50
USFWS	United States Fish and Wildlife Service

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Chapter 1. Introduction

This Botanical Resources Survey Report (Report) has been prepared to document the results of botanical resource surveys within the Environmental Study Limits (ESL) for the 03-3H900 Yolo 80 Corridor Improvement Project (Project). The California Department of Transportation (Caltrans) proposes to construct improvements along Interstate 80 (I-80) and United States Route 50 (US-50) from Kidwell Road near the eastern Solano County boundary (near the Dixon), through Yolo County, and to West El Camino Avenue on I-80 and Interstate 5 on US-50 in Sacramento County (Appendix A, Figure 1). The purpose of the proposed Project is to improve multimodal mobility on the I-80 and US-50 corridors in Solano, Yolo, and Sacramento Counties.

Stantec Consulting Services Inc. (Stantec) conducted botanical surveys in the project ESL, which covers approximately 1,147.38 acres. The ESL is centered on segments of I-80, and US-50 and is confined to the Caltrans right-of-way which ranges from around 300 feet to 800 feet wide, depending on location. The ESL starts in the southwest on I-80 at Pedrick Road (Exit 67) and continues 15 miles northwest to the I-80 and US-50 split. From there, it follows I-80 north, terminating just past El Camino Avenue, and US-50 east, terminating at the 5th Street exit. The ESL crosses through a predominance of developed and agricultural lands, as well as the cities of Davis and West Sacramento.

This Report is intended to inform project design and support future permitting efforts for special-status plant species and sensitive natural communities. For this evaluation, special-status plant species fall into one or more of the following categories:

- Listed as threatened or endangered under the California Endangered Species Act or the federal Endangered Species Act
- Proposed for federal listing as threatened or endangered
- State or federal candidate species
- Designated as rare by the California Department of Fish and Wildlife
- Listed on the California Rare Plant Rank as a 1A, 1B, 2A, 2B, 3, or 4 species

California Department of Fish and Wildlife (CDFW) lists sensitive natural communities, which include natural communities that are rare in the state or throughout its entire range. Sensitive natural communities as defined by CDFW are vegetation alliances and associations with a state rarity ranking of S1 (critically imperiled), S2 (imperiled), or S3 (vulnerable).

CDFW has not yet provided state rarity rankings for all associations. Those associations not yet ranked but considered sensitive are included in the current CDFW Natural Communities List. Communities with a state ranking of S4 (apparently secure) or S5 (secure) are not considered sensitive.

Chapter 2. Project Description

Caltrans proposes to construct improvements consisting of managed lanes, pedestrian/bicycle facilities, and Intelligent Transportation System elements along I-80 and US-50 from Kidwell Road near the eastern Solano County boundary (near Dixon), through Yolo County, and to West El Camino Avenue on I-80 and Interstate 5 on US-50 in Sacramento County (Appendix A, Figure 1). Caltrans is both the lead agency under the National Environmental Policy Act (as assigned by the Federal Highway Administration) and the California Environmental Quality Act for the proposed Project. The purpose of the proposed Project would be to improve multimodal mobility on the I-80 and US-50 corridors in Solano, Yolo, and Sacramento Counties. The project would decrease congestion through the corridor and the effects that congestion has on transit and freight. It would improve transit headway times, reliability, access, and viability through the corridor. The project would also increase transit, bicycle and pedestrian, and carpool use. Furthermore, the project would address non-recurrent congestion caused by incidents, including collisions, by improving incident detection, verification, response, and clearing.



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Chapter 3. Methodology

Botanical surveys were conducted in accordance with California Native Plant Society (CNPS) (2001), CDFW (2018), and United States Fish and Wildlife Service (USFWS) (1996, 2002) protocols. Complete botanical surveys include a desktop review and field component as described in the sections below.

3.1. Desktop Review

Prior to the field work, several resources were used to identify and classify vegetation communities within the ESL. These resources included the Manual of California Vegetation (MCV), Online Edition (CNPS 2021a); Google Earth aerial imagery dating back to 1989; and CDFW spatial data: Delta Vegetation and Land Use and Great Valley Ecoregion (CDFW Vegetation Classification and Mapping Program 2011, Schwenkler and Hickson 2018). The classification follows the Federal Geographic Data Committee and National Vegetation Classification Standards, which are compatible with the MCV. This vegetation data in combination with the previously listed resources were used to create a preliminary vegetation map that was used in the field.

Prior to conducting field work, a list of special-status plant species that could occur in the ESL was developed using the following databases and lists:

- California Natural Diversity Database (CDFW 2021a)
- California Native Plant Society Inventory of Rare and Endangered Plants (CNPS 2021b)
- United States Fish and Wildlife Service (CDFW) database of federally protected species (USFWS 2021)
- CDFW's Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2021b)
- CDFW's State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW 2021c)

The California Natural Diversity Database (CNDDB) was queried with a 9-quad search for each quadrangle collocated with the ESL for reported occurrences of special-status plants. This includes occurrences within the 7.5-minute U.S. Geological Survey topographic quadrangles in the ESL, as well as those immediately adjacent. Sixteen quadrangles were included in the search: *Allendale, Clarksburg, Davis, Dixon, Dozier, Elmira, Florin, Grays Bend, Liberty Island, Merritt, Rio Linda, Sacramento East, Sacramento West, Saxon, Taylor Monument, and Woodland, California.*

The CNPS online Inventory of Rare and Endangered Plants of California was also queried for all California Rare Plant Rank 1, 2, 3, and 4 plants occurring in the same 16 quadrangles included in the CNDDB query. Trust Resources Reports generated from the USFWS Information, Planning, and Conservation System (IPaC) database were also reviewed. Based on the review of existing information, species habitat requirements, and habitat characteristics present in the ESL, 25 special-status plant species were determined to have potential to occur in the ESL (Appendix B).

3.2. Field Surveys

The botanical resource field assessment was conducted in two passes by a team of two Stantec botanists on May 10–14 and 18–20, 2021, and August 4–5 and 10–13, 2021. In addition, supplemental surveys were conducted on July 14, 2022. The team consisted of botanists Sheryl Creer (task lead, senior botanist) and John Holson (senior botanist). The ESL was surveyed on foot where accessible and safe to do so, in meandering transects per CNPS (CNPS 2001) and CDFW guidelines (CDFW 2018). Portions of the ESL inaccessible due to safety concerns were surveyed using binoculars. Areas that were developed, ornamental, or mowed were checked to confirm vegetation but not covered in meandering transects. Timing of the field surveys coincided with the blooming period(s) for potentially occurring special-status plants in the ESL and provides a comprehensive survey effort for these species.

The field surveys were floristic in nature. Each species observed was identified to the taxonomic level necessary to determine whether or not the plant was listed as a special-status species. Plant taxonomy follows the Jepson Flora Project (2021). Vegetation mapping followed the technical approach and vegetation alliance classification system described in the MCV (CNPS 2021a). Each vegetation community identified during field mapping was checked for sensitivity against the California Natural Community List (CDFW 2020). Stantec botanists mapped vegetation in the field by walking through the ESL and assessing vegetative cover within stands. The full extent, or a representative portion, of all vegetation communities mapped in the ESL were visited during field surveys. Vegetation communities were classified to the level necessary (i.e., alliance or association) to determine sensitivity. Plant species composition, stand structure, regional occurrence, and other notable characteristics were collected. After completion of surveys, the pre-field vegetation map was updated with field observations.

To the extent practicable, nearby reference populations of special-status species were visited to ensure that the project botanists had an accurate search image for a species and to determine whether the species was identifiable at the time of our surveys. Reference site visits were made for plant occurrences near the ESL that were documented by the CNDDB and Calflora (Calflora 2021). Species were confirmed using the Jepson Flora Project (2021). Reference site visits were made on May 10, 18, 19, 2021; August 4 and 13, 2021; and July 14, 2022, as detailed in Table 1.

Species	Location Source and Occurrence Number	Date of Visit	Species Located?	Location	Notes
<i>Carex comosa</i> bristly sedge	California Natural Diversity Database Occ: 6448	5/19/21	Yes	Delta Meadows River Park, on edge of canal in riprap	One individual in flower and fruit
<i>Hibiscus lasiocarpos</i> var. <i>occidentalis</i> woolly rose-mallow	Calflora IDs: mu6633, mu6632	5/10/21; 8/4/21; 7/14/22	Yes	2372-2398 County Rd 22, Woodland, CA 95776, on ditch border south of the road	May visit: 15 individuals; last year's fruits and this year's leaves; blooming during August 2021 and July 2022 visits.
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	California Natural Diversity Database Occ: 544	5/18/21 8/4/21	Yes	Edge of Bank at Deepwater Ship Channel, West Sacramento	May visit: One individual; early flower August visit: several individuals; full bloom
<i>Symphyotrichum lentum</i> Suisun Marsh aster	California Natural Diversity Database Occ: 6234	5/19/21	Yes	Delta Meadows River Park, on edge of canal in riprap	Four individuals in flower and fruit
<i>Extriplex joaquinana</i> San Joaquin spearscale	CalFlora ID: po37838	8/13/21	Yes	Roadside on the northwest side of intersection of County Roads 25 and 103, Woodland.	Over 100 individuals; 80% senesced, 20% fruit

Table 1.Reference Site Visits



Chapter 4. Results

4.1. Vegetation

All locations within the ESL are located in or adjacent to commercial or highway corridors. The vegetation is highly disturbed by human activity; has been impacted by clearing, grading, paving, alteration of hydrology, etc.; and supports a high amount of non-native and noxious weeds. Twenty-one vegetation communities were mapped in the ESL to the alliance or association level (Table 2) and are described below and in Figure 2 (Appendix A). Representative photographs are included in Appendix C. Seven alliances (54.66 acres) are considered sensitive natural communities by CDFW. Two alliances, Cropland (61.44 acres) and Ornamental (89.36 acres), are not included in the MCV but are dominated by non-native/invasive species and are therefore not considered sensitive. Developed areas (595.93 acres) and Open Water (5.96 acres) were also mapped. Developed areas are most abundant in the ESL, with *Avena* spp.-*Bromus* spp. Herbaceous Semi-Natural Alliance (Wild Oats and Annual Brome Grasslands) as the second-most abundant (224.76 acres).

Alliance or Association	Sensitive	Native	Acres	
Forest and Woodland				
<i>Fraxinus latifolia</i> Forest and Woodland Alliance Oregon ash groves*	Yes	Yes	0.60	
Platanus racemosa - Quercus agrifolia Woodland Alliance Yes Yes California sycamore woodlands* Yes Yes			8.59	
<i>Populus fremontii</i> Forest and Woodland Association Fremont cottonwood forest and woodland*	Yes	Yes	4.72	
<i>Quercus agrifolia</i> Forest and Woodland Alliance Coast live oak woodland and forest	No	Yes	2.36	
Quercus lobata Forest and Woodland Alliance Yes Yes Valley oak woodland and forest* Yes Yes		Yes	21.88	
<i>Quercus wislizeni</i> Forest and Woodland Alliance Interior live oak woodland and forest	No	Yes	1.16	
Salix gooddingii Forest and Woodland Association Soodding's willow riparian woodland and forest*		1.43		
Subtotal				
Shrubland				
<i>Salix exigua</i> Shrubland Alliance Sandbar willow thickets	No	Yes	1.51	
Herbaceous				
<i>Avena</i> spp <i>Bromus</i> spp. Herbaceous Semi-Natural Alliance Wild oats and annual brome grasslands	No	No	224.76	
<i>Brassica nigra - Centaurea melitensis</i> Herbaceous Semi-Natural Alliance Upland mustards or star-thistle fields	No	No	12.59	

 Table 2.
 MCV Vegetation Communities Within the Environmental Study Limits

Alliance or Association	Sensitive	Native	Acres
<i>Distichlis spicata</i> Herbaceous Alliance Salt grass flats	No	Yes	0.58
<i>Festuca perennis</i> Herbaceous Semi-Natural Alliance Perennial rye grass fields	No	No	11.50
<i>Grindelia hirsutula</i> Provisional Herbaceous Alliance Gum plant patches*	Yes	Yes	17.28
<i>Lepidium latifolium</i> Herbaceous Semi-Natural Alliance Perennial pepperweed patches	No	No	74.06
<i>Ludwigia peploides</i> Provisional Herbaceous Semi-Natural Alliance Water primrose wetlands	No	No	4.82
<i>Schoenoplectus acutus</i> Herbaceous Alliance Hardstem bulrush marshes*	Yes	Yes	0.16
<i>Xanthium strumarium</i> Herbaceous Alliance Cocklebur patches	No	Yes	6.69
Subtotal			
Other			
Cropland	No	No	61.44
Developed	N/A	N/A	595.93
Open Water	N/A	N/A	5.96
Ornamental	No	No	89.36
Subtotal			
Total			1,147.38

*considered a sensitive natural community by CDFW

4.1.1. FOREST AND WOODLAND

Fraxinus latifolia Forest and Woodland Alliance (Oregon Ash Groves)

This native alliance occurs in the South Fork of Putah Creek, a perennial drainage. *Fraxinus latifolia* (Oregon ash) is dominant with greater than (>) 30 percent (%) relative cover in the tree stratum in association with *Quercus lobata* (Valley oak) at lower cover. There is a sparse shrub and herbaceous strata with non-native species such as *Rubus armeniacus* (Himalayan blackberry) and *Avena fatua* (wild oats). CDFW considers Oregon Ash Groves a sensitive natural community.

Platanus racemosa - Quercus agrifolia Woodland Alliance (California Sycamore Woodlands)

This native alliance occurs in scattered stands north of the South Fork of Putah Creek where it has been planted extensively along the highway as a landscaping tree. Some of the stands closer to Putah Creek may be remnants of naturally occurring stands, but the majority within the ESL have been planted. *Platanus racemosa* (California Sycamore) is dominant with

>30% relative cover in the tree stratum in association with *Quercus agrifolia* (Coast Live Oak Woodland and Forest) at lower cover. The herbaceous stratum contains non-native grass species such as wild oats. CDFW considers California Sycamore Woodlands a sensitive natural community.

Populus fremontii Forest and Woodland Association (Fremont Cottonwood Forest and Woodland)

This native association occurs in small patches in the ESL, near the city of Davis, and is typically associated with drainages, particularly in the Yolo Bypass, Prospect Slough, and along the Sacramento River. One isolated stand occurs near Sparling Lane south of Davis, and one is associated with a pond. *Populus fremontii* (Fremont cottonwood) is dominant with >50% relative cover and in association with various *Salix* spp. (willows) at low cover. There is a sparse herbaceous stratum. CDFW considers Fremont Cottonwood Forest and Woodland a sensitive natural community.

Quercus agrifolia Forest and Woodland Alliance (Coast Live Oak Woodland and Forest)

This native alliance occurs within the ESL in small, scattered stands north along the highway near the city of Davis. These stands appear to have been planted along the highway as a landscaping tree. Coast live oak is dominant with >50% relative cover in the tree stratum in association with other ornamental trees. The herbaceous stratum contains non-native grass species such as wild oats. CDFW does not consider Coast Live Oak Woodland and Forest a sensitive natural community.

Quercus lobata Forest and Woodland Alliance (Valley Oak Woodland and Forest)

This native alliance occurs intermittently in the ESL, with most occurrences near the city of Davis, and also near the Sacramento River. Many stands associated with I-80 have been planted, while some stands in close proximity to riparian corridors such as Putah Creek appear to be naturally occurring. Valley oak is dominant with >35% relative cover and in association with other oak species (*Quercus* sp.) as well as *Juglans regia* (English walnut) at lower cover. The herbaceous stratum is typically dominated by non-native grass species such as wild oats and *Festuca perennis* (perennial rye grass). CDFW considers Valley Oak Woodland and Forest a sensitive natural community.

Quercus wislizeni Forest and Woodland Alliance (Interior Live Oak Woodland and Forest)

This native alliance was mapped in one planted stand in the ESL, south of the city of Davis, along the interchange to northbound State Route 113. *Quercus wislizeni* (interior live oak) is dominant with >50% relative cover. The herbaceous stratum is dominated by non-native grass species such as wild oats and perennial rye grass. CDFW does not consider Interior Live Oak Woodland and Forest a sensitive natural community.

Salix gooddingii Forest and Woodland Association (Goodding's Willow Riparian Woodland and Forest)

This native association was mapped in four stands in the ESL, all within the Yolo Bypass (a seasonally flooded area) and a vegetated ditch east of Levee Road. *Salix gooddingii* (Goodding's willow) is dominant with >30% relative cover and *Salix exigua* (sandbar willow) is present as well. The herbaceous stratum is dominated by non-native species such as *Cynodon dactylon* (Bermuda grass) and *Lepidium latifolium* (perennial pepperweed). CDFW considers Goodding's Willow Riparian Woodland and Forest a sensitive natural community.

4.1.2. SHRUBLAND

Salix exigua Shrubland Alliance (Sandbar Willow Thickets)

This native alliance was mapped in two stands in the ESL, both within areas bounded by the highway, offramps, and Kidwell Road in Dixon. These stands are dense, with sandbar willow at nearly 100% relative cover. The herbaceous stratum is sparse and dominated by non-native grass species such as wild oats and perennial rye grass. CDFW does not consider Sandbar Willow Thickets a sensitive natural community.

4.1.3. HERBACEOUS

Avena spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance (Wild Oats and Annual Brome Grasslands)

After Developed areas, this non-native alliance accounts for the highest acreage within the ESL (224.76 acres). It occurs throughout the ESL, along the highway, offramps, and shoulders, where it is regularly mowed and/or treated with herbicide. Within the ESL, this alliance is dominated (>30% relative cover) by one of several non-native grass species such as wild oat, *Bromus hordeaceus* (soft chess), or *Hordeum murinum* (wall barley). Other non-native grasses and forbs including *Bromus diandrus* (ripgut brome), perennial pepperweed,

and *Helminthotheca echioides* (bristly oxtongue) are present as well. CDFW does not consider Wild Oats and Annual Brome Grasslands a sensitive natural community.

Brassica nigra - Centaurea melitensis Herbaceous Semi-Natural Alliance (Upland Mustards or Star-Thistle Fields)

This non-native invasive alliance occurs within the ESL in a large stand just west of Yolo Bypass near County Road 32A. This alliance is co-dominated by two invasive forbs at >80% relative cover: *Brassica nigra* (black mustard) and *Centaurea melitensis* (tocalote). Other non-native grasses and forbs, including ripgut brome, perennial pepperweed, and bristly oxtongue, are present as well. CDFW does not consider Upland Mustards or Star-Thistle Fields a sensitive natural community.

Distichlis spicata Herbaceous Alliance (Salt Grass Flats)

This native alliance occurs in and adjacent to a shallow roadside ditch in Dixon. This alliance is dominated by *Distichlis spicata* (salt grass) at >70% relative cover with other non-native grasses and forbs such as *Phalaris aquatica* (harding grass) and bristly oxtongue. Patchy *Typha latifolia* (broadleaf cattail) and *Schoenoplectus acutus* (bulrush) are also present. CDFW does not consider Salt Grass Flats a sensitive natural community.

Festuca perennis Herbaceous Semi-Natural Alliance (Perennial Rye Grass Fields)

This non-native alliance occurs adjacent to the highway in the Yolo Bypass and is dominated (>50% relative cover) by perennial rye grass. Other non-native grasses and forbs, including ripgut brome, soft chess, perennial pepperweed, and bristly oxtongue, are present as well. CDFW does not consider Perennial Rye Grass Fields a sensitive natural community.

Grindelia hirsutula Provisional Herbaceous Alliance (Gum Plant Patches)

This native alliance occurs adjacent to the highway in the Yolo Bypass in areas that flood and is dominated (>40% relative cover) by *Grindelia hirsutula* (gum plant). Other non-native grasses and forbs, including ripgut brome, soft chess, perennial pepperweed, and bristly oxtongue, are present as well. CDFW considers Gum Plant Patches a sensitive natural community.

Lepidium latifolium Herbaceous Semi-Natural Alliance (Perennial Pepperweed Patches)

This non-native invasive alliance occurs in large swaths in the Yolo Bypass, often adjacent to gum plant patches. It is dominated (>30% relative cover) by invasive perennial pepperweed. Other non-native grasses and forbs, including ripgut brome, wild oats, and bristly oxtongue, are present as well. CDFW does not consider Perennial Pepperweed Patches a sensitive natural community.

Ludwigia peploides Provisional Herbaceous Semi-Natural Alliance (Water Primrose Wetlands)

This non-native alliance occurs in ditches near Yolo Bypass and in a ditch west of Sacramento. It is dominated almost exclusively by invasive *Ludwigia peploides* (water primrose), which floats on top of the water and persists on the ground surface when water levels drop. *Azolla microphylla* (mosquito fern), a native species, is also present at less than 10% relative cover. CDFW does not consider Water Primrose Wetlands a sensitive natural community.

Schoenoplectus acutus Herbaceous Alliance (Hardstem Bulrush Marshes)

One patch of this native alliance occurs in a ditch near Yolo Bypass and is dominated by hardstem bulrush at >50% relative cover. Other emergent species such as broadleaf cattail and water primrose are present as well. CDFW considers Hardstem Bulrush Marshes a sensitive natural community.

Xanthium strumarium Herbaceous Alliance (Cocklebur Patches)

Several patches of this native alliance occur in areas in the Yolo Bypass and in one area near the city of Davis, all in low-lying areas that flood seasonally. These patches are dominated by *Xanthium strumarium* (cocklebur) at >50% relative cover. Other species such as perennial pepperweed and common lippia (*Phyla nodiflora*) are present as well. CDFW does not consider Cocklebur Patches a sensitive natural community.

4.1.4. OTHER

Cropland

Croplands are present in the Yolo Bypass, where there are rice fields that are regularly flooded. There is also a large hayfield just west of Yolo Bypass and adjacent to County Road

32A. This is not an alliance recognized by CDFW, but for the purposes of this survey, agricultural lands have been mapped and designated Cropland.

Developed

Developed areas account for more than half (595.93 acres) of the ESL and include highways, on-ramps, off-ramps, frontage roads, commercial areas, and other urbanized areas.

Open Water

Open Water is not a vegetation alliance, but for the purposes of this survey, we have included unvegetated waterbodies. Within the ESL, this includes the Sacramento River, which is crossed twice by the ESL; the South Fork of Putah Creek; Prospect Slough; agricultural ditches; and a pond in the Yolo Bypass.

Ornamental

After Wild Oats and Annual Brome Grasslands, Ornamental is the most represented vegetation type in the ESL. Within the ESL, non-native ornamental vegetation has been planted as windbreaks near croplands and as landscaping in urban areas. Stands observed include *Eucalyptus* spp. (eucalyptus species), *Populus nigra* (Lombardy poplar), *Juglans regia* (English walnut), *Schinus molle* (Peruvian pepper tree), and *Ulmus parvifolia* (Chinese elm). The MCV includes ornamental vegetation alliances that do not encompass all species encountered in the ESL. For the purposes of this survey, all ornamental stands have been combined in one Ornamental category. CDFW does not consider Ornamental vegetation a sensitive natural community.

4.1.5. SPECIAL-STATUS PLANT SPECIES

No special-status species were detected within the ESL. While there are some native vegetation stands within the ESL, most are disturbed and support a high cover of non-native and invasive species. Three CNDDB occurrences consisting of *Hibiscus lasiocarpos* var. *occidentalis* (woolly rose-mallow), *Centromadia parryi* ssp. *parryi* (pappose tarplant), and *Astragalus tener* var. *ferrisiae* (Ferris' milk-vetch) overlap with the ESL; none of the species were detected during the surveys. Additional details for these three special-status plant species with documented CNDDB occurrences within the ESL are included in Table 3. Table B-1 in Appendix B includes detailed information on special-status plant species considered to have potential to occur in the ESL. A complete list of plant species observed is included in Appendix D.

Species	CNDDB Number	Occurrence Details from CNDDB ¹	Survey Notes
<i>Hibiscus lasiocarpos</i> var. <i>occidentalis</i> woolly rose- mallow	110	Last observed in 1988 in a roadside ditch. Along on-ramp to eastbound I-80 from West El Camino Ave, north of Sacramento.	Not detected. This species is detectable year-round due to prominent and persistent fruits. Based on phenology of the reference site, leaves and last year's fruits would be detectable if present. The ditch was dry at the time of the survey; compared to the known reference locations which occur along deep, water-filled ditches.
<i>Centromadia parryi</i> ssp. <i>parryi</i> pappose tarplant	37	Only source of information for this site is a 2011 Helmkamp collection. Along I-80 between Chiles Road (County Road 32b) and Levee Road, west edge of Yolo Bypass Wildlife Area. Mapped as best guess.	Not detected. No accessible reference sites within 10 miles of the ESL.
<i>Astragalus tener</i> var <i>. ferrisiae</i> Ferris' milk-vetch	17	Only source of information for this occurrence is a 1954 collection by Peters. Needs fieldwork. Exact location unknown. Mapped as best guess by CNDDB along the Yolo Causeway.	Not detected and not present within the ESL. The May 2021 survey overlaps with this species' bloom time (March–June) and would have been detected if present.

Table 3.California Natural Diversity Database Occurrences Within the
Environmental Study Limit

Note: CNDDB refers to the California Natural Diversity Database

Chapter 5. Conclusion

No special-status species were detected within the ESL. Twenty-one vegetation communities (394.69 acres) and other land cover types (752.69 acres) were mapped; seven (54.66 acres) vegetation communities are considered sensitive natural communities by CDFW. In general, vegetated areas within the ESL, including those mapped as sensitive natural communities, are highly disturbed and/or modified by human activity such as croplands and urban development.



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Chapter 6. References

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Appendix A Figures

Figure 1. Project Location

Figure 2. Vegetation Within the Environmental Study Limits







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Appendix B Special-Status Plant Species With Potential to Occur in the ESL



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Scientific Name Common Name	Status ¹ (Fed State CRPR)	General Habitat Description	Suitable Habitat Present in ESL?	Species Present in ESL?			
	Federal or State Listed Species						
		Malvaceae (Mallo	w Family)				
<i>Sidalcea keckii</i> Keck's checkerbloom	FE — 1B.1	Found in valley and foothill grassland and cismontane woodland. Serpentinite, clay soil. Blooms: April–May (Jun). Elevation: 245 to 2,100 feet	Present. Marginal habitat is present within the grasslands in the ESL, which are dominated by non-native and invasive species. The most recent CNDDB occurrence is from 2019 approximately 5 miles west of the ESL.	Absent. This species was not detected during early- or late- season surveys.			
		Orobanchaceae (Broo	mrape Family)				
Chlorophyron palmatum palmate-bracted bird's-beak	FT SE 1B.1	Found in valley and foothill grassland with alkaline soil. Blooms: May–October Elevation: 85 to 90 feet	Absent. No suitable alkaline soils are present within the ESL to support the species. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.			
		Plantaginaceae (Pla	ntain Family)				
<i>Gratiola heterosepala</i> Bogg's Lake hedge- hyssop	— SE 1B.2	Found in marshes and swamps (lake margins) and vernal pools. Clay soil. Blooms: April–August Elevation: 33 to 7,800 feet	Present. Marginal habitat is present in the fresh emergent marsh wetlands. However, the wetlands within the ESL have altered hydrological regimes. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.			
		Poaceae (Grass	Family)				
Neostapfia colusana Colusa grass	FT SE 1B.1	Found in vernal pools. Blooms: May–August Elevation: 16–656 feet	Absent. No vernal pool habitat is present within the ESL to support the species. The most recent CNDDB occurrence is from 2013 approximately 4 miles southwest of the ESL.	Absent. This species was not detected during early- or late- season surveys.			
<i>Tuctoria mucronata</i> Crampton's tuctoria or Solano grass	FE SE 1B.1	Found in valley and foothill grassland (mesic) and vernal pools. Blooms: April–August Elevation: 15 to 33 feet	Present. Marginal habitat is present within the grasslands in the ESL, which are dominated by non-native and invasive species. The most recent CNDDB occurrence is from 2011 approximately 4 miles southwest of the ESL within created vernal pools.	Absent. This species was not detected during early- or late- season surveys.			

Table B-1. Special-Status Plant Species with Potential to Occur in the ESL

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<i>Scientific Name</i> Common Name	Status ¹ (Fed State CRPR)	General Habitat Description	Suitable Habitat Present in ESL?	Species Present in ESL?
		Other Special-State	us Species	
	A	lismataceae (Water P	lantain Family)	
Sagittaria sanfordii Sanford's arrowhead	 1B.2	Found in marshes and swamps (assorted shallow freshwater). Blooms: May–October (Nov) Elevation:0–2,130 feet	Present. Marginal habitat is present in the fresh emergent marsh wetlands. However, the wetlands within the ESL have altered hydrological regimes. The most recent CNDDB occurrence is from 1993 approximately 3 miles northeast of the ESL along the American River bike trail.	Absent. This species was not detected during early- or late- season surveys.
	I	Apiaceae (Carro	t Family)	
<i>Cicuta maculata</i> var. <i>bolanderi</i> Bolander's water- hemlock	— — 2B.1	Found in marshes and swamps with coastal, fresh, or brackish water. Blooms: July– September Elevation: 0 to 650 feet	Present. Marginal habitat is present in the fresh emergent marsh wetlands. However, the wetlands within the ESL have altered hydrological regimes. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
<i>Eryngium jepsonii</i> Jepson's coyote- thistle	— —/ B.2	Found in valley and foothill grassland and vernal pools. Blooms: April–August Elevation: 10 to 985 feet	Present. Marginal habitat is present within the grasslands which are dominated by non-native and invasive species. No vernal pools are present. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys. One occurrence of a common species of <i>Eryngium</i> (<i>E.</i> <i>aristulatum</i> var. <i>aristulatum</i>) was detected in Yolo Bypass in a small population of around 10 plants mixed in with wild oats. No other native vernal pool species were detected within the ESL.
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	— — 1B.1	Found in marshes and swamps (freshwater or brackish) and riparian scrub. Blooms: April– November Elevation:0–33 feet	Present. Marginal habitat is present in the fresh emergent marsh wetlands. However, the wetlands within the ESL have altered hydrological regimes. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys. It was detected in a reference location outside of the ESL.

<i>Scientific Name</i> Common Name	Status ¹ (Fed State CRPR)	General Habitat Description	Suitable Habitat Present in ESL?	Species Present in ESL?
		Asteraceae (Sunflo	wer Family)	
<i>Centromadia parryi</i> ssp. <i>parryi</i> pappose tarplant	— — 1B.2	Found in coastal prairie, marshes and swamps (coastal salt), meadows and seeps, chaparral, and valley and foothill grassland (vernally mesic). Blooms: May– November Elevation: 0 to 1,375 feet	Present. Marginal habitat is present in the fresh emergent marsh wetlands within the ESL in the Yolo Bypass area. However, the wetlands within the ESL have altered hydrological regimes. There is also suitable grassland habitat within the ESL. One CNDDB occurrence from 2015 along I-80 and the east side of the Yolo Bypass.	Absent. This species was not detected during early- or late- season surveys.
<i>Centromadia parryi</i> ssp. <i>rudis</i> Parry's rough tarplant	 4.2	Found in valley and foothill grassland and vernal pools in areas that are alkaline, vernally mesic, in seeps, and sometimes roadsides. Blooms: May–October Elevation: 0 to 330 feet	Present. Suitable habitat is present within the ESL along roadsides, and grassland habitats. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
<i>Hesperevax</i> <i>caulescens</i> hogwallow starfish	 4.2	Found in valley and foothill grassland (mesic clay) and shallow vernal pools. Blooms: March–June Elevation: 0 to 1,650 feet	Present. Marginal habitat is present within the grasslands which are dominated by non-native and invasive species. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
<i>Isocoma arguta</i> Carquinez goldenbush	— — 1B.1	Found in valley and foothill grassland (alkaline). Blooms: August– December Elevation: 3 to 65 feet	Absent. No alkaline grasslands are present within the ESA. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
Lasthenia chrysantha alkali-sink goldfields	— — 1B.1	Found in vernal pools and wet saline flats. Blooms: February– April Elevation:0–325 feet	Absent. No suitable vernal pool habitat is present within the ESL. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i> Coulter's goldfields	— — 1B.1	Found in marshes and swamps (coastal salt), playas, and vernal pools. Blooms: February– June Elevation:0–4,000 feet	Absent. No suitable coastal salt marsh or swamp, playas, or vernal pool habitat is present within the ESL to support the species. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.

<i>Scientific Name</i> Common Name	Status ¹ (Fed State CRPR)	General Habitat Description	Suitable Habitat Present in ESL?	Species Present in ESL?
<i>Lessingia hololeuca</i> woolly-headed lessingia		Found in broadleaved upland forest, coastal scrub, lower montane coniferous forest, and valley and foothill grassland. Clay, serpentine soil. Blooms: June–October Elevation: 50 to 1,000 feet	Absent. Habitat with suitable clay, serpentine soil is not present within the ESL to support the species. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
<i>Symphyotrichum lentum</i> Suisun Marsh aster	 1B.2	Found in marshes and swamps (brackish and freshwater). Blooms: (Apr)May– November Elevation:0–10 feet	Present. Marginal habitat is present in the fresh emergent marsh wetlands in the Yolo Bypass area. However, the wetlands within the ESL have altered hydrological regimes. A single CNDDB occurrence from 2013 was identified within the Yolo Bypass less than one mile south of the ESL.	Absent. This species was not detected during early- or late- season surveys. This species was located and positively identified at a reference site outside of the ESL.
		Boraginaceae (Bora	age Family)	
<i>Plagiobothrys hystriculus</i> bearded popcornflower	— — 1B.1	Found in valley and foothill grassland (mesic) and vernal pool margins. Blooms: April–May Elevation: 0 to 900 feet	Present. Marginal habitat is present within the grasslands which are dominated by non-native and invasive species. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
		Brassicaceae (Must	ard Family)	
<i>Lepidium latipes</i> var. <i>heckardii</i> Heckard's pepper- grass	— — 1B.2	Found in valley and foothill grassland (alkaline flats). Blooms: March–May. Elevation: 5 to 670 feet	Absent. No alkaline flats are present within the ESL. The most recent CNDDB occurrence is form 1957 approximately 3 miles northeast of Davis.	Absent. This species was not detected during early- or late- season surveys.
	•	Campanulaceae (Belli	lower Family)	
<i>Downingia pusilla</i> dwarf downingia	 2B.2	Found in valley and foothill grassland (mesic) and vernal pools. Blooms: March–May. Elevation: 3 to 1,460 feet	Present. Marginal habitat is present within the grasslands in the ESL, which are dominated by non-native and invasive species. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
<i>Legenere limosa</i> legenere	— — 1B.1	Found in vernal pools. Blooms: April–June Elevation: 3–2,900 feet	Absent. No suitable vernal pool habitat is present within the ESL. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.

<i>Scientific Name</i> Common Name	Status ¹ (Fed State CRPR)	General Habitat Description	Suitable Habitat Present in ESL?	Species Present in ESL?	
	(Chenopodiaceae (Goo	sefoot Family)		
<i>Atriplex cordulata</i> var. <i>cordulata</i> heartscale	 1B.2	Found in chenopod scrub, meadows and seeps, playas, and valley and foothill grasslands. Alkaline and clay soils. Blooms: April–October Elevation: 1–1,050 feet	Present. Marginal habitat is present within the grasslands in the ESL, which are dominated by non-native and invasive species. The most recent CNDDB occurrence is from 1952 approximately 1.5 miles northwest of the ESL and is presumed extirpated.	Absent. This species was not detected during early- or late- season surveys.	
<i>Atriplex depressa</i> brittlescale	 1B.2	Found in chenopod scrub, meadows and seeps, playas, and valley and foothill grasslands. Alkaline and clay soils. Blooms: April–October Elevation: 1–1,050 feet	Present. Marginal habitat is present within the grasslands in the ESL, which are dominated by non-native and invasive species. The most recent CNDDB occurrence is from 1996 approximately 2 miles northwest of the ESL in highly disturbed (plowed) alkali sink habitat.	Absent. This species was not detected during early- or late- season surveys.	
Atriplex persistens vernal pool smallscale	— — 1B.2	Found in vernal pools (alkaline). Blooms: Jun, Aug–Oct Elevation: 30-375 feet	Absent. No suitable vernal pool habitat is present within the ESL. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.	
<i>Extriplex joaquinana</i> San Joaquin spearscale	 1B.2	Found in chenopod scrub, meadows and seeps, valley and foothill grassland, and playas. Alkaline soils. Blooms: April–October Elevation:2–2,740 feet	Absent. No grasslands with alkaline soils are present in the ESL. The most recent CNDDB occurrence is from 2001 approximately 4 miles southwest of the ESL.	Absent. This species was not detected during May or August 2021 surveys. It was detected at a reference site outside of the ESL (Table 1).	
Cyperaceae (Sedge Family)					
<i>Carex comosa</i> bristly sedge	— — 2B.1	Found in coastal prairie, marshes and swamps (lake margins), and vernal pools. Blooms: May– September Elevation: 0 to 2,050 feet	Present. Marginal habitat is present in the fresh emergent marsh wetlands. However, the wetlands within the ESL have altered hydrological regimes. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys. It was detected in a reference location outside of the ESL.	

Scientific Name Common Name	Status ¹ (Fed State CRPR)	General Habitat Description	Suitable Habitat Present in ESL?	Species Present in ESL?
		Fabaceae (Legum	e Family)	
Astragalus pauperculus depauperate milk- vetch	 4.3	Found in chaparral, cismontane woodland, and valley and foothill grassland with vernally mesic, volcanic soil. Blooms: March–June Elevation: 200 to 4,000 feet	Absent. The ESL is not within elevational range of the species. Vernally mesic, volcanic soils are not present within the ESL. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
<i>Astragalus tener</i> var. <i>ferrisiae</i> Ferris' milk-vetch	— — 1B.1	Found in valley and foothill grassland (subalkaline flats) and meadows and seeps (vernally mesic). Blooms: April–May Elevation: 5 to 245 feet	Absent. No suitable subalkaline flats within valley and foothill grassland or meadows and seeps are present within the ESL. The most recent CNDDB occurrence is from 1954 at an unknown location along the Yolo Bypass.	Absent. This species was not detected during early- or late- season surveys.
Astragalus tener var. tener alkali milk-vetch	— — 1B.2	Found in playas, valley and foothill grassland (adobe clay), and vernal pools. Blooms: March–June Elevation: 5 to 200 feet	Absent. No suitable adobe clay or vernal pools are present within the ESL. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i> Delta tule pea	— — 1B.2	Found in marshes and swamps (freshwater and brackish). Blooms: May–July (August-September) Elevation:0–16 feet	Present. Marginal habitat is present in the fresh emergent marsh wetlands. However, the wetlands within the ESL have altered hydrological regimes. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
<i>Trifolium hydrophilum</i> saline clover	— — 1B.2	Found in marshes and swamps, valley and foothill grassland (mesic, alkaline), and vernal pools. Blooms: April–June Elevation: 0 to 985 feet	Absent. Suitable habitat with alkaline soil is not present within the ESL to support the species. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.

<i>Scientific Name</i> Common Name	Status ¹ (Fed State CRPR)	General Habitat Description	Suitable Habitat Present in ESL?	Species Present in ESL?
	1	Liliaceae (Lily I	amily)	
<i>Fritillaria agrestis</i> stinkbells	 4.2	Found in chaparral, cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland. Clay and sometimes serpentine soils. Blooms: March–June Elevation:30–5,100 feet	Present. Marginal habitat is present within the grasslands which are dominated by non-native and invasive species. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
<i>Fritillaria liliacea</i> fragrant fritillary	 1B.2	Found in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland. Often serpentine soils. Blooms: February– April Elevation:10–1,350 feet	Present. Marginal habitat is present within the grasslands which are dominated by non-native and invasive species. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
<i>Fritillaria pluriflora</i> adobe-lily	— — 1B.2	Found in cismontane woodland, chaparral, and valley and foothill grassland. Often adobe soils. Blooms: February– April Elevation:195–2,310 feet	Present. Marginal habitat is present within the grasslands which are dominated by non-native and invasive species. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
		Malvaceae (Mallo	w Family)	
Hibiscus lasiocarpos var. occidentalis wooly rose-mallow	— — 1B.2	Found in marshes and swamps (freshwater). Often in riprap on sides of levees. Blooms: June– September Elevation:0–390 feet	Present. Marginal habitat is present in the fresh emergent marsh wetlands. However, the wetlands within the ESL have altered hydrological regimes. One CNDDB occurrence from 1994 was identified within the ESL in Natomas near the eastbound El Camino Avenue/I-80 on-ramp.	Absent. This species was not detected during early- or late- season surveys. The location where it was seen within in ESL does not support suitable habitat. It was located and positively identified at a reference site outside the ESL.
<i>Malacothamnus helleri</i> Heller's bush-mallow	 3.3	Found in chaparral on sandstone and riparian woodland on gravel. Blooms: May–July Elevation:1,000–2,080 feet	The ESL is not within elevational range of this species. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.

<i>Scientific Name</i> Common Name	Status ¹ (Fed State CRPR)	General Habitat Description	Suitable Habitat Present in ESL?	Species Present in ESL?
		Poaceae (Grass	Family)	
<i>Puccinellia simplex</i> California alkali grass	— — 1B.2	Found in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Alkaline, vernally mesic; sinks, flats, and lake margins. Blooms: March–May Elevation: 5–3,050 feet	Present. Marginal habitat is present within the grasslands which are dominated by non-native and invasive species. The most recent CNDDB occurrence is from 1962 at an unknow location north of Davis and is presumed extirpated.	Absent. This species was not detected during early- or late- season surveys.
	L	Polemoniaceae (Ph	lox Family)	
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i> Baker's navarretia	— — 1B.1	Found in cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland and vernal pools. Mesic. Blooms: April–July Elevation:15–5,700 feet	Present. Marginal habitat is present within the grasslands and woodlands, which are dominated by non-native and invasive species. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
	I	Ranunculaceae (Broo	liaea Family)	
<i>Delphinium</i> <i>recurvatum</i> recurved larkspur	— — 1B.2	Found in chenopod scrub, valley and foothill grassland, and cismontane woodland. Alkaline soils. Blooms: March–June Elevation:10–2,600 feet	Absent. No alkaline grasslands are present in the ESL. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
<i>Myosurus minimus</i> ssp. <i>apus</i> little mousetail	— — 3.1	Found in valley and foothill grassland and vernal pools (alkaline). Blooms: March-June Elevation: 65 to 2,100 feet	Present. Marginal habitat is present within the grasslands which are dominated by non-native and invasive species. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.
Scrophulariaceae (Figwort Family)				
<i>Limosella australis</i> Delta mudwort	— 2B.1	Found in marshes and swamps (freshwater or brackish) and riparian scrub. Usually mud banks Blooms: May–August Elevation:0–10 feet	Present. Marginal habitat is present in the fresh emergent marsh wetlands and willow thickets. However, the wetlands within the ESL have altered hydrological regimes. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.

<i>Scientific Name</i> Common Name	Status ¹ (Fed State CRPR)	General Habitat Description	Suitable Habitat Present in ESL?	Species Present in ESL?
		Themidaceae (Brodi	iaea Family)	
<i>Brodiaea rosea</i> ssp. <i>vallicola</i> valley brodiaea	 4.2	Found in swales within valley and foothill grassland and vernal pools on old alluvial terraces with silty, sandy, and gravelly loam. Blooms: April– May (Jun). Elevation: 30–1,100 feet	Absent. No suitable old alluvial terraces are present within the ESL to support the species. No CNDDB occurrences within 5 miles of the ESL.	Absent. This species was not detected during early- or late- season surveys.

¹ Status Codes

Federal: Federal Endangered (FT); Federal Threatened (FT)

State: State Threatened (ST) California Rare Plant Rank Codes and Extensions:

1A Plants presumed extirpated in California and either rare or extinct elsewhere.

1B Plants rare, threatened, or endangered in California and elsewhere.

2A Plants presumed extirpated in California, but more common elsewhere.

2B Plants rare, threatened, or endangered in California, but more common elsewhere.

3 Review list: Plants about which more information is needed.

4 Watch List: Plants of limited distribution

xx.3 Not very endangered in California

xx.2 Fairly endangered in California

xx.1 Seriously endangered in California







Photo 2. *Hibiscus lasiocarpos* var. *occidentalis* (woolly rose-mallow), CRPR 1B.2, at a reference site located 7 miles north of the ESL in Woodland, CA.



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Photo 4. *Fraxinus latifolia* Forest and Woodland Alliance (Oregon Ash Groves) at Putah Creek.



Photo 6. *Populus fremontii* Forest and Woodland Association (Fremont Cottonwood Forest and Woodland) near Dixon.



Photo 8. A planted *Quercus lobata* Forest and Woodland Alliance (Valley Oak Woodland and Forest) near Dixon



Photo 10. *Salix gooddingii* Forest and Woodland Association (Goodding's Willow Riparian Woodland and Forest) at Yolo Bypass.



Photo 12. *Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance (Wild Oats and Annual Brome Grasslands) near Dixon.



near Dixon.



Photo 16. *Grindelia hirsutula* Provisional Herbaceous Alliance (Gum Plant Patches) at Chiles Road near the Yolo Bypass.



Photo 18. *Ludwigia peploides* Provisional Herbaceous Semi-Natural Alliance (Water Primrose Wetlands) at Yolo Bypass.






Photo 23. An ornamental stand of Juglans regia, non-native English walnut.



Table D-1.	. Plant Species Observed	
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Scientific Name	Common Name	Origin
Ad	oxaceae (Muskroot Family)	
Sambucus nigra ssp. caerulea	blue elderberry	native
Alisma	ataceae (Water-Plantain Far	nily)
Echinodorus berteroi	burhead	native
Sagittaria longiloba	long lobed arrowhead	native
Ana	acardiaceae (Sumac Family)
<i>Pistacia</i> sp.	pistachio	non-native
Schinus molle	Peruvian pepper tree	non-native (invasive)
Toxicodendron diversilobum	poison oak	native
	Apiaceae (Carrot Family)	
Ammi majus	bishop's weed	non-native
Anthriscus caucalis	bur chervil	non-native
Conium maculatum	poison hemlock	non-native (invasive)
Daucus carota	carrot	non-native (invasive)
Eryngium aristulatum var. aristulatum	Jepson's button celery	native
Foeniculum vulgare	fennel	non-native (invasive)
Heracleum maximum	common cow parsnip	native
Torilis arvensis	field hedge parsley	non-native (invasive)
Аро	cynaceae (Milkweed Family	y)
Asclepias fascicularis	milkweed	native
Nerium oleander	oleander	non-native (invasive)
Vinca major	vinca	non-native (invasive)
	Araceae (Arum Family)	
Lemna sp.	duckweed	native
A	raliaceae (Ginseng Family)	
Hedera helix	English ivy	non-native (invasive)
Ast	teraceae (Sunflower Family)
Achillea millefolium	yarrow	native
Achyrachaena mollis	blow wives	native
Anthemis cotula	dog fennel	non-native (invasive)
Artemisia douglasiana	California mugwort	native
Baccharis pilularis	coyote brush	native
Carduus pycnocephalus ssp. pycnocephalus	Italian thistle	non-native
Carduus tenuiflorus	slender flowered thistle	non-native (invasive)
Centaurea melitensis	tocalote	non-native (invasive)
Centaurea solstitialis	yellow starthistle	non-native (invasive)
Cichorium intybus	chicory	non-native
Dittrichia graveolens	stinkwort	non-native
Erigeron canadensis	Canada horseweed	native
Eriophyllum lanatum	wooly sunflower	native
Grindelia hirsutula	gumweed	native
Helianthus annuus	hairy leaved sunflower	native

Scientific Name	Common Name	Origin		
Helminthotheca echioides	bristly oxtongue	non-native (invasive)		
Hypochaeris glabra	smooth cats ear	non-native (invasive)		
Lactuca serriola	prickly lettuce	non-native (invasive)		
Logfia gallica	narrowleaf cottonrose	non-native		
Matricaria discoidea	pineapple weed	native		
Pseudognaphalium luteoalbum	Jersey cudweed	non-native		
Senecio vulgaris	common groundsel	non-native		
Silybum marianum	milk thistle	non-native (invasive)		
Soliva sessilis	South American soliva	non-native		
Sonchus asper ssp. asper	sow thistle	non-native (invasive)		
Sonchus oleraceus	sow thistle	non-native		
Symphyotrichum spathulatum	Western mountain aster	native		
Azollaceae (Mosquito Fern Family)				
Azolla microphylla	Mexican mosquito fern	native		
E	Betulaceae (Birch Family)			
Alnus rhombifolia	white alder	native		
Betula occidentalis	water birch	native		
Во	raginaceae (Borage Family)		
Amsinckia menziesii	fiddleneck	native		
Heliotropium curassavicum	heliotrope	native		
Bra	ssicaceae (Mustard Family	<i>(</i>)		
Brassica nigra	black mustard	non-native (invasive)		
Capsella bursa-pastoris	shepherd's purse	non-native		
Hirschfeldia incana	mustard	non-native (invasive)		
Lepidium latifolium	perennial pepperweed	non-native (invasive)		
Raphanus sativus	jointed charlock	non-native (invasive)		
Ca	ryophyllaceae (Pink Family)		
Cerastium glomeratum	large mouse ears	non-native		
Chenc	podiaceae (Goosefoot Fan	nily)		
Chenopodium album	lambs quarters	non-native		
Salsola tragus	Russian thistle	non-native (invasive)		
Convolv	/ulaceae (Morning-Glory Fa	amily)		
Convolvulus arvensis	field bindweed	non-native (invasive)		
<i>Cuscuta</i> sp.	-	-		
Cupressaceae (Cypress Family)				
Sequoia sempervirens	Coast redwood	native		
Cyperaceae (Sedge Family)				
Bolboschoenus fluviatilis	river bulrush	native		
Cyperus eragrostis	tall cyperus	native		
Schoenoplectus acutus var. occidentalis	tule	native		
Dipsacaceae (Teasel Family)				
Dipsacus fullonum	wild teasel	non-native (invasive)		

Scientific Name	Common Name	Origin		
Fabaceae (Legume Family)				
Acmispon americanus var. americanus	Spanish lotus	native		
Acmispon wrangelianus	Chilean trefoil	native		
Albizia julibrissin	silktree	non-native		
Medicago lupulina	black medick	non-native		
Medicago polymorpha	California burclover	non-native (invasive)		
Medicago sativa	alfalfa	non-native		
Melilotus officinalis	yellow sweetclover	non-native (invasive)		
Parkinsonia aculeata	Jerusalem thorn	non-native (invasive)		
Robinia pseudoacacia	black locust	non-native (invasive)		
Trifolium hirtum	rose clover	non-native (invasive)		
Trifolium subterraneum	subterranean clover	non-native		
Vicia sativa	spring vetch	non-native		
Vicia villosa	hairy vetch	non-native (invasive)		
	Fagaceae (Oak Family)			
Quercus agrifolia	coast live oak	native		
Quercus ilex	holly oak	non-native		
Quercus lobata	valley oak	native		
Quercus suber	cork oak	non-native		
Quercus wislizeni	interior live oak	native		
Gei	raniaceae (Geranium Family	()		
Erodium brachycarpum	white stemmed filaree	non-native (invasive)		
Erodium cicutarium	coastal heron's bill	non-native (invasive)		
Erodium moschatum	whitestem filaree	non-native (invasive)		
Geranium dissectum	wild geranium	non-native (invasive)		
Geranium molle	crane's bill geranium	non-native (invasive)		
Ju	glandaceae (Walnut Family			
Juglans regia	English walnut	non-native		
	Lamiaceae (Mint Family)			
Mentha pulegium	pennyroyal	non-native (invasive)		
Rosmarinus officinalis	rosemary	non-native (invasive)		
Lyt	hraceae (Lossestrife Family	()		
Lythrum hyssopifolia	hyssop loosestrife	non-native		
Malvaceae (Mallow Family)				
Abutilon theophrasti	velvet leaf	non-native		
Malva nicaeensis	bull mallow	non-native		
Malva parviflora	cheeseweed	non-native		
Myrtaceae (Myrtle Family)				
Eucalyptus sp.	-	non-native (invasive)		
	Oleaceae (Olive Family)	•		
Fraxinus latifolia	Oregon ash	native		
Ligustrum japonicum	Japanese privet	non-native		
Olea europaea	olive	non-native (invasive)		

Scientific Name	Common Name	Origin
Onagra	ceae (Evening-Primrose Fa	mily)
Epilobium brachycarpum	willow herb	native
Epilobium ciliatum	slender willow herb	native
Ludwigia hexapetala	six petal water primrose	non-native (invasive)
Oenothera biennis	small flowered evening primrose	non-native
0	xalidaceae (Oxalis Family)	
Oxalis pes-caprae	Bermuda buttercup	non-native (invasive)
Pa	paveraceae (Poppy Family)	
Eschscholzia californica	California poppy	native
Plan	taginaceae (Plantain Famil	y)
Kickxia elatine	sharp point fluellin	non-native
Plantago coronopus	cut leaf plantain	non-native (invasive)
Plantago lanceolata	ribwort	non-native (invasive)
Plat	tanaceae (Sycamore Family	/)
Platanus racemosa	California sycamore	native
	Poaceae (Grass Family)	
Aira caryophyllea	silvery hairgrass	non-native (invasive)
Arundo donax	giant reed	non-native (invasive)
Avena fatua	wildoats	non-native (invasive)
Bromus diandrus	ripgut brome	non-native (invasive)
Bromus hordeaceus	soft chess	non-native (invasive)
Bromus madritensis	foxtail chess	non-native
<i>Cortaderia</i> sp.	pampas grass	non-native (invasive)
Crypsis schoenoides	swamp grass	non-native
Cynodon dactylon	Bermuda grass	non-native (invasive)
Dactylis glomerata	orchardgrass	non-native (invasive)
Distichlis spicata	salt grass	native
Echinochloa crus-galli	barnyard grass	non-native
Elymus glaucus	blue wildrye	native
Elymus triticoides	beardless wild rye	native
Festuca arundinacea	reed fescue	non-native (invasive)
Festuca myuros	rattail sixweeks grass	non-native (invasive)
Festuca perennis	Italian rye grass	non-native
Hordeum marinum ssp. gussoneanum	barley	non-native
Hordeum murinum	foxtail barley	non-native (invasive)
Hordeum vulgare	common barley	non-native
Oryza sativa	domestic rice	non-native
Paspalum dilatatum	dallis grass	non-native
Phalaris aquatica	Harding grass	non-native (invasive)
Phalaris paradoxa	Hood canarygrass	non-native
Phragmites australis	common reed	native
Polypogon monspeliensis	annual beard grass	non-native (invasive)
Sorghum halepense	Johnsongrass	non-native (invasive)

Scientific Name	Common Name	Origin	
Stipa miliacea var. miliacea	smilo grass	non-native	
Stipa pulchra	purple needle grass	native	
Polyg	gonaceae (Buckwheat Fami	ly)	
Persicaria hydropiperoides	water pepper	native	
Polygonum aviculare	prostrate knotweed	non-native	
Rumex acetosella	sheep sorrel	non-native (invasive)	
Rumex crispus	curly dock	non-native (invasive)	
Rumex salicifolius	willow leaved dock	native	
	Rosaceae (Rose Family)		
Cotoneaster sp.	-	non-native (invasive)	
Prunus dulcis	almond	non-native	
Rubus armeniacus	Himalayan blackberry	non-native (invasive)	
Rubus ursinus	California blackberry	native	
R	ubiaceae (Madder Family)		
Galium aparine	cleavers	native	
S	Salicaceae (Willow Family)		
Populus fremontii ssp. fremontii	cottonwood	native	
Populus nigra	Lombardy poplar	non-native	
Salix babylonica	weeping willow	non-native	
Salix exigua	sandbar willow	native	
Salix gooddingii	Gooding's willow	native	
Salix laevigata	polished willow	native	
Sap	indaceae (Soapberry Famil	y)	
Acer macrophyllum	bigleaf maple	native	
Acer negundo	Boxelder	native	
Sima	aroubaceae (Quassia Famil	у)	
Ailanthus altissima	tree of heaven	non-native (invasive)	
Sola	anaceae (Nightshade Family	v)	
Nicotiana glauca	tree tobacco	non-native (invasive)	
Tamaricaceae (Tamarisk Family)			
Tamarix parviflora	tamarisk	non-native (invasive)	
The	midaceae (Brodiaea Family	1)	
Brodiaea coronaria	harvest brodiaea	native	
Т	yphaceae (Cattail Family)		
Typha latifolia	broadleaf cattail	native	
	Ulmaceae (Elm Family)		
Ulmus parvifolia	Siberian elm	non-native	
Verbenaceae (Verbena Family)			
Phyla nodiflora	common lippia	native	
Viscaceae (Mistletoe Family)			
Phoradendron leucarpum	American mistletoe	native	
Vitaceae (Grape Family)			
Vitis californica	California wild grape	native	