

Restoration at the Hedrick Ranch Nature Area

FWS Agreement Number 81440-05-G-016



Prepared for:

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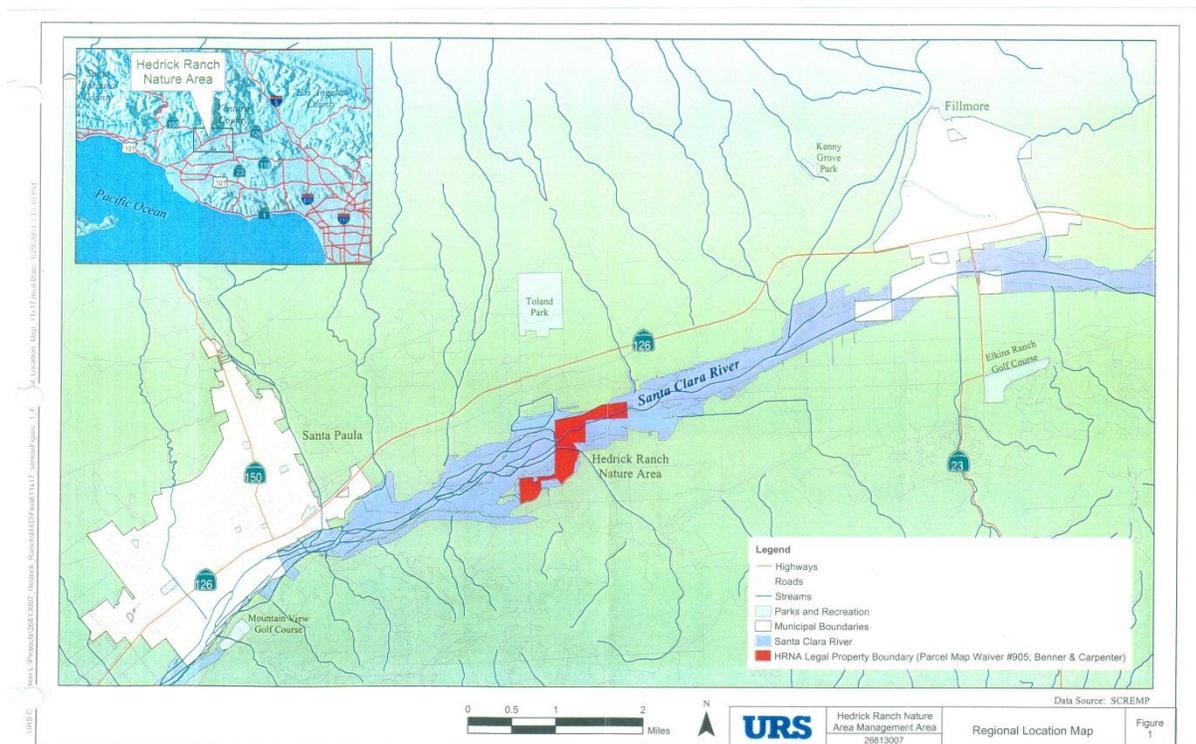
Final Report
July 2011

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The goal of the Hedrick Ranch Nature Area (HRNA) Restoration Project was to restore natural function to riparian and wetland habitats historically found along the Santa Clara River. The project included the removal of invasive, non-native plants and revegetation with native plants. Funding for this project was provided by the U.S. Fish and Wildlife Service (FWS) from settlement claims for natural resource damages resulting from an ARCO pipeline oil spill into the Santa Clara River.

The HRNA is a 220± acre property located east of the city of Santa Paula, along the south side of the Santa Clara River just north of South Mountain Road (denoted in red on Figure 1, below). The property is owned by the non-profit Friends of the Santa Clara River (FSCR). HRNA was the first acquisition under the Santa Clara River Parkway Project, a program begun by the State Coastal Conservancy with the goal of eventually creating a 6,000-acre protected riparian corridor extending from Fillmore to the ocean.



PROJECT DESCRIPTION

This restoration project focused on ~48 acres of the Hedrick Ranch Nature Area (HRNA). A planting plan was designed with the goals of enhancing wildlife functions and values and eradication of invasive non-native weeds. These goals were achieved through the combined effects of weed removal and the installation of native plants and seeds, using both volunteer and paid labor. The volunteer base developed through a separate but related FWS grant (G-015) assisted with restoration. Work on this restoration grant (G-016) began in December 2004 and was completed in May 2011.

Key elements of the habitat restoration activities included:

1. Revegetation of riparian terrace habitats
2. Enhancement of wetland habitats to increase species diversity
3. Removal of priority invasive, non-native plant species throughout riparian terrace and wetland habitats
4. Monitoring and maintenance of invasive plant removal and revegetation.

BACKGROUND

Historic uses of the land now within the Hedrick Ranch Nature Area were livestock (cattle and horse) grazing, orchards including walnuts and citrus, and row crops such as lima beans, sugar beets, alfalfa, and watercress. When volunteers began the initial restoration work of weed removal in 2002 (without any funding), the crops had been removed but the property was still grazed by cattle and horses. The first step in the restoration process was to remove all livestock grazing; however, once the livestock was removed, the pastures became choked with head-high thistles, fennel, various mustards, and non-native grasses, and became surrounded by dense arundo and castor bean. The small group of volunteers organized by Sandy Hedrick went to work removing weeds by hand and installing pole cuttings of willow, cottonwood and sycamore.

Prior to restoration, wildlife habitat and niche selection were extremely limited due to the very low diversity of plant species and communities and ongoing agricultural activities. Wildlife use was restricted to common species tolerant of such land uses. A key measure of restoration success is species richness, as documented through field surveys. Although no quantitative data on flora and fauna was collected, qualitative species lists for the entire HRNA property were recorded beginning in 2002 (URS, 2003), with informal plant and wildlife (particularly bird) lists collated by individuals for many years prior.

These data along with more formal surveys conducted over the years have been used in the report to provide a qualitative discussion of relative habitat restoration success. Professional wildlife surveys were conducted in 2008, 2010 and 2011 by Jim Greaves, John Griffith, and the Western Foundation of Vertebrate Zoology (Linnea Hall, et. al.). Professional botanic surveys have been ongoing since project initiation, by Coastal Restoration Consultants (Dave Hubbard and Matt James). Many HRNA volunteers are flora and/or fauna experts, and have contributed substantially to the comprehensive species lists provided in the appendices.

RESULTS & DISCUSSION

Enhancement of Wildlife Functions and Values

Restoration efforts focused on increasing the complexity of habitat structure to provide greater ecosystem opportunities for wildlife, both between and within habitats. This was achieved in part through establishing diverse vertical habitats by planting a variety of trees and shrubs, by creating both permanent and temporary surface water elements to support aquatic and wetland plants and wildlife, including shorebirds and other migratory waterfowl, and by including open habitat areas such as perennial grasslands. A wide variety of birds, butterflies and other insects, mammals, and reptiles are now utilizing the restored habitats of the HRNA, as illustrated by the wildlife occurrence lists provided in Appendix A and B.

Thirty-one species of native plants were installed to improve vertical and lateral wildlife habitat via greatly increased habitat diversity. The locations chosen for planting were based on relative value to enhance habitat value and to control weeds. Understory and groundcover species were used within willow woodlands as well as in areas where weeds had been removed. These plants included yerba mansa, mugwort, beggars tick, field sedge, saltgrass, western goldenrod, spiny rush, rushes, spikerush, alkali rye grass, deergrass, and California blackberry. In the shrub layer, species planted included quailbush, Mexican elderberry, giant ryegrass, and sandbar willow. Tree species comprised southern California black walnut, black cottonwood, western sycamore, coast live oak, and arroyo willow.

Plants installed on-site were purchased from a local native plant nursery (Matilija Nursery) or grown at the on-site nursery. All propagation materials collected for site-grown plants and pole cuttings came from the HRNA and plants from Matilija Nursery originated within the Santa Clara River watershed. Plant diversity within the focus area for this grant was extremely low at the beginning of the project, with the majority of propagules derived from elsewhere within the HRNA.

Tree growth was the most important naturally-occurring change at the site. Willows and mulefat recruited to the site in high densities after flooding during the winter of 2005 covered large portions of the HRNA with a thick layer of silt. This resulted in dense monocultures of arroyo willow and mulefat, to the exclusion of other species. Dense leaf litter further reduced the natural occurrence of plants, controlling the growth of both native plants and weeds. Over time, some natural thinning of the willows occurred. The restoration team selectively removed smaller diameter willows and mulefat, and interspersed native plants.

Formal wildlife surveys were conducted for this project by professional biologists since 2008.¹ Focused surveys for least Bell's vireo were conducted in 2008 and 2010, general breeding bird surveys in 2010, and in 2011, both breeding bird and comprehensive wildlife surveys were completed. Appendix A and B provide a comprehensive list of all wildlife sighted at HRNA since work began in 2002.

Over 190 species of birds have now been identified on HRNA, including the endangered least Bell's vireo which regularly nest at the HRNA each year, and southwestern willow flycatcher. {In 2010, focused least Bell's vireo surveys found 74 occupied sites, including 71 pairs and 3 single males. Eight nests were located for six pairs, and all 6 pairs were successful with 23 fledglings produced and 14 post-fledging family groups containing 48 fledglings observed.} The federally-listed endangered yellow-billed cuckoo was recorded in June 2011, a new record for HRNA. Species listed by the California Department of Fish and Game as Species of Special Concern found on-site include white-tailed kite, northern harrier, yellow warbler, and yellow-breasted chat. In comparison, surveys conducted in 2002 found 73 species with 35 breeding. There are now 69 species breeding.

At least 14 mammal species are known to utilize the property comprise mountain lion, bobcat, coyote, and raccoon. Butterfly and moth species noted consist of west coast sister, monarch, anise swallowtail, west coast ladies, Lorquin's admiral, and many others, totaling 24 species. Nineteen herps (amphibians and reptiles) have been identified, including pacific chorus frog, gopher snake, rattlesnake, kingsnake, pond turtle, and lizards. Surveys in 2002 found three mammal and two reptile species.²

Key achievements are summarized below:

- Vegetation enhancement was conducted utilizing purchased and site-grown native species.
- Plants were propagated on-site comprising 31 species.³ All plants were derived from seeds, cuttings or other propagules collected on HRNA or in the watershed.
- Plants were purchased from a local native plant nursery. Volunteer groups installed these plants.
- Three new wildlife ponds were constructed (under a separate grant) and a fourth pond was enhanced; all four were planted with native species.

¹ Least Bell's vireo surveys conducted by Jim Greaves (2008) and John Griffith (2010); general bird and wildlife surveys conducted by the Western Foundation of Vertebrate Zoology led by Linnea Hall (2010 bird only; 2011 wildlife); butterfly & moth informal survey led by Professor Walter Sakai (June 2011).

² It should be noted that most wildlife surveys were conducted over the entire ~220 acres and were not focused on the 48 acres covered under this grant funding. The exception is the butterfly & moth survey, which covered a very small portion of the HRNA.

³ The plant nursery was created on HRNA under another grant.

Weed Eradication

The restoration work was conducted by Friends of the Santa Clara River and volunteers, with contractors hired for the targeted removal of giant reed, castor bean, poison hemlock, pepperweed and invasive grasses (primarily tall fescue and tall wheat grass). Contractors used a variety of approaches, such as mowing with specialized equipment and standard lawn mowers, hand cutting with chain saws and machetes, and herbicide treatment. Giant reed was specially treated by hand cutting immediately followed by swabbing or painting of contact herbicide. Volunteers focused on hand removal of thistles, mustards, wild radish, sweet clover, pepperweed and other invasive non-natives.

Significant progress has been achieved in the removal of invasive non-native plant species, with substantial control of thistles, castor bean, mustards, sweet clover and perennial tall fescue. As native plant species continue to become established, natural weed suppression has increased. Many of the native species chosen for restoration were selected both for their wildlife habitat values and their ability to out-compete weeds. Examples of species used for weed control included quail bush, giant rye, and deergrass. These plants grow quickly and cover large surface areas, thus suppressing weed growth through direct competition for light and nutrients. An added benefit of these particular plants is their high wildlife value, providing food, shelter and nesting habitat for birds, small mammals, herps and many insects.

Key achievements are listed below:

- Giant reed (*Arundo donax*) was removed within a 14-acre segment along the south bank of the Santa Clara River.
- Weed control:
 - Intense weed control (mowing & herbicide treatment) in the vicinity of Flycatcher Ditch (South Pasture) and North Pasture (area adjacent to bioswale site).
 - Invasive control over entire site, using hand weeding

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Personal Communications

The following people provided valuable information for the HRNA species lists based on their many field hours, as well as invaluable peer review: Rick Burgess, Don Desjardin, Linnea Hall, Dave Hubbard, Jim Greaves, Sandy Hedrick, Karl Krause, Adam Searcy, Brad Sillasen, and Pete Triem.

APPENDICES

Appendix A: Comprehensive Wildlife Sightings 2002-2011 (Refer to Appendix B for birds)

Appendix B: Comprehensive Bird Sightings 2002-2011

Appendix C: Comprehensive Flora List 2002-2011

Appendix D: Photos

Appendix A
Hedrick Ranch Nature Area
Comprehensive Wildlife Sightings 2002-2011
(Refer to Appendix B for Birds of HRNA)

Scientific Name	Vernacular Name
HERPS: Amphibians & Reptiles (Phylogenetic order follows Stebbins, 1985)	
<i>Anaxyrus (Bufo) boreas halophilus</i>	California toad
<i>Lithobates (=Rana) catesbeianus</i>	American bullfrog - Non-native
<i>Pseudacris hypochondriaca (=regilla)</i>	Baja California Treefrog (Chorus frog)
<i>Xenopus laevis</i>	African clawed frog - Non-native
<i>Actinemys marmorata</i>	Pacific pond turtle
<i>Trachemys scripta elegans</i>	Red-eared slider - Non-native
<i>Sceloporus occidentalis longipes</i>	Great Basin fence lizard
<i>Uta stansburiana elegans</i>	Western side-blotched lizard
<i>Phrynosoma (Anota) blainvillii</i>	Horned lizard
<i>Eumeces skiltonianus skiltonianus</i>	Skilton's skink; Calif. Western skink
<i>Aspidoscelis tigris stejnegeri</i>	Coastal whiptail
<i>Elgaria multicarinata webbii</i>	California alligator lizard
<i>Coluber constrictor mormon</i>	Western yellow-bellied racer
<i>Coluber [Masticophis] flagellum</i>	Coachwhip
<i>Pituophis melanoleucus annectans</i>	Gopher snake
<i>Lampropeltis getula californiae</i>	California kingsnake
<i>Thamnophis hammondi</i>	Two-striped gartersnake
<i>Hypsiglena torquata nuchalata</i>	California night snake
<i>Crotalus oreganus helleri</i>	Southern Pacific rattlesnake
MAMMALS (Naming and phylogenetic order follows Jameson & Hans J. Peeters, 2004)	
<i>Scapanus latimanus</i>	Broad-handed mole
<i>Canis latrans</i>	Coyote
<i>Procyon lotor</i>	Raccoon
<i>Mephitis mephitis</i>	Stripped skunk
<i>Panthera concolor</i>	Mountain lion
<i>Lynx rufus</i>	Bobcat
<i>Odocoileus hemionus</i>	Mule deer
<i>Spermophilus beecheyi</i>	California ground squirrel
<i>Thomomys bottae</i>	Botta's pocket gopher
<i>Peromyscus sp.</i>	Deer mouse
<i>Peromyscus maniculatus</i>	Deer mouse
<i>Peromyscus boylii</i>	Brush mouse
<i>Neotoma macrotis</i>	Big-eared Woodrat
<i>Sylvilagus audubonii</i>	Audubon cottontail

Appendix A
Hedrick Ranch Nature Area
Comprehensive Wildlife Sightings 2002-2011
(Refer to Appendix B for Birds of HRNA)

Scientific Name	Vernacular Name
INSECTS (Naming and phylogenetic order follows Houge, 1993)	
ORDER ODONATA	
Family Aeshnidae	Darners
ORDER DERMAPTERA	
<i>Forficula auricularia</i>	European earwig
ORDER ORTHOPTERA	
	Grasshoppers & crickets
ORDER LEPIDOPTERA	
	Moths & Butterflies
<i>Halisidota maculata</i>	Spotted halisidota
<i>Papilio rutulus</i>	Western tiger swallowtail
<i>Papilio eurymedon</i>	Pale swallowtail
<i>Danaus plexippus</i>	Monarch
<i>Vanessa cardui</i>	Painted lady
<i>Vanessa annabella</i>	West coast lady
<i>Vanessa atalanta</i>	Red admiral
<i>Nymphalis antiopa</i>	Mourning cloak
<i>Junonia coenia</i>	Common Buckeye
<i>Adelpha bredowii</i>	California Sister
<i>Limenitis lorquini</i>	Lorquin's admiral
<i>Coenonympha tullia</i>	Common Ringlet
<i>Pieris rapae</i>	Cabbage white
<i>Colias alexandra</i>	Afalfa
<i>Colias eurytheme</i>	Orange Sulfur
<i>Calephelis nemesis</i>	Fatal Metalmark
<i>Brephidium exile</i>	Western Pgymy-blue
<i>Plebejus acmon</i>	Acmon Blue
<i>Satyrium sylvinus</i>	Sylvan Hairstreak
<i>Strymon melinus</i>	Gray Hairstreak
<i>Hylephila phyleus</i>	Fiery Skipper
<i>Erynnis funeralis</i>	Funereal Duskywing
<i>Ochlodes sylvanoides</i>	Woodland Skipper
<i>Pyrgus communis</i>	Common Checkered-skipper
ORDER DIPTERA	
Family Culicidae	Mosquitos Domestic flies

Appendix A
Hedrick Ranch Nature Area
Comprehensive Wildlife Sightings 2002-2011
(Refer to Appendix B for Birds of HRNA)

Scientific Name	Vernacular Name
ORDER COLEOPTERA	
Family Coccinellidae	Ladybird beetles
Family Tenebrionidae	Darkling Beetles
<i>Eleodes</i> species	Stink beetle
<i>Diabrotica undecimpunctata undecimpunctata</i>	Western spotted cucumber beetle
ORDER HYMENOPTERA	
<i>Linepithema humile</i>	Argentine ants
<i>Dasymutilla</i> species	Velvet ant
<i>Apis mellifera</i>	European honeybee
ORDER NEUROPTERA	
	Ant lions
CLASS ARACHNIDA	
<i>Latrodectus hesperus</i>	Various spiders
<i>Araneus gemmus</i>	Western black widow
<i>Cyclosa turbinata</i>	Jeweled araneus
<i>Dermacentor</i> species	Trash-web spider
	Dog tick
CRUSTACEANS	
<i>Armadillidium vulgare</i>	Common pill bug
<i>Procambarus clarkii</i>	Red swamp crayfish

Appendix B
Hedrick Ranch Nature Area Comprehensive Bird List 2002-2011
(Refer to Appendix A for other wildlife sightings)

Common Name	Breeds on site	Scientific Name	Family	Bander's Code	Listing Status
Greater White-fronted Goose		<i>Anser albifrons</i>	Anatidae	GWFG	
Canada Goose		<i>Branta canadensis</i>	Anatidae	CANG	
Wood Duck		<i>Aix sponsa</i>	Anatidae	WODU	
Gadwall		<i>Anas strepera</i>	Anatidae	GADW	
American Wigeon		<i>Anas americana</i>	Anatidae	AMWI	
Mallard	x	<i>Anas platyrhynchos</i>	Anatidae	MALL	
Blue-winged Teal		<i>Anas discors</i>	Anatidae	BWTE	
Cinnamon Teal	x	<i>Anas cyanoptera</i>	Anatidae	CITE	
Northern Pintail		<i>Anas acuta</i>	Anatidae	NOPI	
Green-winged Teal		<i>Anas crecca</i>	Anatidae	GWTE	
Ring-necked Duck		<i>Aythya collaris</i>	Anatidae	RNDU	
Lesser Scaup		<i>Aythya affinis</i>	Anatidae	LESC	
Hooded Merganser		<i>Lopholytes cucullatus</i>	Anatidae	HOME	
Common Merganser		<i>Mergus merganser</i>	Anatidae	COME	
Ruddy Duck		<i>Oxyura jamaicensis</i>	Anatidae	RUDU	
California Quail	x	<i>Callipepla californica</i>	Odontophoridae	CAQU	
Pied-billed Grebe		<i>Podilymbus podiceps</i>	Gaviidae	PBGR	
Brown pelican		<i>Pelecanus occidentalis</i>	Pelicanidae	BRPE	CDFG fully protected
Double-crested Cormorant		<i>Phalacrocorax auritus</i>	Phalacrocoracidae	DCCO	
American Bittern	x	<i>Botaurus lentiginosus</i>	Ardeidae	AMBI	
Great Blue Heron		<i>Ardea herodias</i>	Ardeidae	GBHE	
Great Egret		<i>Ardea alba</i>	Ardeidae	GREG	
Snowy Egret		<i>Egretta thula</i>	Ardeidae	SNEG	
Cattle Egret		<i>Bubulcus ibis</i>	Ardeidae	CAEG	
Green Heron		<i>Butorides virescens</i>	Ardeidae	GRHE	
Black-crowned Night-heron		<i>Nycticorax nycticorax</i>	Ardeidae	BCNH	
White-faced Ibis		<i>Plegadis chihi</i>	Threskiornithidae	WFIB	
Turkey Vulture		<i>Cathartes aura</i>	Cathartidae	TUVU	
Osprey		<i>Pandion haliaetus</i>	Pandionidae	OSPR	Nesting
White-tailed Kite	x	<i>Elanus leucurus</i>	Accipitridae	WTKI	Nesting
Northern Harrier		<i>Circus cyaneus</i>	Accipitridae	NOHA	Nesting
Sharp-shinned Hawk		<i>Accipiter striatus</i>	Accipitridae	SSHA	Nesting
Cooper's Hawk	x	<i>Accipiter cooperii</i>	Accipitridae	COHA	Nesting

Appendix B
Hedrick Ranch Nature Area Comprehensive Bird List 2002-2011
(Refer to Appendix A for other wildlife sightings)

Common Name	Breeds on site	Scientific Name	Family	Bander's Code	Listing Status
Red-shouldered Hawk	x	<i>Buteo lineatus</i>	Accipitridae	RSHA	
Swainson's Hawk		<i>Buteo swainsoni</i>	Accipitridae	SWHA	Nesting
Red-tailed Hawk		<i>Buteo jamaicensis</i>	Accipitridae	RTHA	
Ferruginous Hawk		<i>Buteo reglais</i>	Accipitridae	FEHA	Wintering
Golden Eagle		<i>Aquila chrysaetos</i>	Accipitridae	GOEA	Nesting
American Kestrel	x	<i>Falco tinnunculus</i>	Falconidae	AMKE	
Merlin		<i>Falco columbarius</i>	Falconidae	MERL	Wintering
Prairie Falcon		<i>Falco mexicanus</i>	Falconidae	PRFA	Nesting
Virginia Rail		<i>Rallus limicola</i>	Rallidae	VIRA	
Sora		<i>Porzana carolina</i>	Rallidae	SORA	
Common Moorhen		<i>Gallinula chloropus</i>	Rallidae	COMO	
American Coot	x	<i>Fulica americana</i>	Rallidae	AMCO	
Killdeer	x	<i>Charadrius vociferus</i>	Charadriidae	KILL	
Black-necked Stilt		<i>Himantopus mexicanus</i>	Recurvirostridae	BNST	
Solitary sandpiper		<i>Tringa solitaria</i>	Scolopacidae	SOSA	
Spotted Sandpiper	x	<i>Actitis macularius</i>	Scolopacidae	SPSA	
Greater Yellowlegs		<i>Tringa melanoleuca</i>	Scolopacidae	GYYE	
Long-billed Curlew		<i>Numenius americanus</i>	Scolopacidae	LBCU	Nesting
Sanderling		<i>Calidris abla</i>	Scolopacidae	SAND	
Least Sandpiper		<i>Calidris minutilla</i>	Scolopacidae	LESA	
Common Snipe		<i>Gallinago gallinago</i>	Scolopacidae	COSN	
Bonaparte's Gull		<i>Chroicocephalus philadelphia</i>	Laridae	BOGU	
Ring-billed Gull		<i>Larus delawarensis</i>	Laridae	RBGU	
Western Gull		<i>Larus occidentalis</i>	Laridae	WEGU	
California Gull		<i>Larus californicus</i>	Laridae	CAGU	
Caspian Tern		<i>Hydroprogne caspia</i>	Laridae	CATE	
Rock Pigeon		<i>Columba livia</i>	Columbidae	ROPI	
Band-tailed Pigeon		<i>Patagioenas fasciata</i>	Columbidae	BTPI	
Eurasian Collared-Dove		<i>Streptopelia decaocto</i>	Columbidae	EUCD	
Mourning Dove	x	<i>Zenaida macroura</i>	Columbidae	MODO	
Common Ground-Dove	x	<i>Columbina passerina</i>	Columbidae	COGD	
Yellow-billed Cuckoo		<i>Coccyzus americanus</i>	Cuculidae	YBCU	Nesting; FE/SE
Greater Roadrunner		<i>Geococcyx californianus</i>	Cuculidae	GRRO	

Appendix B
Hedrick Ranch Nature Area Comprehensive Bird List 2002-2011
(Refer to Appendix A for other wildlife sightings)

Common Name	Breeds on site	Scientific Name	Family	Bander's Code	Listing Status
Barn Owl		<i>Tyto alba</i>	Tytonidae	BANO	
Western Screech Owl		<i>Megascops kennicottii</i>	Strigidae	WESO	
Great Horned Owl		<i>Bubo virginianus</i>	Strigidae	GHOW	
Burrowing Owl		<i>Athene cunicularia</i>	Strigidae	BUOW	Nesting; some wintering;SSC
Long-eared Owl		<i>Asio otus</i>	Strigidae	LEOW	Nesting; SSC
Short-eared Owl		<i>Asio flammeus</i>	Strigidae	SEOW	Nesting; SSC
Lesser Nighthawk	x	<i>Chordeiles acutipennis</i>	Caprimulgidae	LENI	
Common Poorwill		<i>Phalaenoptilus nuttallii</i>	Caprimulgidae	COPO	
Vaux's Swift		<i>Chaetura vauxi</i>	Apodidae	VASW	Nesting; SSC
White-throated Swift		<i>Aeronautes saxatalis</i>	Apodidae	WTSW	
Black-chinned Hummingbird	x	<i>Archilochus alexandri</i>	Trochilidae	BCHU	
Anna's Hummingbird	x	<i>Calypte anna</i>	Trochilidae	ANHU	
Costa's Hummingbird		<i>Calypte costae</i>	Trochilidae	COHU	Nesting
Rufous Hummingbird		<i>Selasphorus rufus</i>	Trochilidae	RUHU	Nesting
Allen's Hummingbird	x	<i>Selasphorus sasin</i>	Trochilidae	ALHU	Nesting
Belted Kingfisher		<i>Megaceryle alcyon</i>	Alcedinidae	BEKI	
Lewis's Woodpecker		<i>Melanerpes lewis</i>	Picidae	LEWO	Nesting
Acorn Woodpecker	x	<i>Melanerpes formicivorus</i>	Picidae	ACWO	
Red-breasted Sapsucker		<i>Sphyrapicus ruber</i>	Picidae	RBSA	
Nuttall's Woodpecker	x	<i>Picoides nuttallii</i>	Picidae	NUWO	Nesting
Downy Woodpecker	x	<i>Picoides pubescens</i>	Picidae	DOWO	
Hairy Woodpecker	x	<i>Picoides villosus</i>	Picidae	HAWO	
Northern Flicker	x	<i>Colaptes auratus</i>	Picidae	NOFL	
Olive-sided Flycatcher		<i>Contopus cooperi</i>	Tyrannidae	OSFL	Nesting; SSC
Western Wood-pewee	x	<i>Contopus sordidulus</i>	Tyrannidae	WEWP	
Willow Flycatcher		<i>Empidonax traillii</i>	Tyrannidae	WIFL	Nesting; SE
Southwestern Willow Flycatcher	x	<i>Empidonax traillii extimus</i>	Tyrannidae	SWWF	Nesting; FE/SE
Least Flycatcher		<i>Empidonax minimus</i>	Tyrannidae	LEFL	
Hammond's Flycatcher		<i>Empidonax hammondii</i>	Tyrannidae	HAFL	
Gray Flycatcher		<i>Empidonax wrightii</i>	Tyrannidae	GRFL	
Dusky Flycatcher		<i>Empidonax oberholseri</i>	Tyrannidae	DUFL	Unconfirmed; old record
Dusky-capped Flycatcher		<i>Myiarchus tuberculifer</i>	Tyrannidae	DCFL	Unconfirmed; old record
Pacific-slope Flycatcher	x	<i>Empidonax difficilis</i>	Tyrannidae	PSFL	

Appendix B
Hedrick Ranch Nature Area Comprehensive Bird List 2002-2011
(Refer to Appendix A for other wildlife sightings)

Common Name	Breeds on site	Scientific Name	Family	Bander's Code	Listing Status
Black Phoebe	x	<i>Sayornis nigricans</i>	Tyrannidae	BLPH	
Eastern Phoebe		<i>Sayornis phoebe</i>	Tyrannidae	EAPH	
Say's Phoebe		<i>Sayornis saya</i>	Tyrannidae	SAPH	
Vermillion Flycatcher		<i>Pyrocephalus rubinus</i>	Tyrannidae	VEFL	Nesting; SSC
Ash-throated Flycatcher	x	<i>Myiarchus cinerascens</i>	Tyrannidae	ATFL	
Cassin's Kingbird	x	<i>Tyrannus vociferans</i>	Tyrannidae	CAKI	
Thick-billed Kingbird		<i>Tyrannus crassirostris</i>	Tyrannidae	TBKI	
Western Kingbird	x	<i>Tyrannus verticalis</i>	Tyrannidae	WEKI	
Loggerhead Shrike		<i>Lanius ludovicianus</i>	Landidae	LOSH	Nesting; SSC
Least Bell's Vireo	x	<i>Vireo bellii pusillus</i>	Vireonidae	LBVI	Nesting; FE/SE
Cassin's Vireo		<i>Vireo cassinii</i>	Vireonidae	CAVI	
Hutton's Vireo	x	<i>Vireo huttoni</i>	Vireonidae	HUVI	
Warbling Vireo	x	<i>Vireo gilvus</i>	Vireonidae	WAVI	
Western Scrub-Jay		<i>Aphelocoma californica</i>	Corvidae	WSJA	
American Crow	x	<i>Corvus brachyrhynchos</i>	Corvidae	AMCR	
Common Raven		<i>Corvus corax</i>	Corvidae	CORA	
Horned Lark	x	<i>Eremophila alpestris</i>	Alaudidae	HOLA	DFG: Watch list
Tree Swallow	x	<i>Tachycineta bicolor</i>	Hirundinidae	TRES	
Violet-green Swallow	x	<i>Tachycineta thalassina</i>	Hirundinidae	VGSW	
Northern Rough-winged Swallow		<i>Stelgidopteryx serripennis</i>	Hirundinidae	NRWS	
Cliff Swallow	x	<i>Petrochelidon pyrrhonota</i>	Hirundinidae	CLSW	
Barn Swallow		<i>Hirundo rustica</i>	Hirundinidae	BARS	
Oak Titmouse	x	<i>Baeolophus inornatus</i>	Paridae	OATI	Nesting
Bushtit	x	<i>Psaltriparus minimus</i>	Aegithalidae	BUSH	
White-breasted Nuthatch		<i>Sitta carolinensis</i>	Sittidae	WBNU	
Rock Wren		<i>Salpinctes obsoletus</i>	Troglodytidae	ROWR	
Bewick's Wren	x	<i>Thryomanes bewickii</i>	Troglodytidae	BEWR	
House Wren	x	<i>Troglodytes aedon</i>	Troglodytidae	HOWR	
Marsh Wren		<i>Cistothorus palustris</i>	Troglodytidae	MAWR	
Ruby-crowned Kinglet		<i>Regulus calendula</i>	Regulidae	RCKI	
Blue-gray Gnatcatcher		<i>Polioptila caerulea</i>	Sylviidae	BGGN	
Western Bluebird	x	<i>Sialia mexicana</i>	Turdidae	WEBL	
Swainson's Thrush	x	<i>Catharus ustulatus</i>	Turdidae	SWTH	

Appendix B
Hedrick Ranch Nature Area Comprehensive Bird List 2002-2011
(Refer to Appendix A for other wildlife sightings)

Common Name	Breeds on site	Scientific Name	Family	Bander's Code	Listing Status
Hermit Thrush		<i>Catharus guttatus</i>	Turdidae	HETH	
American Robin	x	<i>Turdus migratorius</i>	Turdidae	AMRO	
Wrentit	x	<i>Chamaea fasciata</i>	Sylviidae	WREN	
Northern Mockingbird	x	<i>Mimus polyglottos</i>	Mimidae	NOMO	
California Thrasher	x	<i>Toxostoma redivivum</i>	Mimidae	CATH	
European Starling	x	<i>Sturnus vulgaris</i>	Sturnidae	EUST	
American Pipit		<i>Anthus rubescens</i>	Motacillidae	AMPI	
Cedar Waxwing		<i>Bombycilla cedorum</i>	Bombycillidae	CEWA	
Phainopepla	x	<i>Phainopepla nitens</i>	Ptilonotidae	PHAI	
Orange-crowned Warbler	x	<i>Oreothlypis celata</i>	Parulidae	OCWA	
Yellow Warbler	x	<i>Dendroica petechia</i>	Parulidae	YWAR	Nesting; SSC
Yellow-rumped Warbler (Audubon's)		<i>Dendroica coronata</i>	Parulidae	AUWA	
Yellow-rumped Warbler (Myrtle)		<i>Dendroica coronata</i>	Parulidae	MYWA	
Black-throated Gray Warbler		<i>Dendroica nigrescens</i>	Parulidae	BTYW	
Townsend's Warbler		<i>Dendroica tonsendi</i>	Parulidae	TOWA	
Hermit Warbler		<i>Dendroica occidentalis</i>	Parulidae	HEWA	
MacGillivray's Warbler		<i>Oporornis tolmiei</i>	Parulidae	MGWA	
Common Yellowthroat	x	<i>Geothlypis trichas</i>	Parulidae	COYE	
Hooded Warbler		<i>Wilsonia citrina</i>	Parulidae	HOWA	
Wilson's Warbler		<i>Wilsonia pusilla</i>	Parulidae	WIWA	
Yellow-breasted Chat	x	<i>Icteria virens</i>	Parulidae	YBCH	Nesting; SSC
Spotted Towhee	x	<i>Pipilo maculatus</i>	Emberizidae	SPTO	
California Towhee	x	<i>Pipilo crissalis</i>	Emberizidae	CALT	
Chipping Sparrow	x	<i>Spizella passerina</i>	Emberizidae	CHSP	Nesting
Clay-colored Sparrow		<i>Spizella pallida</i>	Emberizidae	CCSP	
Vesper Sparrow		<i>Pooecetes gramineus</i>	Emberizidae	VESP	
Lark Sparrow		<i>Chondestes grammacus</i>	Emberizidae	LASP	Nesting
Savannah Sparrow		<i>Passerculus sandwichensis</i>	Emberizidae	SAVS	
Fox Sparrow		<i>Passerella iliaca</i>	Emberizidae	FOSP	
Song Sparrow	x	<i>Melospiza melodia</i>	Emberizidae	SOSP	
Lincoln's Sparrow		<i>Melospiza lincolni</i>	Emberizidae	LISP	
Swamp Sparrow		<i>Melospiza georgiana</i>	Emberizidae	SWSP	
White-crowned Sparrow		<i>Zonotrichia leucophrys</i>	Emberizidae	WCSP	

Appendix B
Hedrick Ranch Nature Area Comprehensive Bird List 2002-2011
(Refer to Appendix A for other wildlife sightings)

Common Name	Breeds on site	Scientific Name	Family	Bander's Code	Listing Status
Golden-crowned Sparrow		<i>Zonotrichia atricapilla</i>	Emberizidae	GCSP	
Dark-eyed Junco		<i>Junco hyemalis</i>	Emberizidae	DEJU	
Summer Tanager		<i>Piranga rubra</i>	Cardinalidae	SUTA	Nesting; SSC
Western Tanager		<i>Piranga ludoviciana</i>	Cardinalidae	WETA	
Black-headed Grosbeak	x	<i>Pheucticus melanocephalus</i>	Cardinalidae	BHGR	
Blue Grosbeak	x	<i>Passerina caerulea</i>	Cardinalidae	BLGR	
Lazuli Bunting	x	<i>Passerina amoena</i>	Cardinalidae	LAZB	
Indigo Bunting		<i>Passerina cyanea</i>	Cardinalidae	INBU	
Red-winged Blackbird	x	<i>Agelaius phoeniceus</i>	Icteridae	RWBL	
Tricolored Blackbird		<i>Agelaius tricolor</i>	Icteridae	TRBL	Nesting colony; SSC
Western Meadowlark		<i>Sturnella neglecta</i>	Icteridae	WEME	
Yellow-headed Blackbird		<i>Xanthocephalus xanthocephalus</i>	Icteridae	YHBL	
Brewer's Blackbird	x	<i>Euphagus cyanocephalus</i>	Icteridae	BRBL	
Great-tailed Grackle	x	<i>Quiscalus mexicanus</i>	Icteridae	GTGR	
Brown-headed Cowbird	x	<i>Molothrus ater</i>	Icteridae	BHCO	
Hooded Oriole		<i>Icterus cucullatus</i>	Icteridae	HOOR	
Bullock's Oriole	x	<i>Icterus bullockii</i>	Icteridae	BUOR	
Purple Finch	x	<i>Carpodacus purpureus</i>	Fringillidae	PUFI	
House Finch	x	<i>Carpodacus mexicanus</i>	Fringillidae	HOFI	
Pine Siskin		<i>Spinus pinus</i>	Fringillidae	PISI	
Lesser Goldfinch	x	<i>Spinus psaltria</i>	Fringillidae	LEGO	
Lawrence's Goldfinch		<i>Spinus lawrencei</i>	Fringillidae	LAGO	Nesting
American Goldfinch	x	<i>Spinus tristis</i>	Fringillidae	AMGO	
House (English) Sparrow		<i>Passer domesticus</i>	Passeridae	HOSP	
European Goldfinch		<i>Carduelis carduelis</i>	Fringillidae	EUGO	

Source: 51th AOU Supplement (2010) for nomenclature, phylogenetic order, and four-letter alpha codes for North American birds.

Listing Status Source and definitions: California Natural Diversity Database (January 2011)

SE State-listed as Endangered

FE Federally listed as Endangered

SSC: California Species of Special Concern

Appendix C
Hedrick Ranch Nature Area Comprehensive Flora List 2002-2011

Reported in 2003 URS Study	Found in FWS grant area	Scientific Name	Vernacular Name	Native	Family	Family Common Name	Natives planted in project site	Weed status in project site
		<i>Agrostis viridis</i>	European Bentgrass	No	Poaceae	Grass		minor
		<i>Allophyllum sp. gilioides or glutinosum</i>	False Gilia	Yes	Polemoniaceae	Phlox		
x		<i>Alnus rhombifolia</i>	White Alder	Yes	Betulaceae	Birch		
		<i>Amaranthus albus</i>	Tumbleweed	No	Amaranthaceae	Amaranth		minor
x		<i>Amaranthus sp.</i>	Amaranth	No	Amaranthaceae	Amaranth		minor
		<i>Ambrosia artemisiifolia</i>	Annual bursage	No	Asteraceae	Sunflower		minor
x	x	<i>Ambrosia psilostachya</i>	Western Ragweed	Yes	Asteraceae	Sunflower		
x	x	<i>Anemopsis californica</i>	Yerba Mansa	Yes	Saururaceae	Lizard-tail	x	
x	x	<i>Apiastrum angustifolium</i>	Wild Celery	Yes	Apiaceae	Carrot		
x	x	<i>Apium graveolens</i>	Celery	No	Apiaceae	Carrot		minor
	x	<i>Artemisia californica</i>	Coastal Sagebrush	Yes	Asteraceae	Sunflower	x	
x	x	<i>Artemisia douglasiana</i>	Mugwort	Yes	Asteraceae	Sunflower	x	
		<i>Artemisia dracunculus</i>	Tarragon	Yes	Asteraceae	Sunflower		
x	x	<i>Arundo donax</i>	Giant Reed	No	Poaceae	Grass		controlled at site
	x	<i>Asclepias fascicularis</i>	Narrow-leaved Milkweed	Yes	Asclepiadaceae	Milkweed	x	
	x	<i>Aster (=Symphyotrichum) subulatus</i>	California aster	Yes	Asteraceae	Sunflower		
x	x	<i>Atriplex lentiformis ssp. breweri</i>	Quailbush	Yes	Chenopodiaceae	Goosefoot	x	
	x	<i>Atriplex triangularis</i>	Spearscale	Yes	Chenopodiaceae	Goosefoot		
x		<i>Avena barbata</i>	Slender Wild Oat	No	Poaceae	Grass		minor
		<i>Baccharis douglasii</i>	Salt Marsh Baccharis	Yes	Asteraceae	Sunflower		
x	x	<i>Baccharis pilularis</i>	Coyote Brush	Yes	Asteraceae	Sunflower	x	
x	x	<i>Baccharis salicifolia</i>	Mulefat	Yes	Asteraceae	Sunflower		
		<i>Bassia hyssopifolia</i>	Five-hook Bassia	No	Chenopodiaceae	Sunflower		minor
		<i>Bidens laevis</i>	Smooth beggar's tick	Yes	Asteraceae	Sunflower	x	
x	x	<i>Brassica nigra</i>	Black Mustard	No	Brassicaceae	Mustard		minor
x	x	<i>Bromus carinatus</i>	California Brome	Yes	Poaceae	Grass		
x	x	<i>Bromus catharticus</i>	Rescue Grass	No	Poaceae	Grass		minor
x	x	<i>Bromus diandrus</i>	Rippgut Grass	No	Poaceae	Grass		moderate
x		<i>Bromus hordeaceus</i>	Soft Chess	No	Poaceae	Grass		minor
x		<i>Bromus madritensis ssp. rubens</i>	Red Brome	No	Poaceae	Grass		minor
		<i>Calyptridium monandrum</i>	Pussypaws	Yes	Portulacaceae	Portulaca		
x		<i>Calystegia macrostegia</i>	Morning-Glory	Yes	Convolvulaceae	Morning-glory	x	
		<i>Camissonia micrantha</i>	Miniature Suncup	Yes	Onagraceae	Evening-primrose		
x	x	<i>Carduus pycnocephalus</i>	Italian Thistle	No	Asteraceae	Sunflower		moderate
x	x	<i>Carex praegracilis</i>	Field Sedge	Yes	Cyperaceae	Sedge	x	

Appendix C
Hedrick Ranch Nature Area Comprehensive Flora List 2002-2011

Reported in 2003 URS Study	Found in FWS grant area	Scientific Name	Vernacular Name	Native	Family	Family Common Name	Natives planted in project site	Weed status in project site
x		<i>Carex sp.</i>	sedge	Yes	Cyperaceae	Sedge	x	
	x	<i>Ceanothus spinosus</i>	Ceanothus	Yes	Rhamnaceae	Buckthorn	x	
x		<i>Centaurea melitensis</i>	Tocalote	No	Asteraceae	Sunflower		minor
		<i>Centaurea solstitialis</i>	Yellow Star Thistle	No	Asteraceae	Sunflower		minor
		<i>Centaureium venustum</i>	Canchalagua	Yes	Gentianaceae	Gentian		
		<i>Chamaesyce sp.</i>	Rattlesnake weed	Yes	Euphorbiaceae	Spurge		minor
		<i>Chenopodium (=Dysphania) botrys</i>	Jerusalem-Oak	No	Chenopodiaceae	Goosefoot		minor
x		<i>Chenopodium album</i>	Lamb's Quarters	No	Chenopodiaceae	Goosefoot		minor
x		<i>Chenopodium californicum</i>	Goosefoot	Yes	Chenopodiaceae	Goosefoot		
		<i>Cirsium vulgare</i>	Bull Thistle	No	Asteraceae	Sunflower		minor
		<i>Clematis ligusticifolia</i>	Creek clematis	Yes	Ranunculaceae	Buttercup	x	
x	x	<i>Conium maculatum</i>	Poison Hemlock	No	Apiaceae	Carrot		mostly controlled
x		<i>Convolvulus arvensis</i>	Bindweed	No	Convolvulaceae	Morning-glory		minor
		<i>Conyza bonariensis</i>	Flax-leaved Fleabane	No	Asteraceae	Sunflower		minor
x	x	<i>Conyza canadensis</i>	Horseweed	Yes	Asteraceae	Sunflower		
		<i>Croton californica</i>	California Croton	Yes	Euphorbiaceae	Spurge		
		<i>Cryptantha intermedia</i>	Common Cryptantha	Yes	Boraginaceae	Borage		
x		<i>Cuscuta californica</i>	California Dodder	Yes	Cuscutaceae	Dodder		
x	x	<i>Cynodon dactylon</i>	Bermuda Grass	No	Poaceae	Grass		moderate
x	x	<i>Cyperus eragrostis</i>	Tall Flatsedge	Yes	Cyperaceae	Sedge		
		<i>Cyperus rotundus</i>	Purple nut sedge	No	Cyperaceae	Sedge		minor
x	x	<i>Distichlis spicata</i>	Salt Grass	Yes	Poaceae	Grass	x	
x		<i>Echinochloa crus-galli</i>	Barnyard Grass	No	Poaceae	Grass		minor
		<i>Eclipta prostrata</i>	White Eclipta	Yes	Asteraceae	Sunflower		
x		<i>Eleocharis acicularis</i>	Spikerush	Yes	Cyperaceae	Sedge		
	x	<i>Eleocharis montevidensis</i>	Spikerush	Yes	Cyperaceae	Sedge	x	
		<i>Eleocharis palustris (=E. macrostachya)</i>	Common spikerush	Yes	Cyperaceae	Sedge		
x		<i>Elymus glaucus</i>	Blue Wild rye	Yes	Poaceae	Grass		
x		<i>Elymus sp.</i>	Elymus	Yes	Poaceae	Grass		
	x	<i>Elytrigia (=Thinopyrum) elongata</i>	Jose Select Tall wheat grass	No	Poaceae	Grass		minor
		<i>Emmenanthe penduliflora</i>	Whispering bells	Yes	Hydrophyllaceae	Waterleaf		
x	x	<i>Epilobium ciliatum</i>	Willow Herb	Yes	Onagraceae	Evening Primrose		
x		<i>Equisetum arvense</i>	Common Horsetail	Yes	Equisetaceae	Horsetail		
		<i>Equisetum sp.</i>	Horsetail	Yes	Equisetaceae	Horsetail		

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Hedrick Ranch Nature Area Comprehensive Flora List 2002-2011

Reported in 2003 URS Study	Found in FWS grant area	Scientific Name	Vernacular Name	Native	Family	Family Common Name	Natives planted in project site	Weed status in project site
		<i>Eriodictyon crassifolium</i>	Yerba Santa	Yes	Hydrophyllaceae	Waterleaf		
		<i>Eriogonum fasciculatum</i>	California Buckwheat	Yes	Polygonaceae	Buckwheat	x	
x		<i>Erodium cicutarium</i>	Red-Stemmed Filaree	No	Geraniaceae	Geranium		
		<i>Euthamia occidentalis</i>	Western Goldenrod	Yes	Asteraceae	Sunflower	x	
	x	<i>Festuca arundinacea</i>	Tall fescue	No	Poaceae	Grass		moderate
x	x	<i>Foeniculum vulgare</i>	Sweet Fennel	No	Apiaceae	Carrot		minor
	x	<i>Gastridium ventricosum</i>	Nitgrass	No	Poaceae	Grass		minor
		<i>Gnaphalium (=Pseudognaphalium) californicum</i>	California Pearly Everlasting	Yes	Apiaceae	Carrot		
		<i>Gnaphalium (=Pseudognaphalium) stramineum</i>	Cottonbatting Plant	Yes	Asteraceae	Sunflower		
		<i>Gnaphalium luteoalbum</i>	Everlasting Cudweed	No	Asteraceae	Sunflower		minor
x		<i>Gnaphalium palustre</i>	Western Marsh Cudweed	Yes	Asteraceae	Sunflower		
		<i>Hazardia squarrosa</i>	Sawtooth Goldenbush	Yes	Asteraceae	Sunflower	x	
x		<i>Helianthus annuus</i>	Common Sunflower	Yes	Asteraceae	Sunflower		
x	x	<i>Heliotropium curassavicum</i>	Salt Heliotrope	Yes	Boraginaceae	Borage		
		<i>Heteromeles arbutifolia</i>	Toyon	Yes	Rosaceae	Rose	x	
		<i>Heterotheca grandiflora</i>	Telegraph weed	Yes	Asteraceae	Sunflower		
		<i>Heterotheca sessiliflora</i>	Golden Aster	Yes	Asteraceae	Sunflower		
x		<i>Hirschfeldia incana</i>	Shortpod Mustard	No	Brassicaceae	Mustard		minor
x	x	<i>Hordeum murinum ssp. leporinum</i>	Mediterranean Barley	No	Poaceae	Grass		minor
x		<i>Hordeum vulgare</i>	Common Barley	No	Poaceae	Grass		minor
		<i>Juglans californica</i>	So. Calif. Black Walnut	Yes	Juglandaceae	Walnut	x	
x	x	<i>Juncus acutus ssp. leopoldii</i> **CNPS 4.2	Spiny Rush	Yes	Juncaceae	Rush	x	
		<i>Juncus balticus</i>	Baltic Rush	Yes	Juncaceae	Rush	x	
	x	<i>Juncus mexicanus</i>	Mexican Rush	Yes	Juncaceae	Rush	x	
		<i>Juncus phaeocephalus</i>	Brown-headed Rush	Yes	Juncaceae	Rush	x	
	x	<i>Juncus rugulosus</i>	Wrinkled Rush	Yes	Juncaceae	Rush	x	
	x	<i>Juncus textilis</i>	Basket Rush	Yes	Juncaceae	Rush	x	
		<i>Juncus torreyi</i>	Torrey's Rush	Yes	Juncaceae	Rush	x	
	x	<i>Juncus xiphioides</i>	Iris-leaved Rush	Yes	Juncaceae	Rush	x	
x		<i>Lactuca serriola</i>	Prickly Lettuce	No	Asteraceae	Sunflower		scattered
	x	<i>Laennecia [Conyza] coulteri</i>	Coulter's Horseweed	Yes	Asteraceae	Sunflower	Seeded	
x	x	<i>Lemna sp.</i>	Duckweed	Yes	Lemnaceae	Duckweed		
x	x	<i>Lepidium latifolium</i>	Perennial Pepperweed	No	Brassicaceae	Mustard		minor; difficult

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Reported in 2003 URS Study	Found in FWS grant area	Scientific Name	Vernacular Name	Native	Family	Family Common Name	Natives planted in project site	Weed status in project site
		<i>Lepidospartum squamatum</i>	Scale Broom	Yes	Asteraceae	Sunflower		
x	x	<i>Leptochloa fusca ssp. uninervia</i>	Mexican Sprangletop	Yes	Poaceae	Grass		
x	x	<i>Leymus condensatus</i>	Giant Rye	Yes	Poaceae	Grass	x	
x	x	<i>Leymus triticooides</i>	Creeping Wild Rye	Yes	Poaceae	Grass	x	
x	x	<i>Lolium multiflorum</i>	Italian Ryegrass	No	Poaceae	Grass		minor
x	x	<i>Lotus corniculatus</i>	Lotus / Trefoil	No	Fabaceae	Legume		minor
		<i>Lotus salsuginosus</i>	Coastal Birds foot Trefoil	Yes	Fabaceae	Legume		
		<i>Ludwigia peploides</i>	Creeping Water-Primrose	No	Onagraceae	Evening Primrose		two types, one native?
x		<i>Lupinus succulentus</i>	Arroyo Lupine	Yes	Fabaceae	Legume		
		<i>Lythrum californicum</i>	California Loosestrife	Yes	Lythraceae	Loosestrife	x	
		<i>Malacothamnus fasciculatus</i>	Chaparral Mallow	Yes	Malvaceae	Mallow		
x		<i>Malacothrix saxatilis var. tenuifolia</i>	Cliff Malacothrix	Yes	Asteraceae	Sunflower		
x		<i>Malva nicaeensis</i>	Bull Mallow	No	Malvaceae	Mallow		minor
x		<i>Malva parviflora</i>	Cheeseweed	No	Malvaceae	Mallow		minor
x		<i>Marah macrocarpus</i>	Wild Cucumber	Yes	Cucurbitaceae	Gourd		
x	x	<i>Medicago polymorpha</i>	Burclover	No	Fabaceae	Legume		minor
x		<i>Medicago sativa</i>	Alfalfa	No	Fabaceae	Legume		minor
x	x	<i>Melilotus alba</i>	White Sweet clover	No	Fabaceae	Legume		minor
x	x	<i>Melilotus indica</i>	Yellow Sweet Clover	No	Fabaceae	Legume		minor
		<i>Mimulus cardinalis</i>	Scarlet Monkeyflower	Yes	Scrophulariaceae	Figwort		
		<i>Mimulus guttatus</i>	Seep Monkeyflower	Yes	Scrophulariaceae	Figwort		
		<i>Mimulus pilosus</i>	Downy Monkeyflower	Yes	Scrophulariaceae	Figwort		
		<i>Minuartia sp.</i>	Sandwort	Yes	Caryophyllaceae	Pink		
	x	<i>Muhlenbergia rigens</i>	Deergrass	Yes	Poaceae	Grass	x	
x	x	<i>Nasturtium officinale (=Rorippa nasturtium-aquaticum)</i>	Water Cress	Yes	Brassicaceae	Mustard		
x	x	<i>Nicotiana glauca</i>	Tree Tobacco	No	Solanaceae	Nightshade		scattered
		<i>Oenothera californica</i>	Calif. Evening Primrose	Yes	Onagraceae	Evening Primrose		
		<i>Oenothera elata ssp. hookeri</i>	Hooker's Eve. Primrose	Yes	Onagraceae	Evening Primrose		
		<i>Opuntia (=Cylindropuntia) prolifera</i>	Coastal cholla	Yes	Cactaceae	Cactus		
	x	<i>Opuntia ficus-indica</i>	Prickly Pear	No	Cactaceae	Cactus		minor
		<i>Opuntia littoralis</i>	Coastal Prickly Pear	Yes	Cactaceae	Cactus		
x		<i>Phacelia douglasii</i>	Douglas' phacelia	Yes	Hydrophyllaceae	Waterleaf		
		<i>Phacelia viscida</i>	Phacelia	Yes	Hydrophyllaceae	Waterleaf		
		<i>Phoenix canariensis</i>	Canary Island Date Palm	No	Arecaceae	Palm		scattered

Appendix C
Hedrick Ranch Nature Area Comprehensive Flora List 2002-2011

Reported in 2003 URS Study	Found in FWS grant area	Scientific Name	Vernacular Name	Native	Family	Family Common Name	Natives planted in project site	Weed status in project site
x	x	<i>Phoradendron sp. (on Salix lasiolepis)</i>	Mistletoe	Yes	Visaceae	Mistletoe		
x		<i>Phragmites australis</i>	Common Reed	Yes	Poaceae	Grass		
x	x	<i>Picris echioides</i>	Bristly Ox Tongue	No	Asteraceae	Sunflower		minor
	x	<i>Piptatherum miliaceum</i>	Smilo Grass	No	Poaceae	Grass		minor
x		<i>Plantago lanceolata</i>	English Plantain	No	Plantaginaceae	Plantain		minor
	x	<i>Plantago major</i>	Common Plantain	No	Plantaginaceae	Plantain		minor
x	x	<i>Platanus racemosa</i>	Western Sycamore	Yes	Platanaceae	Plane tree	x	
x		<i>Pluchea sericea</i>	Arrow Weed	Yes	Asteraceae	Sunflower		
	x	<i>Polygonum (=Persicaria) punctatum</i>	Smartweed	Yes	Polygonaceae	Buckwheat		
x		<i>Polygonum arenastrum (= P. aviculare)</i>	Common Knotweed	Yes	Polygonaceae	Buckwheat		
		<i>Polygonum lapathifolium</i>	Willow Smartweed	Yes	Polygonaceae	Buckwheat		
x	x	<i>Polypogon monspeliensis</i>	Rabbitfoot Grass	No	Poaceae	Grass		widely scattered
x	x	<i>Populus balsamifera ssp. trichocarpa</i>	Black Cottonwood	Yes	Salicaceae	Willow	x	
x	x	<i>Populus fremontii ssp. fremontii</i>	Fremont Cottonwood	Yes	Salicaceae	Willow	x	
x	x	<i>Portulaca oleracea</i>	Common Purslane	No	Portulacaceae	Purslane		minor
		<i>Potentilla anserina</i>	Cinquefoil	Yes	Rosaceae	Rose	x	
	x	<i>Quercus agrifolia</i>	Coast live oak	Yes	Fagaceae	Oak	x	
x	x	<i>Raphanus sativus</i>	Wild Radish	No	Brassicaceae	Mustard		minor
x	x	<i>Ricinus communis</i>	Castor Bean	No	Euphorbiaceae	Spurge		minor
x	x	<i>Rosa californica</i>	California Wild Rose	Yes	Rosaceae	Rose	x	
x	x	<i>Rubus ursinus</i>	California Blackberry	Yes	Rosaceae	Rose	x	
x	x	<i>Rumex crispus</i>	Curly Dock	No	Polygonaceae	Buckwheat		minor
x	x	<i>Rumex salicifolius var. transitorius (=R. transitorius)</i>	Willow Dock	Yes	Polygonaceae	Buckwheat		
x	x	<i>Salix exigua</i>	Sandbar Willow	Yes	Salicaceae	Willow	x	
	x	<i>Salix laevigata</i>	Red Willow	Yes	Salicaceae	Willow	x	
x	x	<i>Salix lasiolepis</i>	Arroyo Willow	Yes	Salicaceae	Willow		
x	x	<i>Salix lucida var. lasiandra (=S. lasiandra)</i>	Shining Willow	Yes	Salicaceae	Willow		
		<i>Salsola tragus</i>	Russian thistle	No	Chenopodiaceae	Goosefoot		minor
x	x	<i>Salvia leucophylla</i>	Purple Sage	Yes	Lamiaceae	Mint		
x	x	<i>Sambucus mexicana (=S. nigra)</i>	Blue Elderberry	Yes	Caprifoliaceae	Honeysuckle	x	
	x	<i>Scirpus (=Bolboschoenus) maritimus</i>	Prairie Bulrush	Yes	Cyperaceae	Sedge		
	x	<i>Scirpus (=Isolepis) cernuus</i>	Low Clubrush	Yes	Cyperaceae	Sedge		

Appendix C
Hedrick Ranch Nature Area Comprehensive Flora List 2002-2011

Reported in 2003 URS Study	Found in FWS grant area	Scientific Name	Vernacular Name	Native	Family	Family Common Name	Natives planted in project site	Weed status in project site
	x	<i>Scirpus (=Schoenoplectus) acutus var. occidentalis</i>	Tule	Yes	Cyperaceae	Sedge		
x	x	<i>Scirpus (=Schoenoplectus) americanus</i>	American Bulrush	Yes	Cyperaceae	Sedge		
	x	<i>Scirpus (=Schoenoplectus) californicus</i>	Tule	Yes	Cyperaceae	Sedge		
		<i>Scirpus (=Schoenoplectus) pungens</i>	Common three-square	Yes	Cyperaceae	Sedge		
		<i>Scirpus (=Schoenoplectus) robustus</i>	Sturdy bulrush	Yes	Cyperaceae	Sedge		
x	x	<i>Scrophularia californica</i>	California Bee Plant	Yes	Scrophulariaceae	Figwort	x	
		<i>Senecio flaccidus var. douglasii</i>	Bush Groundsel	Yes	Asteraceae	Sunflower		
x	x	<i>Silybum marianum</i>	Milk Thistle	No	Asteraceae	Sunflower		moderate
x	x	<i>Solanum douglasii</i>	Douglas' Nightshade	Yes	Solanaceae	Nightshade		
		<i>Solanum nigrum</i>	Deadly nightshade	No	Solanaceae	Nightshade		minor
		<i>Solidago velutina californica</i>	California Goldenrod	Yes	Solanaceae	Nightshade		
x	x	<i>Sonchus asper</i>	Prickly Sow-Thistle	No	Asteraceae	Sunflower		minor
x	x	<i>Sonchus oleraceus</i>	Common Sow-Thistle	No	Asteraceae	Sunflower		minor
x	x	<i>Spergula arvensis</i>	Starwort; corn spurry	No	Caryophyllaceae	Pink		minor
	x	<i>Spergularia sp. (S. bocconii?)</i>	Spurrey	Yes	Caryophyllaceae	Pink		
x	x	<i>Stachys albens</i>	White Hedge Nettle	Yes	Lamiaceae	Mint	x	
x	x	<i>Tamarix ramosissima</i>	Tamarisk	No	Tamaricaceae	Tamarisk		very few
	x	<i>Toxicodendron diversilobum</i>	Poison Oak	Yes	Anacardiaceae	Sumac		
x		<i>Tribulus terrestris</i>	Puncture Vine	No	Zygophyllaceae	Caltrop		
x		<i>Trifolium sp.</i>	Clover	No	Fabaceae	Legume		
x	x	<i>Typha domingensis</i>	Southern Cattail	Yes	Typhaceae	Cattail		
x	x	<i>Typha latifolia</i>	Broad-Leaved Cattail	Yes	Typhaceae	Cattail		
x	x	<i>Urtica dioica ssp. holosericea</i>	Giant Creek Nettle	Yes	Urticaceae	Nettle		
x	x	<i>Verbena lasiostachys</i>	Verbena	Yes	Verbenaceae	Vervain		
x	x	<i>Veronica anagallis-aquatica</i>	Speedwell	No	Scrophulariaceae	Figwort		minor
		<i>Washingtonia sp. (W. filifera?)</i>	Mexican fan palm	No	Arecaceae	Palm		
x		<i>Xanthium spinosum</i>	Spiny Cocklebur	Yes	Asteraceae	Sunflower		
x	x	<i>Xanthium strumarium</i>	Cocklebur	Yes	Asteraceae	Sunflower		

List 4: Plants of Limited Distribution - A Watch list. Includes Rare Plant Rank 4.1, 4.2, 4.3

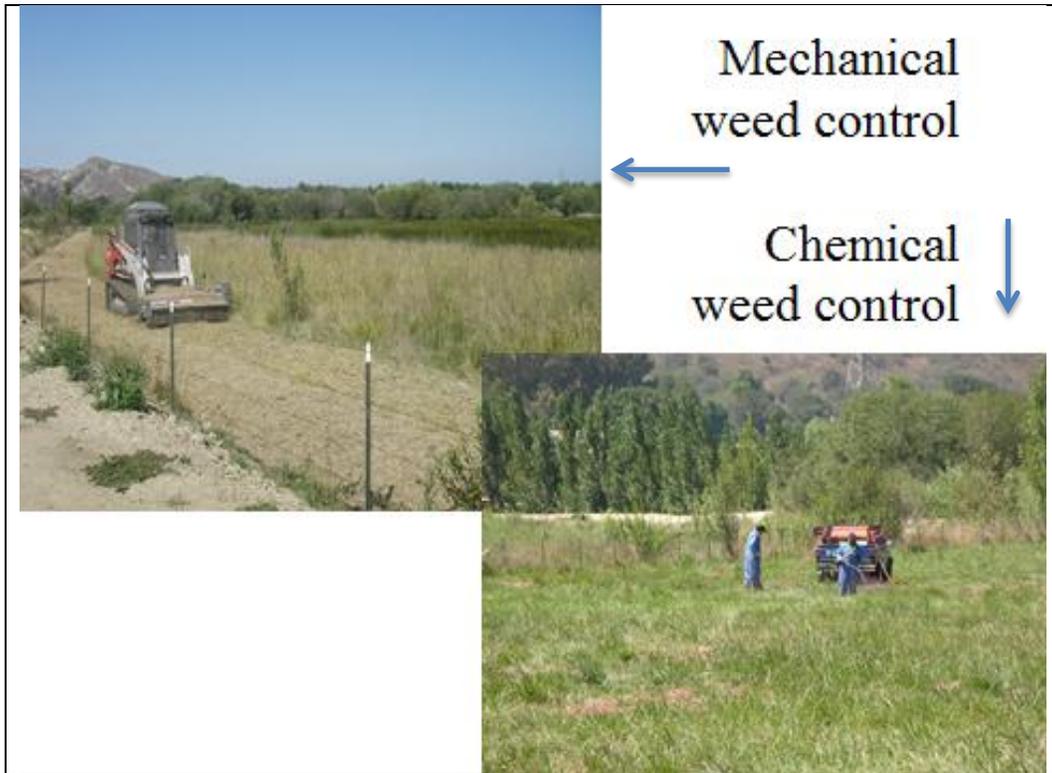
Plants in this category are of limited distribution or infrequent throughout a broader area in California, and their vulnerability or susceptibility to threat appears low at this time.

While we cannot call these plants “rare” from a statewide perspective, they are uncommon enough that their status should be monitored regularly. endangerment

Source: California Department of Fish and Game, Natural Diversity Database. July 2011. Special Vascular Plants, Bryophytes, and Lichens List. Quarterly publication.

APPENDIX D
Hedrick Ranch Nature Area Photos

Weed Control Techniques



Solarization: Black plastic over perennial pepperweed (*Lepidium latifolium*)

Hand-weeding and Planting: Progressive Photos



March 2009



March 2010



March 2011

2003



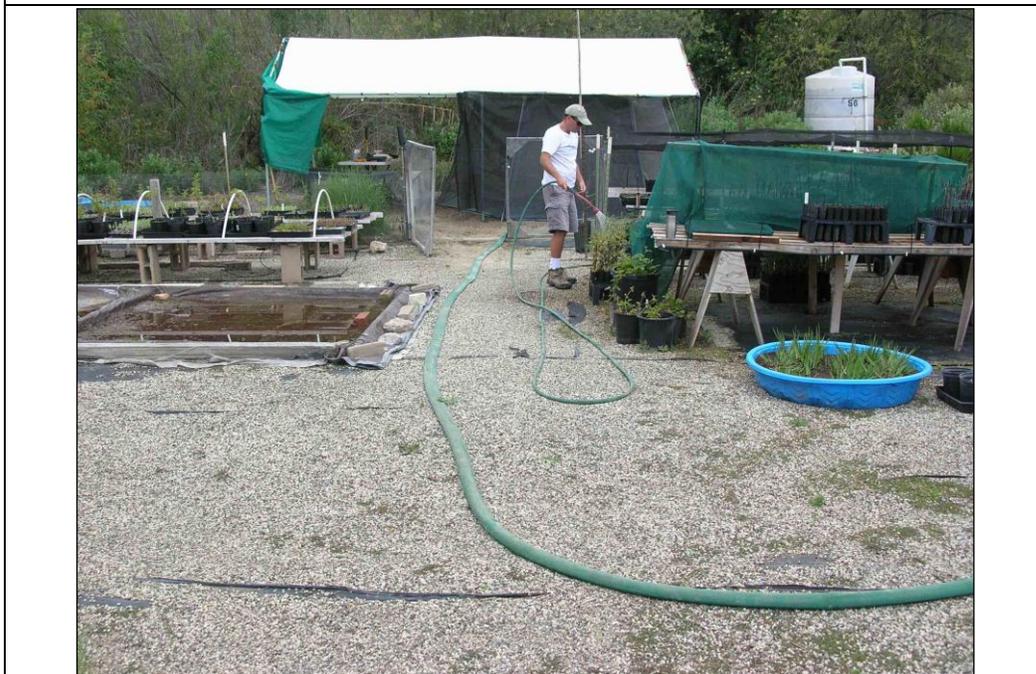
2008



On-site Native Plant Nursery



September 2007 – Setting up nursery; water tank in background in arundo (controlled in 2009).



April 2011: Typical operations. Nursery has water tank, solar-powered irrigation system, pools, basins, shade structure, screen tent and raised benches with automatic irrigation (visible near far fence), and work benches.