Appendix D
Botanical Reconnaissance Survey Report

BOTANICAL SURVEY RECORD: EAST SAND SLOUGH

Survey Dates: 03/28-03/30/18; 04/09/18; 04/19/18; 07/10-07/11/18. **Location:** East Sand Slough

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Purpose: The purpose of this survey was to search for rare plants near planned project activities at East Sand Slough, an intermittent side channel of the Sacramento River. The project aims to improve salmonid habitat by maintaining continuous flows through the side channel. Potential impacts to botanical resources include sediment excavation, a spoils area, haul routes and staging areas for heavy equipment, as well as permanent inundation of the channel (which now supports plants associated with a hydrologic pattern involving both inundated and dry periods).

Target Rare Plants: A list of potential rare plants was generated from a nine-quad search of the California Natural Diversity Database using the California Department of Fish and Wildlife's Biological Information and Observation System. Using information on rare species' habitat, microhabitat, soil type, and elevation range (Janeway 2013; Consortium of California Herbaria; Jepson eFlora), the potential rare plant list was divided into a high likelihood list (Table 1), a moderate likelihood list (Table 2), and a low likelihood list (Table 3). The high likelihood list contains "target rare plants," which were the focus of field surveys.

Site Characterization: Land use of the surrounding area is a mix of agricultural, residential, and commercial development. The southern, downstream end of the side channel leads to the Red Bluff Recreation Area, a semi-natural area managed by the Mendocino National Forest.

Vegetation structure and composition is variable throughout East Sand Slough. At the upstream end north of Antelope Blvd, the side channel has varying ground elevations with multiple meandering channels and ponds (Fig. 1). Patches of mixed riparian forest exist, as well as open annual grassland, and scattered riparian trees and shrubs. The overstory at the upstream end consists of scattered patches of large tree species including Fremont cottonwood (*Populus fremontii),* valley oak (*Quercus lobata*), Oregon ash (*Fraxinus latifolia*), and northern California walnut (*Juglans hindsii*). Understory vegetation consists of several willow species (*Salix spp*.), blue elderberry (*Sambucus nigra* ssp. *caerulea*), and Himalayan blackberry (*Rubus armeniacus*). South of Antelope Blvd, East Sand Slough becomes a narrow single channel with banks dominated by annual grasses with occasional valley oak, interior live oak (*Quercus wislizeni*), and tree of heaven (*Ailanthus altissima*). The southernmost portion of the project area, southeast of where East Sand Slough re-enters the Sacramento River, consists of valley oak savannah with an understory of annual grasses. Much of the vegetation at East Sand Slough is recovering from a wildfire that occurred in June 2013. Also, the recent decommissioning of the Red Bluff Diversion Dam and subsequent loss of Lake Red Bluff has most likely resulted in a hydrologic change that will continue to modify vegetation characteristics at East Sand Slough (Resource Conservation District of Tehama County 2017).

Target microenvironments: The current hydrologic pattern involves both inundated and dry periods, which could produce conditions associated with several rare plants. The periodic inundation followed by gradual soil dry-down may be analogous to nearby vernal pool habitats, which support rare plants like Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*), Boggs Lake hedge-hyssop (*Gratioloa heterosepala*), and legenere (*Legenere limosa*). This hydrology also creates several ponds, which can support rare plants like Sanford's arrowhead (*Sagittaria sanfordii*) and Brazilian watermeal (*Wolffia brasiliensis*). Intermittent stream gravel bars and streambeds in nearby tributaries to the Sacramento River support rare plants like Stony Creek spurge (*Euphorbia ocellata* ssp. *rattanii*), silky cryptantha (*Cryptantha crinita*), and shield-bracted monkeyflower (*Erythranthe glaucescens*) which are all more typical of higher elevations.

Activities: The first survey was performed 3/28-3/30 to target early-season target rare plants (Table 1). A follow-up early season survey on 4/09 focused on upland acreage that had been added to the project area for a possible spoils area (Fig. 1). A highly focused survey on 4/19 targeted silky cryptantha at the northernmost end of East Sand Slough, after the plant was confirmed to be present and identifiable at a nearby reference site. This north end of East Sand Slough is less than one mile from a known CNDDB occurrence of silky Cryptantha, and closely resembles the conditions of the reference site (gravely substrate and similar species composition). A late-season survey was performed on 7/10-7/11, which focused on gravel bars, ponds, and moist areas likely to support late-season target rare plants (Table 1).

Survey Results: In total, 194 species were observed within the East Sand Slough project area (Table 4; Fig. 1). Interesting findings that resulted in voucher specimens included Azure penstemon (*Penstemon azureus* var. *azureus*) and contorted sun cup (*Camissonia contorta*). No rare plants were found, although we did encounter Valley spurge (*Euphorbia ocellata* ssp. *ocellata*), a close relative of the rare Stony Creek spurge (*Euphorbia ocellata* ssp. *rattanii*), and weak-stemmed cryptantha (*Cryptantha flaccida*), a relative and associate species of the rare silky cryptantha (*Cryptantha crinita*). We also found *Mimulus guttatus* and *Mimulus pilosus*, two relatives of the rare shield-bracted monkeyflower (*Mimulus glaucescens*).

The hydrology of East Sand Slough creates areas that experience shallow inundation followed by gradual soil dry-down. We found these conditions favored plants often associated with vernal pools, such as toothed downingia (*Downingia cuspidata*), Orcutt's quillwort (*Isoetes orcuttii*), stalked popcornflower (*Plagiobothrys stipitatus* ssp. *micranthus*) and purslane speedwell (*Veronica peregrina* ssp. *xalapensis*). Similar hydrologic conditions have also been produced from willow removal by beaver, an activity that exposes moist soil to sunlight. Despite hydrologic conditions comparable to nearby vernal pool habitats, we did not encounter any rare vernal pool obligate plants.

Minimization Measures: Based on findings from field surveys, we do not anticipate the project to have a negative effect on botanical resources. Because no rare plants were observed, we propose no minimization measures for rare plant protection; however unique environments should be preserved to the extent possible. For example, riparian trees and shrubs serve an important ecological and hydrological role and should be preserved as much as possible during construction.

References cited

California Department of Fish and Wildlife. 2018. *BIOS*. Viewed online at: https://map.dfg.ca.gov/bios/?al=ds45. Accessed March 23, 2018.

Consortium of California Herbaria. 2018. Viewed online at: http://ucjeps.berkeley.edu/consortium/. Accessed March 23, 2018.

Janeway, L. 2013. *Vern Oswald's Selected Plants, Updated and Revised*. Studies from the Herbarium, CSU Chico, No. 17.

Jepson Flora Project (eds.). 2018. *Jepson eFlora*, http://ucjeps.berkeley.edu/eflora/ [accessed on Jul 31, 2018].

Resource Conservation District of Tehama County. 2017. *Tehama East and Tehama West Community Wildfire Protection Plan Update*. Viewed online at: http://www.battle-creek.net/docs/TehamaEastWildfirePlan/3%20final_2_CWPPupdate2017.pdf. Accessed Aug 2, 2018.

Table 1. Potential Rare Plants with a High Likelihood of Occurring at East Sand Slough

Scientific Name	Common Name	CRPR	Blooming Period	Habitat	Micro Habitat	Elevation Low (ft)	Elevation High (ft)
Juncus leiospermus var. *leiospermus*	Red Bluff dwarf rush	1B.1	Mar-Jun	Chaparral, Cismontane woodland, Meadows and seeps, Valley and foothill grassland, Vernal pools	Vernally mesic	110	4100
Cryptantha crinita	silky cryptantha	1B.2	Apr-May	Cismontane woodland, Lower montane coniferous forest, Riparian forest, Riparian woodland, Valley and foothill grassland	Gravelly streambeds	200	3985
Gratiola heterosepala	Boggs Lake hedge-hyssop	1B.2	Apr-Aug	Marshes and swamps (lake margins), Vernal pools	Clay	30	7790
Legenere limosa	legenere	1B.1	Apr-Jun	Wet areas	Vernal pools and ponds	0	2885
Wolffia brasiliensis	Brazillian watermeal	2B.3	Jun-Aug	Ponds	Sloughs	0	300
Erythranthe glaucescens	shield-bracted monkeyflower	4.3	Feb-Aug(Sep)	Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland	Serpentinite seeps, sometimes streambanks	195	4070
Euphorbia ocellata ssp. *rattanii*	Stony Creek spurge	1B.2	May-Sep	sandy, gravel river bed		600	600

Table 2. Potential Rare Plants with a Moderate Likelihood of Occurring at East Sand Slough

Scientific Name	Common Name	CRPR	Blooming Period	Habitat	Micro Habitat	Elevation Low (ft)	Elevation High (ft)
Astragalus pauperculus	depauperate milk-vetch	4.3	Mar-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	Vernally mesic, volcanic	195	3985
Limnanthes floccosa ssp. *floccosa*	woolly meadowfoam	4.2	Mar-May(Jun)	Chaparral, Cismontane woodland, Valley and foothill grassland, Vernal pools	Vernally mesic	195	4380
Agrostis hendersonii	Henderson's bent grass	3.2	Apr-Jun	Valley and foothill grassland (mesic), Vernal pools	Vernally mesic tuscan mudflow	225	1000
Sagittaria sanfordii	Sanford's arrowhead	1B.2	May-Oct(Nov)	Marshes and swamps (assorted shallow freshwater)	Ponds	0	2135
Sidalcea celata	Redding checkerbloom	3	Apr-Aug	Cismontane woodland	Sometimes serpentinite	440	5005

Table 3. Potential Rare Plants with a Low Likelihood of Occurring at East Sand Slough

Scientific Name	Common Name	CRPR	Blooming Period	Habitat	Micro Habitat	Elevation Low (ft)	Elevation High (ft)
Downingia pusilla	dwarf downingia	2B.2	Mar-May	Valley and foothill grassland (mesic), Vernal pools	Vernal pools	0	1460
Juncus leiospermus var. ahartii	Ahart's dwarf rush	1B.2	Mar-May	Valley and foothill grassland (mesic)		95	750
Navarretia leucocephala ssp. bakeri	Baker's navarretia	1B.1	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools	Mesic, Vernal pools	15	5710
Navarretia heterandra	Tehama navarretia	4.3	Apr-Jun	Valley and foothill grassland (mesic), Vernal pools	Vernal pools	95	3315
Polygonum bidwelliae	Bidwell's knotweed	4.3	Apr-Jul	Chaparral, Cismontane woodland, Valley and foothill grassland	Volcanic, thin vernally moist soils	195	3935
Orcuttia tenuis	slender Orcutt grass	1B.1	May-Sep(Oct)	Vernal pools	Often gravelly. Vernal pools	110	5775
Paronychia ahartii	Ahart's paronychia	1B.1	Feb-Jun	Cismontane woodland, Valley and foothill grassland, Vernal pools		95	1675
Fritillaria pluriflora	adobe-lily	1B.2	Feb-Apr	Chaparral, Cismontane woodland, Valley and foothill grassland	Often adobe	195	2315
Hemizonia congesta ssp. calyculata	Mendocino tarplant	4.3	Jul-Nov	Clay. Grassland		660	4600
Eriogonum tripodum	tripod buckwheat	4.2	May-Jun	Serpentine		900	2400
Cypripedium montanum	mountain lady's-slipper	4.2	Mar-Aug	Broadleafed upland forest, Cismontane woodland, Lower montane coniferous forest, North Coast coniferous forest	Conifer forest	605	7300
Acmispon rubriflorus	red-flowered bird's-foot trefoil	1B.1	Apr-Jun	Cismontane woodland, Valley and foothill grassland	Clay	655	1395

Table 4. East Sand Slough Species List

Family	Scientific Name	Common Name	Wetland Indicator Status (incomplete)	OBSERVED 03-28-18 to 03-30-18	OBSERVED 04-09-18	OBSERVED 07-10-18 to 07-11-18
Eudicots						
Adoxaceae	*Sambucus nigra* subsp. *caerulea*	Blue elderberry	FAC	X		X
Amaranthaceae	***Amaranthus albus***	**Pigweed amaranth**				X
Anacardiaceae	*Toxicodendron diversilobum*	Poison oak			X	X
Apiaceae	***Anthriscus caucalis***	**Bur chervil**			X	
	Conium maculatum	**Poison hemlock**				
	Daucus carota	**Queen Anne's lace**		X		X
	Torilis arvensis	**Field hedge parsley**			X	
Apocynaceae	***Vinca major***	**Periwinkle**			X	
Aristolochiaceae	*Aristolochia californica*	California pipevine		X		X
Asteraceae	*Ambrosia psilostachya*	Western ragweed		X		X
	Artemesia douglasiana	Mugwort	FAC	X		X
	Baccharis salicifolia	Mule-fat	FAC	X		X
	Blennosperma nanum	Yellow carpet		X		
	Brickellia californica	California brickelbush		X		X
	Calycadenia ciliosa	Klamath calycadenia				X
	Calycadenia fremontii (?, dry)	Fremont's calycadenia		X		
	Centaurea solstitialis	**Yellow starthistle**			X	X
	Centromadia fitchii	Fitch's spikeweed				X
	Chicory intybus	**Chicory**				X
	Erigeron annuus	Annual fleabane				X
	Erigeron canadensis	Horseweed	FAC	X		X
	Euthamia occidentalis	Western goldenrod				X
	Gnaphalium palustre	Lowland cudweed		X		X
	Grindelia camporum	Valley gumplant	UPL	X		X
	Helenium puberulum	Rosilla				X
	Heterotheca grandiflora	Telegraph weed	UPL	X		X
	Heterotheca oregona	Oregon false goldenaster	FACU	X		X
	Hypochaeris glabra	**Smooth cats-ear**				
	Lactuca serriola	**Prickly lettuce**	FAC	X		X
	Leontodon saxatilis* ssp. *longirostris	**Long-beaked hawkbit**	FACU	X		X
	Logfia gallica	**Narrowleaf**		X		
	Matricaria discoidea	Pineapple weed			X	
	Senecio vulgaris	**Old-man-of-spring**		X		
	Silybum marianum	**Milk-thistle**		X		
	Sonchus oleraceus	**Common sow-thistle**		X		
	Symphyotrichum subulatum var. *parviflorum*	Annual saltmarsh aster		X		
	Xanthium strumarium	Cocklebur	FAC	X		X
Bignoniaceae	***Catalpa speciosa***	**Northern catalpa**				X
Boraginaceae	*Amsinckia lycopsoides*	Bugloss fiddleneck		X		
	Cryptantha flaccida	Weak-stemmed cryptantha		X		
	Eriodictyon californicum	Yerba santa		X		X
	Heliotropium europaeum	**European heliotrope**				X
	Heliotropium curassavicum var. *oculatum*	Wild heliotrope				X (1 indiv.)
	Plagiobothrys canescens	Valley popcornflower		X		
	Plagiobothrys stipitatus ssp. *micranthus*	Small-flowered stalked	FACW	X		
Brassicaceae	***Arabidopsis thaliana***	**Thalecress**		X		
	Barbarea verna	**Early winter cress**		X		
	Brassica nigra	**Black mustard**	UPL	X		X
	Brassica rapa	**Field mustard**				
	Cardamine hirsuta	**Hairy bittercress**		X		
	Cardamine oligosperma	Western bittercress		X		
	Hirschfeldia incana	**Summer mustard**	UPL	X		
	Lepidium latifolium	**Perennial**				X
	Lepidium nitidum	Shining peppergrass		X		
	Nasturtium officinale	Watercress				
	Raphanus sp.	**Radish**		X		
	Rorippa curvisiliqua var. *occidentalis*	Curvepod yellow cress		X		

Table 4 (continued). East Sand Slough Species List

Family	Scientific Name	Common Name	Wetland Indicator Status (incomplete)	OBSERVED 03-28-18 to 03-30-18	OBSERVED 04-09-18	OBSERVED 07-10-18 to 07-11-18
Campanulaceae	*Downingia cuspidata*	Toothed downingia				X
Caryophyllaceae	***Herniaria hirsuta* var. *hirsuta***	**Hairy rupturewort**		X		
	Petrorhagia dubia	**Grass-pink**		X		
	Scleranthus annuus	**German knotgrass**		X		
	Spergula arvensis	**Corn spurry**				
	Spergularia bocconi	**Red sand-spurry**	FAC	X		
	Stellaria media	**Common chickweed**			X	
Chenopodiaceae	***Chenopodium album***	**Lamb's quarters**				X
	Dysphania botrys	**Jerusalem-oak**		X		X
Cleomaceae	*Polanisia dodecandra* ssp. *trachysperma*	Western clammyweed	FACU	X		X
Convolvulaceae	***Convolvulus arvensis***	**Field bindweed**				X
Crassulaceae	***Crassula tillaea***	**Mediterranean pygmy weed**		X		
Cucurbitaceae	*Marah fabacea*	California manroot		X		
Euphorbiaceae	*Croton setigerus*	Turkey mullein				X
	Euphorbia maculata	**Spotted spurge**				X
	Euphorbia ocellata ssp. *ocellata*	Valley spurge				X
	Euphorbia peplus	**Petty spurge**		X		
	Euphorbia serpyllifolia	Thyme-leaved spurge				X
Fabaceae	*Acmispon americanus* var. *americanus*	Spanish lotus				X
	Cercis occidentalis	Western redbud			X	
	Lotus corniculatus	**Bird's foot trefoil**				X
	Lupinus albifrons	Silver bush lupine			X	
	Lupinus bicolor	Bicolored lupine		X		
	Lupinus succulentus	Succulent lupine		X		
	Medicago polymorpha	**Burclover**	FACU	X		
	Melilotus albus	**White sweetclover**				X
	Melilotus indicus	**Yellow sweetclover**	FACU	X		
	Robinia pseudoacacia	**Black locust**			X	X
	Sesbania punicea	**Scarlet wisteria**				X
	Soartium junceum	**Spanish broom**				
	Trifolium hirtum	**Rose clover**		X		
	Vicia villosa* ssp. *varia	**Winter vetch**	UPL	X		
Fagaceae	*Quercus lobata*	Valley oak	FAC	X		X
	Quercus wislizeni	Interior live oak			X	X
Gentianaceae	*Zeltnera venusta*	Charming centaury				
Geraniaceae	***Erodium cicutarium***	**Red-stemmed filaree**	UPL	X		
	Geranium molle	**Crane's bill geranium**		X		
Hypericaceae	*Hypericum anagalloides*	Creeping St. John's-wort		X		
	Hypericum mutilum	**Small-flowered St. John's-wort**				X
	Hypericum perforatum	**Klamath-weed**	FACU	X		X
Juglandaceae	*Juglans hindsii*	Northern California black walnut	FAC	X		X
Lamiaceae	***Lamium amplexicaule***	**Giraffehead**		X		
	Lamium purpureum	**Purple dead nettle**				
	Lycopus americanus	Cut-leaved				X
	Marrubium vulgare	**Horehound**		X		X
	Mentha pulegium	**Pennyroyal**		X		X
	Trichostema lanceolatum	Vinegarweed				X
Lauraceae	*Umbellularia californica*	California bay			X	
Loasaceae	*Mentzelia laevicaulis*	Giant blazing star				X
Lythraceae	*Ammannia robusta*	Grand ammania				X
	Ficus carica	**Fig**				X
	Lythrum hyssopifolia	**Hyssop loosestrife**	FACW	X		

Table 4 (continued). East Sand Slough Species List

Family	Scientific Name	Common Name	Wetland Indicator Status (incomplete)	OBSERVED 03-28-18 to 03-30-18	OBSERVED 04-09-18	OBSERVED 07-10-18 to 07-11-18
Molluginaceae	***Mollugo verticillata***	**Green carpetweed**				X
Montiaceae	*Calandrinia menziesii*	Red maids		X		
	Claytonia perfoliata	Miner's lettuce			X	
Moraceae	***Maclura pomifera***	**Osage orange**				
	Morus alba	**Mulberry**		X		X
Myrtaceae	***Eucalyptus sp.***	**Eucalyptus**			X	
Oleaceae	*Fraxinus latifolia*	Oregon ash	FACW	X		X
Onagraceae	*Camissonia contorta*	Contorted sun cup			X	
	Epilobium brachycarpum	Tall annual	UPL	X		
	Epilobium ciliatum ssp. *ciliatum*	Fringed willowherb				X
	Ludwigia peploides	**Water primrose**	OBL	X		X
	Oenothera elata ssp. *hirsutissima*	Evening primrose				X
Orobanchaceae	*Castilleja attenuata*	Valley-tassels			X	
	Triphysaria eriantha	Johnny tuck		X		
Papaveraceae	*Eschscholzia caespitosa*	Foothill poppy				
	Platystemon californicus	Cream cups		X		
Phrymaceae	*Mimulus guttatus (Erythranthe guttata)*	Seep monkey-flower	OBL	X		
	Mimulus pilosus (Mimetanthe pilosa)	Downy mimetanthe				X
Pinaceae	***Pinus halepensis?***	**Aleppo pine?**			X	X
	Pinus sabiniana	Gray pine			X	X
Plantaginaceae	*Antirrhinum cornutum*	Spurred snapdragon				X
	Kickxia elatine	**Sharp-leaved fluellin**	NI	X		X
	Penstemon azureus var. *azureus*	Azure beardtongue		X		X
	Plantago erecta	California plantain			X	
	Plantago lanceolata	**English plantain**	FACW	X		X
	Veronica anagallis-aquatica	**Water speedwell**	OBL	X		X
	Veronica arvensis	**Speedwell**			X	
	Veronica peregrina ssp. *xalapensis*	Purslane speedwell	OBL	X		
Platanaceae	*Platanus racemosa*	Western sycamore	FACW	X		X
Polemoniaceae	*Leptosiphon sp.*			X		
	Linanthus (?)					
Polygonaceae	*Eriogonum nudum*	Naked buckwheat		X		X
	Eriogonum wrightii var. *trachygonum*	Wright's buckwheat		X		X
	Persicaria hydropiper	**Common smartweed**				X
	Polygonum aviculare	**Prostrate knotweed**				
	Rumex crispus	**Curly dock**	FACW	X		X
Potamogetonaceae	***Potamogeton crispus***	**Curly pondweed**				X
Rhamnaceae	*Frangula californica*	Coffeeberry			X	X
Rosaceae	*Heteromeles arbutifolia*	Toyon			X	
	Prunus cerasifera (green leaf)	**Cherry plum**				X
	Prunus cerasifera (purple leaf)	**Cherry plum**				X
	Prunus dulcis	**Almond**				X
Rosaceae	*Rosa californica*	California rose	FAC	X		X
	Rubus armeniacus	**Himalayan blackberry**	FACW	X		X
Rubiaceae	***Galium parisiense***	**Wall bedstraw**	UPL	X		
Salicaceae	*Populus fremontii*	Fremont cottonwood	FAC	X		X
	Salix exigua	Sandbar willow	OBL	X		X
	Salix goodingii	Black willow			X	X
	Salix laevigata	Red willow				X
	Salix lasiolepis	Arroyo willow	FACW	X		X

Table 4 (continued). East Sand Slough Species List

Family	Scientific Name	Common Name	Wetland Indicator Status (incomplete)	OBSERVED 03-28-18 to 03-30-18	OBSERVED 04-09-18	OBSERVED 07-10-18 to 07-11-18
Sapindaceae	*Acer negundo*	Box elder	FACW	X		X
Scrophulariaceae	***Verbascum blattaria***	**Moth mullein**	UPL	X		X
	Verbascum thapsus	**Wooly mullein**	FACU	X		X
Simaroubaceae	***Ailanthus altissima***	**Tree of heaven**			X	X
Solanaceae	*Datura wrightii*	Jimsonweed			X	X
	Solanum americanum	American black nightshade				X
Verbenaceae	*Phyla nodiflora* var. *nodiflora*	Creeping lippia (large leaf)				X
	Phyla nodiflora* var. *rosea	**Rosy lippia (small leaf-compact mat)**				X
	Verbena bonariensis	**Purple top vervain**	UPL			X
Vitaceae	*Vitis californica*	California wild grape	FACW	X		X
Zygophyllaceae	***Tribulus terrestris***	**Puncturevine**				X
Monocots						
Alismataceae	*Echinodorus bertoroi*	Burhead				**X (9/13/18)**
Cyperaceae	*Eleocharis macrostachya*	Creeping spike rush		X		
	Carex barbarae	Santa barbara sedge				X
	Cyperus sp.	Nutsedge				
	Schoenoplectus acutus var. *occidentalis*	Tule				X
Juncaceae	*Juncus balticus*	Baltic rush		X		
	Juncus bufonius var. *bufonius*	Toad rush	FACW	X		
	Juncusacuminatus					
Poaceae	***Aira caryophyllea (?)***	**Silver hairgrass**				
	Alopecurus carolinianus	Carolina foxtail		X		
	Arundo donax	**Giant reed**				
	Avena barbata or A. fatua	**Wild oats**	UPL	X		
	Brachypodium distachyon	**False brome**	UPL	X		
	Bromus diandrus	**Ripgut brome**	UPL	X		
	Bromus hordeaceus	**Soft chess**	FACU	X		
	***Bromus madritensis* ssp. rubens**	**Red brome**	UPL	X		
	Cynodon dactylon	**Bermudagrass**	FAC	X		X
	Echinochloa sp.			X		
	Elymus glaucus(?)	Blue wildrye				
	Festuca (=Vulpia) myuros	**Rattail sixweeks grass**		X		
	Festuca perennis	**Italian rye grass**		X		
	Hordeum marinum* ssp. *gussoneanum	**Mediterranean barley**	FAC	X		
	Hordeum murinum	**Wall barley**		X		
	Paspalum dilatatum	**Dallis grass**				X
	Phalaris arundinacea (?)	Reed canarygrass				X
	Secale cereale	**Cereal rye**			X	
	Sorghum halepense	**Johnsongrass**				X
	Stipa miliacea* ssp. *miliacea	**Smilo grass**		X		X
Themidaceae	*Dichelostemma capitatum*	Blue-dicks			X	
Typhaceae	*Typha sp.*	Cattail	OBL	X		X
Pteridophytes						
Equisetaceae	*Equisetum hyemale*	Scouringrush		X		X

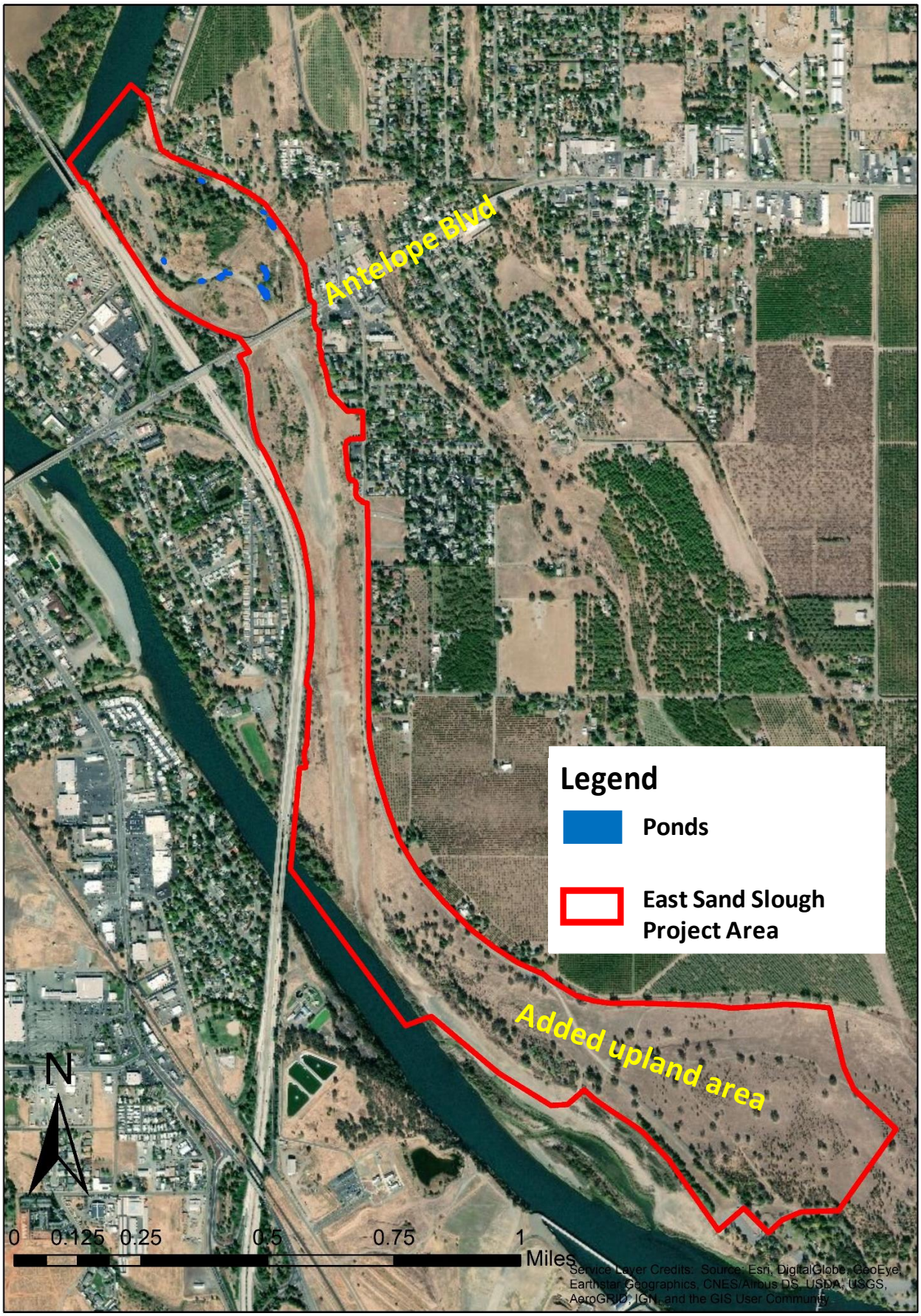

Figure 1. Areas surveyed for sensitive botanical resources -2018
Note: Minor boundary modifications were made in September 2018 that did not require a re-survey.