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**ASSESSMENT OF BIOLOGICAL RESOURCES  
WITH BOTANICAL, RAPTOR, BAT AND  
HERPTILE SURVEYS**

**for the**

**AETNA SPRINGS RESORT PROPERTY**

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**October 31, 2011**

**Prepared by**

**Northwest Biosurvey**



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**Prepared for:** Bill Criswell and Robert Radovan  
1336 Oak Ave. Suite D  
St. Helena, CA 94574

**Prepared by:** Northwest Biosurvey  
P.O. Box 191  
Cobb, CA 95426  
(707) 928-1985

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## 1.0 PROJECT DESCRIPTION

**1.1 Proposed Project:** This assessment has been prepared at the request of the property owner to accompany applications for modifications to the existing use permit, for rehabilitation of the historic Aetna Springs Retreat in the Pope Valley of Napa County, California. In addition to the historic retreat, the survey area includes a previously approved and constructed sprayfield for tertiary treated effluent within the existing Aetna Springs Golf Course. That component is included only to provide context for effluent treatment facilities proposed as part of the retreat restoration. A detailed description of the proposed modifications to Use Permit 96349-UP is provided in the “*Aetna Springs Project Statement*”. The total survey area within the project site and 250-foot radius survey boundary encompasses 104+ acres.

Field surveys for this assessment were conducted in 2006. The survey area was re-inspected in September of 2011 to verify that site conditions have not changed since the time of the original surveys. It was determined during the 2011 inspection that conditions within the survey boundaries have not changed since the time of the 2006 and that the botanical and wildlife surveys remain valid.

The initial phase of the assessment will determine whether the property contains sensitive plants, or potentially contains sensitive wildlife. If such resources are present, strategies will be recommended for incorporation into the project to ensure that no significant impacts would occur in accordance with standards set by the California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA). As used here, the terms sensitive plant or wildlife includes all state or federal rare, threatened, or endangered species and all species listed in the California Natural Diversity Database (CNDDDB) list of “Special Status Plants, Animals and Natural Communities”. The second phase consists of field surveys including a floristic-level botanical survey listing all plant taxa<sup>1</sup> within the survey boundaries.

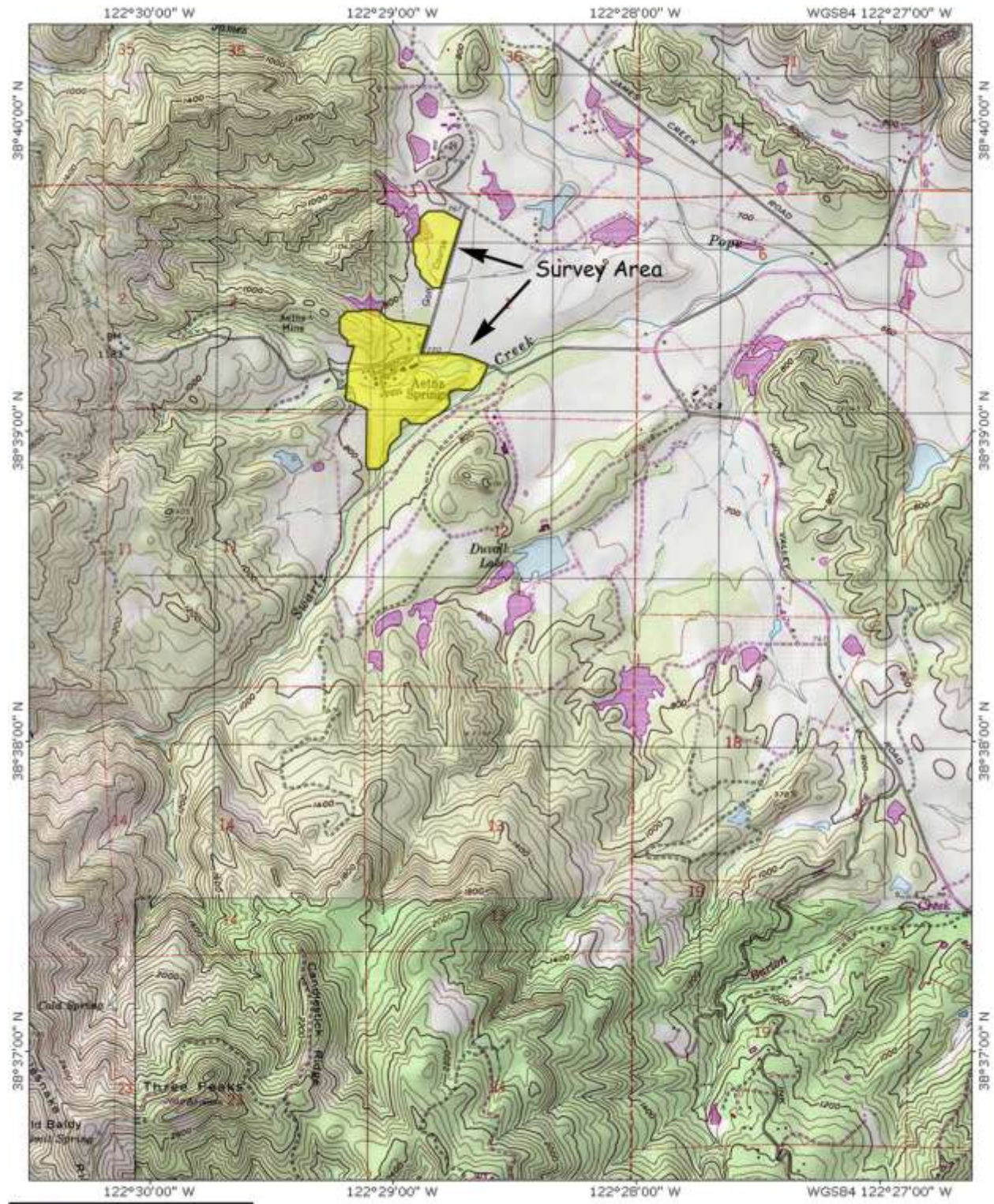
A bat survey was completed by Central Coast Bat Research Group in 2006. In 2011, the biological consulting firm of LSA prepared a conceptual plan to replace sensitive bat habitat that will be lost during the rehabilitation project. Sensitive reptile and amphibian surveys were conducted in 2006 pursuant to the Fish and Wildlife Service protocol for California red-legged frogs. The herptile survey is prepared with a standard format required by federal protocol and for this reason, was completed as a separate report. It is presented in **Appendix B**. The results of all three surveys are summarized in this assessment.

Due to the fact that wetland delineations are prepared with a standard format for U.S. Army Corps of Engineers review, the delineation is provided in its own section. The delineation and findings are provided in Section 6.0.

**1.2 Location:** The survey area is located along the northwest edge of the Pope Valley in Napa County, California (T09N, R06W, Sections 1 and 2, Aetna Springs, Calif. 7½’ Topographic Map). It is accessed by Aetna Springs Road via Pope Valley Road. A location map is provided in **Figure 1**.

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<sup>1</sup> Many sensitive plants and wildlife are subspecies or varieties which are taxonomic subcategories of species. The term “taxa” refers to species and their sub-specific categories.




**NORTHWEST  
BIOSURVEY**  
 P.O. Box 191  
 Cobb, CA 95426  
 (707) 928-1985



**LOCATION MAP**  
Figure 1

TN  
 MN  
 15°  
 09/22/11

## 2.0 ASSESSMENT METHODOLOGY

The basis of the biological assessment is a comparison of existing habitat conditions within the project boundaries to the geographic range and habitat requirements of sensitive plants and wildlife. It includes all sensitive species that occupy habitats similar to those found in the project area and whose known geographic ranges encompass it. The approach is conservative in that it tends to over-estimate the actual number of sensitive species potentially present. The analysis includes the following site characteristics:

- location of the project area with regard to the geographic range of sensitive plant and wildlife species
- location(s) of known populations of sensitive plant and wildlife species as mapped in the California Natural Diversity Database (CNDDDB)
- soils of the project area
- elevation
- presence or absence of special habitat features such as vernal pools and serpentine soils
- plant communities existing within the project area

In addition to knowledge of the local plants and wildlife, the following computer databases were used to analyze the suitability of the site for sensitive species:

- California Department of Fish and Game, California Natural Diversity Database (CNDDDB), 2006, 2011
- California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (2006 and 2011 editions)
- California Department of Fish and Game, California Wildlife Habitat Relationships System (WHR) Version 8.2

The CNDDDB database consists of mapped overlays of all known populations of sensitive plants and wildlife. The database is continually updated with new sensitive species population data.

The CNPS database produces a list of sensitive plants potentially occurring at a site based on the various site characteristics listed above. While use of the CNPS inventory does not in itself eliminate the need for an in-season botanical survey, it can, when used in conjunction with other information, provide a very good indication of the suitability of a site as habitat for sensitive plant species.

The WHR database operates on the same basis as the CNPS inventory. Input includes geographic area, plant community (including development stage), soil structure, and special features such as presence of water, snags, cover, and food (fruit, seeds, insects, etc.).

**2.1 Botanical Survey Methods:** A full, in-season floristic-level survey was conducted for the project site throughout the spring and summer of 2006. A site visit was made in 2011 to determine that site conditions had not changed. The CNDDDB report and overlay maps for the Aetna Springs quadrangle were referenced prior to the survey. Plants occurring on the site were identified using *The Jepson Manual of Higher Plants of California*.

Vegetation communities were identified based on the nomenclature of *A Manual of California Vegetation* (Sawyer and Keeler-Wolf 1996; Sawyer, Keeler-Wolf, and Evens 2009) as modified

by the California Native Plant Society (CNPS), and mapped on a 1"=500' aerial photo. Plant community names are based on an assessment of dominant cover species. A review of the current CNDDDB and CNPS information was made in September 2011. A map of the vegetation types is provided in **Figure 3**.

**2.2 Raptor Survey Methods:** The survey procedure used for raptor species was adapted from *Survey Techniques for Woodland Hawks in the Northeast*: Devaul, et al., 1988. This technique relies on a pedestrian survey for nests and the use of recorded calls followed by waiting periods for return calls from any individuals within the survey area. A thorough inspection for stick nest sites was carried out within the area during the survey in 2006. This resulted in a very high confidence level in the potential nest-site survey results for 2006.

**2.3 Herptile Survey Methods:** Two approaches were used in conducting this sensitive herptile survey. For all sites containing potential California red-legged frog habitat, the methods used for the herptile survey are based on the "2005 Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frog (*Rana aurora draytonii*)", as distributed by the Field Supervisor of the Sacramento Field Office. This procedure includes a minimum of six surveys (daytime and nighttime) following prescribed techniques. The survey report and field notes, including a thorough discussion of the survey protocol and results, are presented separately in a report dated September 24, 2006. Based on field inspections in 2011, conditions within the survey area have not changed and the results of these extensive surveys remain valid.

The survey was expanded to include all sensitive herptile species potentially occurring at the site. This specifically includes foothill yellow-legged frogs and western pond turtles, both of which are California Species of Concern. While both species were included in surveys conducted at the red-legged frog survey sites, foothill yellow-legged frogs were also surveyed for throughout the extensive system of high gradient ephemeral and perennial stream channels draining the steep slopes of the survey area. These drainages are remote sites that are inaccessible for nighttime surveys. However, all of these channels were visited repeatedly during the extensive field work conducted for the wildlife and botanical surveys and delineation of waters of the U.S. During each visit, these sites were surveyed pursuant to the field survey techniques required in the red-legged frog survey protocol. Results are presented in **Appendix B**.

**2.4 Bat Survey Methods:** Bat surveys were conducted by the Central Coast Bat Research Group in 2006 using physical inspections of structures, mist-netting, and acoustical analysis. The results are summarized in this analysis and are discussed in the LSA bat roost compensation plan.

**2.5 Survey Dates:** The survey and site visit dates are provided below in **Table 1**.



**TABLE 1. SITE VISIT AND SURVEY DATES IN 2006 AND 2011**

TYPE OF SURVEY	DATES (2006)	DATES (2011)
Botanical	3/7, 3/9, 4/14, 4/17, 4/20, 4/27, 4/28, 5/23, 8/18, 9/15	
Raptor	3/9, 4/14, 4/17, 4/27	
Herptile <sup>2</sup>	Day: 4/17, 4/20, 4/27, 4/28, 6/19, 6/21, 7/4, 7/7, 7/13 Night: 7/4, 7/7, 7/15	
Bats	3/18-24, 7/2-5, 8/22-26	
Site Review		9/12, 9/30

**2.6 Biological Assessment Staff:** The assessment, botanical field surveys, plant taxonomy, and the delineation were conducted by Steve Zalusky, Northwest Biosurvey principal biologist. Mr. Zalusky has a Master of Science Degree in Biology from the California State University at Northridge and a Bachelor of Science Degree in Zoology from the University of California at Santa Barbara. Mr. Zalusky has over 30 years of experience as a biologist in the government and private sectors.

Field surveys, database review, and final report preparation were conducted with the assistance of Danielle Zalusky, Northwest Biosurvey principal planner. Ms. Zalusky has a Bachelor of Arts Degree and has completed all course work toward an M.A. Degree in Rural and Town Planning from Chico State University. Ms. Zalusky served as a planner in local government and, prior to joining Northwest Biosurvey, was a senior planner for the Lake County Community Development Department.

### 3.0 SITE CHARACTERISTICS

**3.1 Topography and Drainage:** The project area occupies a portion of the northwestern edge of the Pope Valley and extends westward up the lower slopes of Rattlesnake Ridge in Napa County. The topography is shown in **Figure 1**. The survey area includes the historic Aetna Springs Resort property which was developed at the edge of the valley along an ephemeral creek (“Aetna Creek”). This area drains to a reservoir at the eastern edge of the survey area. Just south of the resort is Swartz Creek, a large ephemeral stream, which flows through Swartz Canyon in the hills rimming the western edge of the valley. This creek flows to Pope Creek in the Pope Creek Valley.

The northwest portion of the survey area drains to the northernmost pond via several unnamed ephemeral streams that originate in the hills on the west side of the Pope Valley. Slopes within the northwestern part of the survey area are very steep; in some areas they are greater than 30 percent. Consequently, the drainages tend to have short-duration ephemeral flows. Before flowing eastward off the property, these streams flow across the historic Aetna Springs Golf Course on the Valley floor.

**3.2 Soils:** Based on the Natural Resource Conservation Service, Soil Survey for Napa County, there are seven soil types on the project site. The soils within the survey area are derived from three parent materials: sandstone or shale, volcanic, or serpentine. A soils map

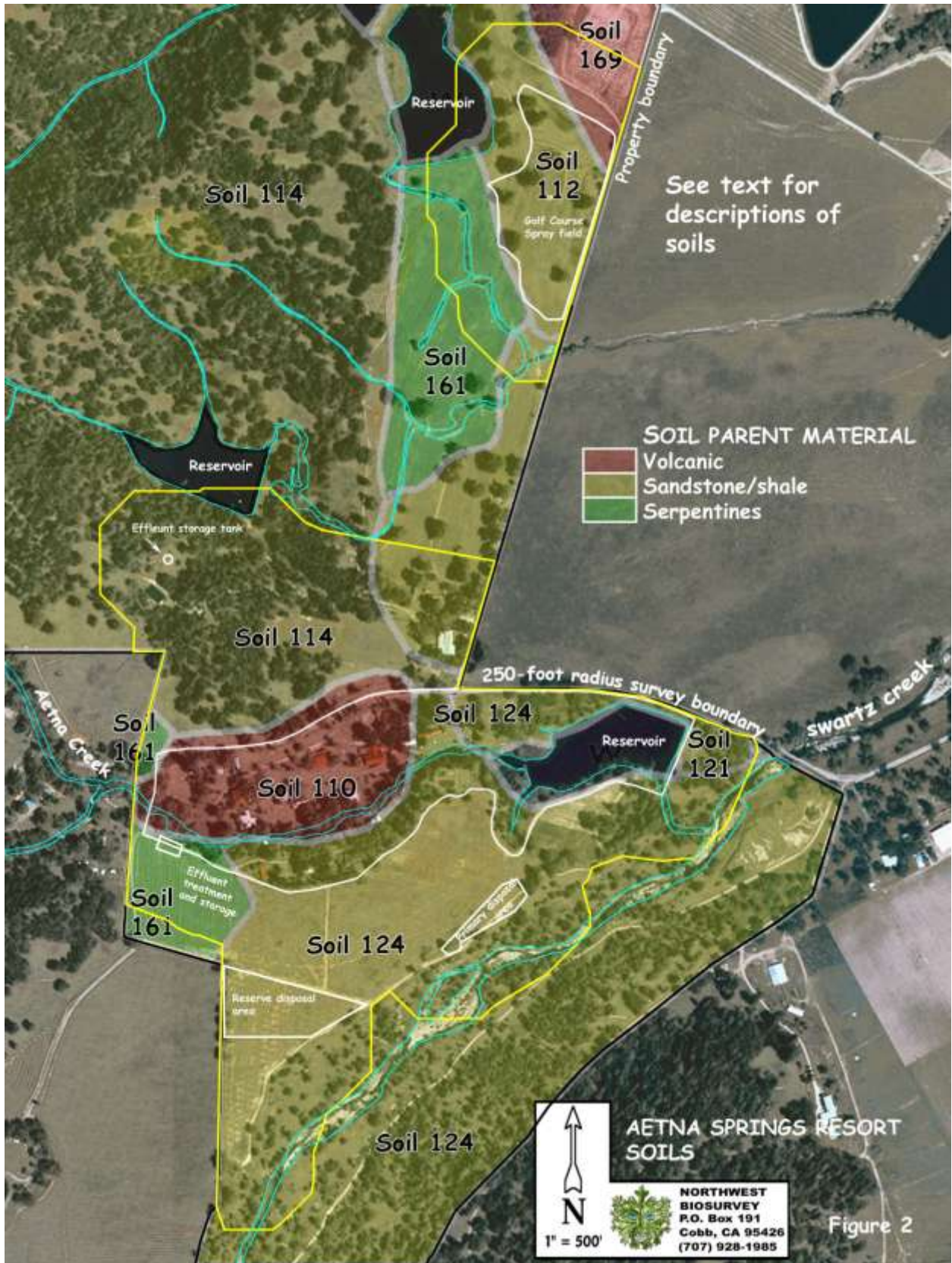
<sup>2</sup> Surveys for foothill yellow-legged frogs were also carried out during the dates listed for botanical surveys and wetland delineations.

is provided in **Figure 2**. The soil units are indicated by soil numbers and are described as follows:

- **Boomer-Forward-Felta complex, 5-30% slopes (110):** This soil is present within the developed part of the Aetna Springs Resort itself. The gently sloping to moderately steep soils of this complex are on uplands. The Boomer series consists of well drained soils on uplands. Slope is 2 to 50 percent. These soils formed in material weathered from mixed igneous rocks. The plant cover is Douglas fir, ponderosa pine, black oak, manzanita, poison-oak, and madrone. Permeability is moderately slow. The Forward series consists of well drained soils on uplands. Slope is 2 to 75 percent. These soils formed in material weathered from rhyolite. The plant cover is typically Douglas fir, madrone, scrub oak, and bay trees. Permeability is moderately rapid. The Felta series consists of well drained soils on terraces. Slope is 5 to 50 percent. These soils formed in material weathered from volcanic tuff mixed with uplifted river sediment and metamorphosed basic rock. The vegetation is madrone, Douglas-fir, scrub oak, and manzanita. Permeability is moderate. Runoff for this unit is medium. The hazard of erosion is slight on the Boomer soils and moderate on the Forward and Felta soils.
- **Bressa-Dibble complex, 5-15% slopes (112):** This complex consists of gently sloping to strongly sloping soils on uplands. It occurs adjacent to Ponds C and D in the northeast section of the project area. The Bressa series consists of well drained soils on uplands. Slope is 5 to 75 percent. Elevation is 400 to 2,000 feet. These soils formed in material weathered from sandstone and shale. The plant cover is mostly annual grasses and scattered oaks.

Permeability is moderately slow. The effective rooting depth is 30 to 40 inches, and the available water capacity is 4 to 6 inches. The Dibble series consists of well drained soils on uplands. Slope is 5 to 75 percent. Elevation is 200 to 2,000 feet. These soils formed in material weathered from sandstone and shale. The vegetation is mostly annual grasses and scattered oaks. Permeability is slow. The effective rooting depth is 20 to 40 inches. Available water capacity is 5 to 7 inches. Runoff for this complex is medium. The hazard of erosion is slight.

- **Bressa-Dibble complex, 30-50% slopes (114):** This complex consists of steep soils on uplands at an elevation of 1,000 to 2,000 feet. The complex occurs on the steeper slopes in the north half of the project area. These soils are as described above. Runoff for this complex is rapid. The hazard of erosion is moderate to severe.
- **Contra Costa gravelly loam, 5-15% slopes (121):** This soil unit is in small areas in the valleys east of the developed resort near Pond A and southeast of Swartz Creek. This moderately sloping and strongly sloping soil is in benchlike areas on uplands mainly in the Pope Valley area. The Contra Costa series consists of well drained soils. Slope is 5 to 15 percent. Elevation is 400 to 2,000 feet. These soils formed in material weathered from sandstone. The plant cover is mostly annual grasses and scattered oaks. The profile for this unit is 15 to 20 percent gravel. Included with this soil in mapping were small areas of Bressa, Dibble, and Sobrante soils. Runoff is medium. The hazard of erosion is slight. Permeability is slow. The effective rooting depth is 25 to 40 inches. The available water capacity is 5 to 8 inches. Contra Costa soils are used for grazing and for recreation where they are adjacent to resort areas.



- **Cortina very gravelly loam, 0-5% slopes (124):** This nearly level to gently sloping soil is on flood plains. It occurs south of the resort adjacent to Swartz Creek. Included with this soil in mapping were small areas of Bale and Yolo soils and areas of gravel deposits adjacent to waterways. The Cortina series consists of excessively drained soils on flood plains and alluvial fans. Slope is 0 to 5 percent. These soils formed from recent stratified alluvium. The vegetation consists of willows and water grasses. Runoff is slow. The hazard of erosion is slight. Permeability is rapid.
- **Maxwell clay, 2-9% slopes (161):** This gently sloping to moderately sloping soil is found in a small area southwest of the developed resort. The Maxwell series consists of somewhat poorly drained soils on old alluvial fans and basin rims. These soils formed in material derived from serpentinitic alluvium. The vegetation is a sparse growth of lupine, tarweed, wild oats, and other annuals, and some serpentine plant species in places north and outside of the survey area. Runoff is slow. Permeability is very slow. The hazard of erosion is slight. This soil is low in fertility.
- **Perkins gravelly loam, 5-9% slopes (169):** This soil unit occurs at the north end of the golf course. This moderately sloping soil is on old terraces. The Perkins series consists of well drained soils on terraces. Slope is 2 to 9 percent. Elevation is 150 to 1,500 feet. These soils formed from alluvium derived from igneous rock. The mean annual precipitation is 30 to 40 inches. Runoff is medium. The hazard of erosion is slight. Permeability is slow. The effective rooting depth is 50 to 60 inches. Available water capacity is 7.5 to 8.5 inches.

**3.3 Plant Communities:** The site contains eight plant communities based on the "Standardized Classification" scheme described in the California Native Plant Society (CNPS) *A Manual of California Vegetation* (Sawyer et al. 2009). As is often the case with this generalized, statewide classification system, unique, site-specific conditions have resulted in variations in plant communities that either extend beyond the descriptions provided in the Vegetation Manual or, in some cases, result in communities that are not described in it. In addition to the plant communities, other land uses that have supplanted native plant communities are mapped and described.

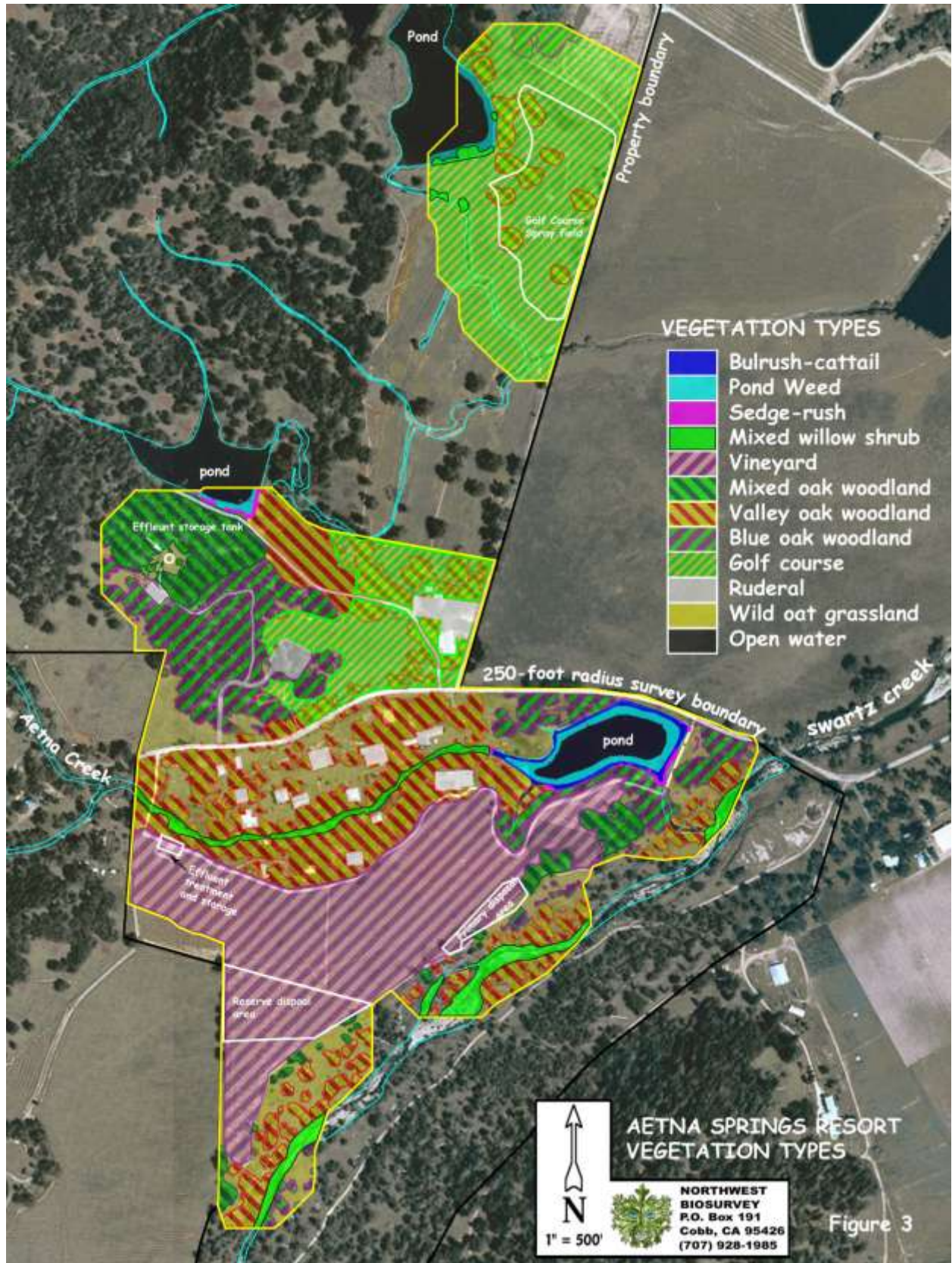
Each of these communities and land uses is described below and shown in the plant communities map provided in **Figure 3**. The acreage and relative percentages of each community are listed in **Table 2**.

**TABLE 2. TOTAL AREA OF PLANT COMMUNITIES AND OTHER COVER**

Plant Community	Total Acreage	Percent of Total
Bulrush-Cattail	0.63	0.60
Floating-leaved Pond Weed	1.61	1.54
Sedge-Rush Wetland	0.28	0.27
Mixed Willow Shrub	2.96	2.83
Vineyard	21.88	20.91
Mixed Oak Woodland	5.84	5.58

Plant Community	Total Acreage	Percent of Total
Valley Oak Woodland	15.74	15.05
Blue Oak Woodland	11.19	10.69
Golf Course	24.32	23.24
Ruderal	4.08	3.90
Wild Oat Grassland	13.55	12.95
Open Water-Pond	2.55	2.44
<b>TOTAL</b>	<b>104.63</b>	<b>100</b>

- **Bulrush-Cattail:** This dense emergent wetland community dominates the banks of the southernmost pond and occurs in perennially wet soils within drainages throughout the survey area. Bulrush (or tule: *Scirpus acutus* var. *occidentalis*) and broad-leaved cattail (*Typha latifolia*) are co-dominant. Cattail occurs as an outermost band along the upper saturation zone of the shoreline while tule occupies the slightly deeper water before giving way to the floating-leaved pondweed community.
- **Floating-leaved Pond Weed:** This littoral community occupies the shallower water around the shorelines of the four ponds within the Aetna Springs property. Floating-leaved pond weed (*Potamogeton natans*) forms a mat of floating leaves whose stems are rooted in the mud below. It forms the most lakeward plant community before the water becomes too deep for rooting plants.
- **Sedge-Rush Wetland:** This is a highly variable community that includes a very wide palate of sedge, rush, forb and “fern” species occurring in wetlands of the survey area. These communities occur along pond and reservoir edges and within stream channels. The species list includes: Pacific bog rush, pointed rush, spreading rush, and poverty rush (*Juncus effuses* var. *pacificus*, *J. oxymeris*, *J. patens*, *J. tenuis*), Pacific woodrush (*Luzula comosa*), slender beak and clustered field sedge (*Carex athrostachya* and *C. praegracilis*), tall flat sedge (*Cyperus eragrostis*), creeping spike rush (*Eleocharis macrostachya*), smooth scouring rush and giant horsetail (*Equisetum laevigatum* and *E. telmateia* ssp. *braunii*), seep monkeyflower (*Mimulus guttatus*), pennyroyal (*Mentha pulegium*), and western mannagrass (*Glyceria occidentalis*).
- **Mixed Willow Shrub:** This is the common riparian community of exposed creek channels throughout the survey area. Red willow (*Salix laevigata*) dominates the creek banks and more stable islands and ranges in size from the more common shrub to mature trees (in areas sufficiently stable to allow the trees to mature). The shrubby narrow-leaved willow (*Salix exigua*) dominates the open sand and gravel bars of the wider channels. The ground cover in this community consists primarily of exposed rocky substrate but often includes a mix of species from adjacent riparian, wetland, and aquatic communities such as sedge-rush, bulrush-cattail, and floating-leaved pondweed.
- **Vineyard:** Portions of the level, valley floor south of the historic Aetna Springs Resort are planted in commercial vineyard.



- **Mixed Oak Woodland:** Mixed oak woodland dominates the shaded, north-facing slopes throughout the property. Wherever it occurs, this community is dominated by California black oak (*Quercus kelloggii*) and includes a varying mix of other tree and shrub species depending on elevation and aspect (orientation and slope angle with regard to the southern exposure to the sun). In the rolling hills in the northern third of the property the community includes California valley oak (*Quercus lobata*), blue oak (*Quercus douglasii*), foothill (or ghost) pine (*Pinus sabiniana*), California bay (*Umbellularia californica*), widely scattered ponderosa pine (*Pinus ponderosa*) and some Douglas fir (*Pseudotsuga menziesii* var. *menziesii*).

Common shrub species throughout the mixed oak woodland include California coffeeberry, (*Rhamnus californica* ssp. *californica*), common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*), poison oak (*Toxicodendron diversilobum*), and Scotch broom (*Cytisus scoparius*). Where the community occurs in less shaded areas, the shrub layer may include shrubs from adjacent xeric communities. These can include interior live oak shrub (*Quercus wislizeni* var. *frutescens*) and coyote brush (*Baccharis pilularis*).

The ground cover throughout the mixed oak woodland includes Wild Oat Grassland in the more open areas, but typically consists of leaf litter with scattered woodland forbs and ferns such as Pacific blacksnakeroot (*Sanicula crassicaulis*), grand hound's tongue (*Cynoglossum grande*), bowl-tubed iris (*Iris macrosiphon*), and California wood fern (*Dryopteris arguta*).

- **Valley Oak Woodland:** This mature woodland dominates the deep soils of the valley floor and floodplains of Swartz and Aetna Creeks. Within the valley floor the community consists almost exclusively of very large, mature valley oak (*Quercus lobata*). The entire valley community has been heavily modified by human development dating back to the late 1800s. Within the Aetna Springs retreat, it now occurs as mature trees scattered among the resort buildings, roads, and commons. However, it retains much of its original structure and species makeup along Aetna Creek which flows through the southern edge of the retreat. California wild grape (*Vitis californica*) and poison oak are common along the channel banks, although the channel itself supports a mixed willow community.

The more extensive portion of the valley community occurs through the Aetna Springs golf course. Here the oaks occur as isolated specimen trees surrounded by driving range and putting greens. The community regains a natural appearance along its western edge where it follows the course of an ephemeral stream channel to the base of a reservoir. In this area, California valley oak are mixed with trees and shrubs of the adjacent mixed oak woodland.

Both the shrub layer and ground cover have been largely eliminated from this community. As a consequence, there has been little or no regeneration and the community is senescent.

Along the floodplain of Swartz Creek the valley oak woodland community has an unusual xeric appearance. While valley oak is dominant along the edges of the creek channel and occurs throughout the floodplain, the trees tend to be small and widely spaced between trees and shrubs of the adjacent blue oak woodland. Oregon ash (*Fraxinus latifolia*) is also common here. This community appears to have become established during a period of higher flows and wetter conditions. It is clearly competing with the species of the drier

blue oak woodland. Of particular interest is the widespread presence of MacNab cypress (*Cupressus macnabiana*), a tree commonly found on dry rocky soils and serpentines. This tree occurs on the dry, rocky xerofluent (river wash) soils of the floodplain. The population has apparently been seeded from populations on the rocky uplands of the upper Swartz Creek watershed south of the property boundary. It was not found elsewhere on the property.

The shrub layer of the floodplain is dominated by xeric species from the surrounding blue oak woodland but includes Himalayan and California blackberry (*Rubus discolor* and *R. ursinus*) and California wild grape within depressions left by past gravel mining operations. Also present are scattered patches of California fuchsia (*Epilobium canum ssp. canum*), a hummingbird pollinated sub-shrub with large, red, trumpet-shaped flowers.

- **Blue Oak Woodland:** Blue oak (*Quercus douglasii*) and ghost pine dominate this open woodland/savanna community. However, California buckeye (*Aesculus californica*) is also prominent here. Within the area of rolling hills in the northern third of the property, the scattered shrub layer consists of common manzanita, poison oak, and toyon (*Heteromeles arbutifolia*). In the south part of the property, where it narrows to a corridor along Swartz Creek, blue oak woodland dominates the northwest-facing slope along the southeast side of the Swartz Creek floodplain. In this area the soils consist of xerofluent gravels with little water retention, and more xeric (dry soil) shrubs contribute to the community. These consist of common chaparral species such as birch-leaf mountain mahogany (*Cercocarpus betuloides var. betuloides*), buckbrush (*Ceanothus cuneatus var. cuneatus*), and California yerba santa (*Eriodictyon californicum*). The ground cover throughout these woodlands consists of Wild Oat Grassland, which is described below.
- **Wild Oat Grassland:** This grassland community dominates the extensive openings of the blue oak and valley oak woodlands and occurs in virtually all openings in the other plant communities. While it is dominated by non-native grasses and forbs, the species composition of this community varies widely on a seasonal basis. It tends to be dominated by mesic (moist soil) forbs in the spring which are replaced by annual grasses as the season progresses into dryer, summer conditions.

The list of species within this community is extensive and accounts for most of the grasses and forb species listed in the botanical survey results presented in Table 6. Among the more prominent species are wild oat (*Avena barbata*), soft chess (*Bromus hordeaceus*), hedgehog dogtail (*Cynosurus echinatus*), sticky tarweed (*Holocarpha virgata ssp. virgata*), rose clover (*Trifolium hirtum*), bird's eyes (*Gilia tricolor ssp. tricolor*), and true baby stars (*Linanthus bicolor*).

- **Golf Course:** Portions of the survey area within the valley floor, north of the Historic Resort, are developed as a golf course which was recently redesigned and updated. As shown in Figure 3, the valley oak woodland extending through the golf course was preserved.
- **Ruderal:** This category includes all non-agricultural (and golf course) areas disturbed by humans. These include roadways throughout the property and structures at the resort and golf course.



- **Open Water-Pond:** This habitat occupies all of the pond habitats too deep for bulrush-cattail, sedge-rush wetland and floating-leaved pondweed.

**3.4 Special Habitat Features:** Most sensitive wildlife species in this region are associated with woodland and riparian habitats. The extensive riparian woodlands along Swartz and “Aetna” Creeks provide potential habitat for a number of raptors (birds of prey) and riparian passerines (perching birds) with sensitive regulatory status.

The aquatic habitats on the property - the larger streams and the reservoirs - provide suitable habitat for herptiles (reptiles and amphibians) with sensitive regulatory status. Surveys of these habitats conducted for this study had positive results for two sensitive herptile species.

Finally, there are previous records of bats with sensitive regulatory status occurring within empty buildings of the Aetna Springs Resort. Surveys for these bats were conducted for this study in 2006 and the survey results were positive for two special status species.

#### 4.0 PRE-SURVEY RESEARCH RESULTS

**4.1 CNPS On-Line Electronic Inventory Analysis:** A California Native Plant Society (CNPS) analysis was conducted in 2006 and again in 2011 for all plants with federal and state regulatory status, and all non-status plants, on CNPS Lists 1B through 4. The query included all plants within this area of the county occurring within the plant communities identified on the project site. The inventory lists the following species (**Table 3**) as potentially occurring at the site. It is important to note that this list includes species for which appropriate habitat is not present within the survey area (including vernal pool and serpentine soil species). The CNPS database search does not allow fine tuning for specific soil types and many specific habitats.

TABLE 3.

**California Native Plant Society's  
Inventory of Rare and Endangered Plants of California**

**Selected CNPS Plants by Scientific Name  
Aetna Springs Retreat Project**

<u>Species</u>	<u>Common Name</u>	<u>Family</u>	<u>CNPS</u>	<u>State</u>	<u>Fed</u>
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	Boraginaceae	1B.2		
<i>Astragalus claranus</i>	Clara Hunt's milk-vetch	Fabaceae	1B.1	Threat.	End.
<i>Astragalus rattanii</i> var. <i>jepsonianus</i>	Jepson's milk-vetch	Fabaceae	1B.2		
<i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>	big-scale balsamroot	Asteraceae	1B.2		
<i>Brodiaea californica</i> var. <i>leptandra</i>	narrow-anthered California brodiaea	Themidaceae	1B.2		
<i>California macrophylla</i>	round-leaved filaree	Geraniaceae	1B.1		
<i>Castilleja rubicundula</i> ssp. <i>rubicundula</i>	pink creamsacs	Orobanchaceae	1B.2		
<i>Centromadia parryi</i> ssp. <i>parryi</i>	pappose tarplant	Asteraceae	1B.2		
<i>Fritillaria pluriflora</i>	adobe-lily	Liliaceae	1B.2		
<i>Hesperolinon drymarioides</i>	drymaria-like western flax	Linaceae	1B.2		
<i>Juglans hindsii</i>	Northern California black walnut	Juglandaceae	1B.1		

<u>Species</u>	<u>Common Name</u>	<u>Family</u>	<u>CNPS</u>	<u>State</u>	<u>Fed</u>
<i>Lasthenia conjugens</i>	Contra Costa goldfields	Asteraceae	1B.1		End.
<i>Layia septentrionalis</i>	Colusa layia	Asteraceae	1B.2		
<i>Lessingia hololeuca</i>	woolly-headed lessingia	Asteraceae	3		
<i>Micropus amphibolus</i>	Mt. Diablo cottonweed	Asteraceae	3.2		
<i>Navarretia leucocephala ssp. bakeri</i>	Baker's navarretia	Polemoniaceae	1B.1		
<i>Plagiobothrys strictus</i>	Calistoga popcorn-flower	Boraginaceae	1B.1	Threat.	End.
<i>Poa napensis</i>	Napa blue grass	Poaceae	1B.1	End.	End.
<i>Sidalcea keckii</i>	Keck's checkerbloom	Malvaceae	1B.1		End.
<i>Trichostema ruygtii</i>	Napa bluecurls	Lamiaceae	1B.2		
<i>Trifolium hydrophilum</i>	saline clover	Fabaceae	1B.2		

CNPS List Definitions:

1B.1 = Rare, threatened, or endangered in California and elsewhere; seriously endangered in California

1B.2 = Rare, threatened, or endangered in California and elsewhere; fairly endangered in California

3 = We need more information about this plant (Review List)

3.3 = We need more information about this plant (Review List); not very endangered in California

End=Endangered

Threat= Threatened

**4.2 California Natural Diversity Database:** The California Natural Diversity Database (CNDDDB) overlays for the Aetna Springs and adjacent 7½' quadrangle maps were reviewed for this project in 2006 and 2011. Table 4 presents a list of sensitive plant and wildlife species known to occur within the Aetna Springs quadrangle. In addition to listing the species present within the quadrangle, the table provides a brief descriptor of their habitat requirements and blooming season, and an assessment of whether the project area is likely to contain the necessary habitat requirements for each species. In addition to this table, **Appendix A** at the end of this report includes the species within the 8 quadrangles surrounding the Aetna Springs quadrangle.

TABLE 4. CNDDDB SENSITIVE PLANT AND WILDLIFE SPECIES WITHIN THE AETNA SPRINGS, CALIF. 7½' QUAD.

Habitat Type	Habitat Present
<i>Wildflower field</i>	no
<i>Serpentine bunchgrass</i>	no

Plant Species	Common Name	Habitat Requirements/ Fed./State/CNPS Status	Blooming Season	Habitat Present
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	Coastal bluff scrub, cismontane woodland, valley & foothill grassland; --/--/1B.2	March-June; ann. herb	yes
<i>Brodiaea californica</i> var. <i>leptandra</i>	narrow-anthered California brodiaea	Broadleaved upland forest, chaparral, lower montane conif. forest; --/--/1B.2	May-July; per. herb	yes
<i>Calystegia collina</i> ssp. <i>oxyphylla</i>	Mt. Saint Helena morning-glory	Chaparral, lower montane conif. forest, valley & foothill grassland; serpentinite; --/--/4.2	Rhiz. herb; April-June	no
<i>Ceanothus confusus</i>	Rincon ridge ceanothus	Closed cone conif. forest, chaparral, cismontane woodland/volcanic; --/--/1B.1	Feb.-April; ever. shrub	yes
<i>Centromadia parryi</i> ssp. <i>parryi</i>	pappose tarplant	Coastal prairie, meadows & seeps, marshes & swamps (coastal salt), valley & foothill grassland (vernally mesic)/often alkaline; --/--/1B.2	May-Nov.; ann. herb	no
<i>Fritillaria pluriflora</i>	adobe-lily	Chaparral, cismontane woodland, valley & foothill grassland/often adobe; --/--/1B.2	Feb.-April; per. herb	no
<i>Harmonia hallii</i>	Hall's harmonia	Chaparral/serpentine barrens; --/--/1B.2	April-June; ann. herb	no
<i>Hesperolinon bicarpellatum</i>	two-carpellate western flax	Chaparral/serpentinite; --/--/1B.2	May-July; ann. herb	no
<i>Hesperolinon</i> sp. nov. " <i>serpentinum</i> "	Napa western flax	Chaparral/serpentinite; --/--/1B.1	May-July; ann. herb	no
<i>Layia septentrionalis</i>	Colusa layia	Chaparral, cismontane woodland, valley & foothill grassland/sandy, serpent.; --/--/1B.2	April-May; ann. herb	no
<i>Leptosiphon jepsonii</i>	Jepson's leptisiphon (linanthus)	Chaparral, cismontane woodland; usually volcanic/--/--/1B.2	May-July; ann. herb	yes
<i>Lupinus sericatus</i>	Cobb Mountain lupine	Broadleaved upland forest, chaparral, cismontane woodland, lower montane conif. forest; --/--/1B.2	Mar.-June; per. herb	yes
<i>Navarretia rosulata</i>	Marin County navarretia	Closed-cone conif. forest, chaparral/serpent., rocky; --/--/1B.2	May-July; ann. herb	no
<i>Penstemon newberryi</i> var. <i>sonomensis</i>	Sonoma beardtongue	Chaparral/rocky; --/--/1B.3	April-Aug.; per. herb	no

<u>Plant Species</u>	Common Name	Habitat Requirements/ Fed./State/CNPS Status	Blooming Season	Habitat Present
<i>Streptanthus hesperidis</i>	green jewel flower	Chaparral (openings), cismontane woodland/ serpentine, rocky; --/--/1B.2	May-July; ann. herb	no
<i>Streptanthus morrisonii</i>	Morrison's jewel flower, see subspecies	Chaparral/serpentine, rocky, talus	May-Sept.; per. herb	no

<u>Wildlife Species</u>	Common Name	Habitat Requirements/Status	Season Present	Habitat Present
<i>Vandykea tuberculata</i>	serpentine cypress long- horned beetle	Breeds and develops in shaded lower branches of Sargent cypress	year-round	no
<i>Rana boylei</i>	foothill yellow-legged frog	Partly-shaded, shallow streams & riffles with a rocky substrate in variety of habitats; SSC	year-round	yes
<i>Emys marmorata</i>	western pond turtle	Ponds, lakes, rivers, creeks, marshes & irrigation ditches with abundant vegetation and rocky or muddy bottoms; in woodland, forest, & grassland; SSC	year-round	yes
<i>Agelaius tricolor</i>	tricolored blackbird	Fresh emergent wetland; SSC	year-round	yes
<i>Antrozous pallidus</i>	pallid bat	Open, dry habitats, forest habitats, in caves, tunnels, buildings, bridges; sensitive to human disturbance; SSC	year-round	yes
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	Caves, mines, tunnels, buildings; mesic habitats; SSC	year-round	yes

SSC=Dept. of Fish and Game Species of Special Concern

### 4.3 Wildlife Habitat Analysis Results:

The Wildlife Habitat Relations analysis lists a total of 14 species as potentially occurring on the site based on the geographic location and wildlife habitats present. The WHR results for these species are listed below in Table 5.

**TABLE 5. WILDLIFE SPECIES IDENTIFIED BY THE WHR DATABASE**

Species Name <sup>3</sup>	Common Name	Habitat	Status
<i>Rana aurora draytonii</i>	California red-legged frog	Generally slow or ponded water	SSC, FT
<i>Emys marmorata</i>	western pond turtle	Lake or pond	SSC
<i>Accipiter cooperii</i>	Cooper's hawk	Broken and open woodland near water	SSC (nesting)
<i>Buteo regalis</i>	ferruginous hawk	Isolated perches overlooking grassland/scrubland	SSC (wintering)
<i>Asio otus</i>	long-eared owl	Riparian habitat, densely canopied trees	SSC
<i>Circus cyaneus</i>	northern harrier	Meadows, grasslands near wetlands; nests in brush on ground	SSC (nesting)
<i>Progne subis</i>	purple martin	Open woodland near water	SSC (nesting)
<i>Asio flammeus</i>	short-eared owl	Open areas with nearby dense vegetation for roosting	SSC
<i>Elanus leucurus</i>	white-tailed kite	Open fields near trees with dense canopies for cover	Fully protected (nesting)
<i>Dendroica petechia brewsteri</i>	yellow warbler	Riparian plant associations. Prefers willows, cottonwoods, aspens, sycamores & alders for nesting & foraging	SSC (nesting)
<i>Icteria virens</i>	yellow-breasted chat	Summer resident; inhabits riparian thickets of willow & other brushy tangles near watercourses	SSC (nesting)
<i>Antrozous pallidus</i>	pallid bat	Caves, tunnels, buildings, bridges	SSC

SSC=California Species of Special Concern

FT=Federal Threatened

FE=Federal Endangered

Based on the pre-survey research conducted for this study, a total of 16 species need to be accounted for within the project area. These consist of the 12 species selected by the WHR analysis and listed in Table 5, and the 6 species identified as present within the Aetna Springs quadrangle by the CNDDDB and listed in Table 4 (two species occur in both lists). Accepted protocol requires that all CNDDDB species be discussed even though suitable habitat may not occur here.

- **Serpentine cypress long-horned beetle (*Vandykea tuberculata*):** This longhorn beetle has been identified in the CNDDDB as occurring within the Pope Valley. Breeding and larval development occur only in Sargent cypress in the shaded lower branches of the tree.

<sup>3</sup> More appropriately referred to as "specific epithet" but a term not generally known to the lay reader.

There are no Sargent cypress trees within the survey area, and this species would not occur here.

- **California red-legged frog (*Rana draytonii*):** These are typically pond frogs or frogs of slow moving streams with dense bank vegetation and three or more feet of depth. The frogs may be found outside of these habitats during wet weather but nearby ponded water is necessary for this species. This property contains and is adjacent to a number of ponds and streams that may provide habitat for red-legged frogs. Based on the *Draft Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*)*<sup>4</sup>, the species is considered “nearly extirpated from this region”. The last confirmed sighting of this species was in 1983 from Wragg Creek in Napa County. There is also a 1979 account of the species near the Pope Valley. There is an account of the species on the Cleary Preserve from 2000. The Cleary Preserve is adjacent to property belonging to Aetna Springs, but is approximately one mile south of the current survey area. Northwest Biosurvey was not able to obtain specific information about this occurrence from the stewards of the preserve in 2006 and was not given permission to visit the site.

A full U.S. Fish and Wildlife Service protocol survey for this species, based on the “2005 Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frog (*Rana aurora draytonii*)”, was conducted due to the presence of potentially suitable habitat and due to the account of this species within the region. At least six surveys were conducted at all potentially-suitable sites. The results of all surveys were negative for this species. The red-legged frog survey report is presented in **Appendix B D**.

- **Foothill yellow-legged frog (*Rana boylei*):** Based on Northwest Biosurvey staff’s experience in this region, these frogs are relatively common along the shaded banks of perennial headwater streams. They are heavily dependent on the presence of perennial water and are seldom far from pools where they can seek shelter from predation. The larvae require three to four months to mature, making most ephemeral streams unsuitable as breeding sites. This species is mapped by the CNDDDB as occurring in Butts Creek in the Snell Valley and on an ephemeral creek in Spanish Valley, both to the northeast of the site over a ridge. This species was included in the sensitive herptile surveys conducted for this assessment. Foothill yellow-legged frogs were found in ideal habitat in both Swartz Creek and “Aetna Creek” during the herptile surveys conducted for this study. The survey results are discussed in Section 5.2 and are included in the red-legged frog survey report (Appendix B).
- **Western pond turtle (*Emys marmorata*):** These turtles prefer slow or ponded water but will range widely through less suitable habitat in search of these sites. When present, pond turtles are readily observed basking along shorelines or on logs in shallow water. This species was included in the herptile survey. The shorelines of all ponds were surveyed from cover with binoculars during each of the daytime and nighttime surveys. The results were positive for all ponds within the survey area. The discussion of the survey and results are included in Section 5.2 and included in the red-legged frog survey report (Appendix B).
- **Cooper’s hawk (*Accipiter cooperii*):** These hawks prefer broken and open woodland near water where they can ambush prey from cover. They nest in large trees in dense riparian

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<sup>4</sup> January 2000, Region 1, U.S. Fish and Wildlife Service, Portland, Oregon, pp 11,12.

woodland. Nests are stick platforms lined with bark. Nesting and foraging occur near riparian vegetation or open water. During the 2006 field work, a Cooper's hawk was observed south of the survey area in excellent habitat along Pope Creek. The mixed oak woodland and mixed willow shrub habitats along Swartz Creek provide potential habitat for this species. This species was included in the raptor survey. Although they no longer have sensitive status, they are generally protected under California Fish and Game Code Section 3503, which prohibits the disturbance of nests and eggs of non-game birds. Similar protection is provided under the Federal Migratory Bird Treaty Act.

- **Ferruginous hawk (*Buteo regalis*):** Typical habitat for this raptor consists of an isolated perch (tree, cliff, or manmade object) overlooking open grassland or scrubland that provides suitable hunting territory. Proximity to water is apparently not required for this species. This species does not nest in California but is considered by the state to be sensitive while wintering in this part of the country. Suitable wintering habitat occurs throughout the valley portion of the survey area as well as throughout the Pope Valley. If these hawks are present in the project area during the winter months, it is unlikely that project-related activities would have a significant impact on the extensive habitat potentially available to this species in the Pope Valley. Although they no longer have sensitive status, they are generally protected under California Fish and Game Code Section 3503, which prohibits the disturbance of nests and eggs of non-game birds. Similar protection is provided under the Federal Migratory Bird Treaty Act.
- **Long-eared owl (*Asio otus*):** These large owls (13-16" long) require riparian habitat for cover, preferring small densely-canopied trees for roosting and nesting. They are often associated with conifer forest edges, or deciduous woodlands near water where there is adequate cover. They hunt for rodents and other small mammals, and occasionally for birds, over adjacent open ground. Nesting occurs between March and July, usually in the abandoned nests of other large birds or squirrels. The dense mixed oak woodlands within the survey area provide good potential habitat for this owl.
- **Northern harrier (*Circus cyaneus*):** This raptor occurs in annual grassland but is also found at high elevations. It inhabits meadows, open grasslands and rangelands, and emergent wetlands but is seldom found in wooded or agricultural areas. Formerly called the "marsh hawk", it nests on the ground in shrubby vegetation in and near wetlands. The harrier feeds on insects and small mammals, birds, etc., and competes with the red-tailed hawk for food. The extensive rangeland and agricultural land within the Pope Valley with their wide, mesic drainages and nearby ponds provide excellent potential habitat for this species. On-site, the open grasslands adjacent to the blue oak woodland may also provide habitat for this raptor, but superior habitat does not exist on the property. These raptors nest from April to August and have California Species of Concern status during that period.
- **Purple martin (*Progne subis*):** These migratory passerine (perching) birds prefer open, old growth, multilayered woodland with nearby water. Much is known about habitat preference in this species due to recent research. They are commonly found in riparian habitat, or valley foothill with montane hardwood or montane-hardwood-conifer habitats near water. Up to 70-percent of nests are in fire-killed firs and pines. On the coast, preferred habitat is redwood forest. These birds may nest as pairs in old woodpecker cavities or in colonies in large hollow snags; nests are also sometimes found in residential areas or in manmade structures. Most tree nest sites are located in the upper slopes of

hilly and mountainous terrain. They are a California Species of Special Concern while nesting. The mixed oak woodlands provide good potential habitat for this species. Additionally, these conditions are very similar to known purple martin nesting areas inspected by Northwest Biosurvey staff near Conn Valley Road east of St. Helena and there is a recorded site approximately four miles west of this property. Consequently, there is a good potential for purple martins to be present.

- **Short-eared owl (*Asio flammeus*):** This is a medium-sized (13-17” long) owl. This species is usually found in open areas with few trees, such as grasslands, meadows, and wetlands, where it perches on tall structures. It requires dense vegetation for roosting cover including tall grasses, brush, and wetlands. The owl eats mostly voles and other small mammals, but will also eat reptiles, amphibians, and arthropods. It hunts by flying low over the ground, or swoops down from a perch. Nests are on dry ground in concealed depressions lined with grasses, feathers, or twigs. Egg laying and incubation occur between March and late July. This species is potentially present in wild oat grassland and sedge-rush and bulrush-cattail wetlands within the valley portions of the survey area.
- **White-tailed kite (*Elanus leucurus*):** (Usually found near agricultural areas, the kite prefers open areas near woodlands and water. These raptors hunt over open country and feed mostly on small diurnal mammals, but will sometimes eat birds, insects, amphibians and reptiles. They prefer large, deciduous trees surrounded by open land such as grassland, meadows, farmland, and wetlands for nesting and roosting sites and dense woodlands for cover. The California Fully Protected status of these raptors pertains to nesting pairs with an emphasis on protecting nesting habitat. This species is also protected under the Migratory Bird Treaty Act. The agricultural fields and open space near the golf course and ponds may provide both potentially suitable hunting habitat for white-tailed kites, but they probably are not nesting here. This species was included in the raptor survey.
- **Yellow warbler (*Dendroica petechia brewsteri*):** These warblers require riparian woodland with a dense shrubby understory for nesting and cover. They arrive in these areas in April and are typically gone by October. Fledging is usually completed by August. Nests are constructed in shrubs and small trees in the lower canopy of the woodland. They forage for insects in the upper canopy. The mixed willow shrub community along the lower reaches of Swartz Creek provides good potential habitat for this species.
- **Yellow-breasted chat (*Icteria virens*):** The habitat requirements for this warbler are very similar to those for the yellow warbler. They require dense willow thickets near streams for nesting and cover, arriving at this habitat for the breeding season in April and leaving by late September. The nesting season extends from May to August. They are omnivorous, eating insects and spiders as well as fruit. As with the yellow warbler, the mixed willow shrub community may provide good potential habitat for the species.
- **Tricolored blackbird (*Agelaius tricolor*):** These blackbirds are typically colony nesters in fresh emergent wetland habitat (tule or cattail marsh), but may also occur in dense blackberry or willow shrub communities adjacent to water. Breeding occurs April through June. Suitable habitat for blackbirds occurs in the bulrush-cattail wetlands adjacent to the ponds, and the willow shrub community along streams in the north third of the property. However, this loud and gregarious colony nesting species is usually readily



observed when present and was not present during the extensive field work carried out during the spring and summer of 2006. Common red-winged blackbirds were observed in the bulrush-cattail wetlands near the golf course ponds during the field surveys. While the survey area contains potentially suitable habitat, the species was not present there in 2006.

- **Townsend's western big-eared bat (*Corynorhinus townsendii* ssp. *townsendii*):** The most restrictive resource required by this species is daytime roosting habitat, and this bat is extremely sensitive to disturbance of roosting sites. This relatively sedentary species will use mines, caves, tunnels, or other human-made structures for roosting, and may share roosting sites with other species. They may use separate roosting sites for day and night, and prefer open roosting sites with complete darkness. They require cold sites for hibernation and warm sites for maternity roosts. These bats typically prefer relatively mesic (moist) habitat such as riparian. They feed mostly on moths and may forage with other species. This species is extremely sensitive to disturbance of roosting sites. The CNDDDB for the Aetna Springs quadrangle lists an occurrence of this species dated 1987 in buildings at the Aetna Springs resort. This species was included in the bat survey conducted for this project in 2006 which located them in several buildings within the Aetna Springs Retreat. See **Figure 4**.
- **Pallid bat (*Antrozous pallidus*):** Optimal habitat for these bats consists of open, dry habitats with rocky areas, but it may be found in open forest and woodlands with access to open habitats for feeding. These bats prefer the cool summer temperatures of caves, crevices, and mines as roosting sites but may also use buildings and hollow trees. Foraging occurs over open country. Maternity colonies tend to be in the more protected, isolated locations and may consist of more than 100 individuals. These bats have a home range of 1 to 3 miles and, like the Townsend's bat, are known to roost with other bat species. Also similar to the Townsend's bat, this species is extremely sensitive to human disturbance of roosting sites. Potential roosting sites for this species are the old buildings at the resort, and an inactive mine on a hill west of the golf course. A bat survey was conducted at the resort in 2006. The species was found in buildings within the Aetna Springs Resort. See **Figure 4**.

## 5.0 FIELD SURVEY RESULTS

**5.1 Botanical Field Survey Results:** Table 6 presents the results of the floristic-level botanical survey of the project area. Each of the sensitive plant species potentially occurring at the site and listed in Tables 3 and 4 was specifically searched for during the survey. The survey identified a total of 178 plant taxa on the property. No plant taxa with sensitive regulatory status were found within the survey area. The 2006 botanical survey identified three plant taxa with sensitive regulatory status in locations west of the project and surrounding survey area (as mapped in Figure 3). These include: St. Helena fawn lily (*Erythronium helenae*), a CNPS list 4.2 taxa; Victor's gooseberry (*Ribes victoris*), a CNPS list 4.3 taxa; and Northern California black walnut (*Juglans hindsii*), a CNPS list 1B.1 taxa. These plant species do not occur within the 2011 assessment area.

TABLE 6. FLORA OF THE AETNA SPRINGS RESORT PROJECT

Habit	Species	Common Name	Family	Origin
fern†	<i>Woodwardia fimbriata</i>	giant chain fern	Azollaceae	N
fern†	<i>Pteridium aquilinum var. pubescens</i>	bracken fern	Dennstaedtiaceae	N
fern†	<i>Dryopteris arguta</i>	California wood fern	Dryopteridaceae	N
fern†	<i>Polypodium glycyrrhiza</i>	licorice fern	Polypodiaceae	N
fern†	<i>Adiantum jordanii</i>	California maiden-hair fern	Pteridaceae	N
fern†	<i>Aspidotis densa</i>	lace fern	Pteridaceae	N
fern†	<i>Pellaea mucronata var. mucronata</i>	bird's-foot fern	Pteridaceae	N
fern†	<i>Pentagramma triangularis ssp. triangularis</i>	gold-back fern	Pteridaceae	N
forb	<i>Daucus carota</i>	Queen Anne's lace	Apiaceae	A
forb	<i>Daucus pusillus</i>	American wild carrot	Apiaceae	N
forb	<i>Osmorhiza chilensis</i>	mountain sweet cicely	Apiaceae	N
forb	<i>Perideridia oregona</i>	Oregon yampah	Apiaceae	N
forb	<i>Sanicula bipinnatifida</i>	purple sanicle	Apiaceae	N
forb	<i>Sanicula crassicaulis</i>	Pacific blacksnakeroot	Apiaceae	N
forb	<i>Torilis arvensis</i>	field hedge parsley	Apiaceae	A
forb	<i>Asclepias californica</i>	California milkweed	Asclepiadaceae	N
forb	<i>Agoseris heterophylla</i>	annual agoseris	Asteraceae	N
forb	<i>Artemesia douglasiana</i>	mugwort	Asteraceae	N
forb	<i>Centaurea solstitialis</i>	yellow star thistle	Asteraceae	A
forb	<i>Cirsium vulgare</i>	bull thistle	Asteraceae	A
forb	<i>Holocarpha virgata ssp. virgata</i>	sticky tarweed	Asteraceae	N
forb	<i>Hypochaeris glabrata</i>	smooth cat's ear	Asteraceae	A
forb	<i>Lasthenia californica</i>	California goldfields	Asteraceae	N
forb	<i>Micropus californicus var. californicus</i>	slender cottonweed	Asteraceae	N
forb	<i>Rigiopappus leptocladus</i>	wire-weed	Asteraceae	N
forb	<i>Taraxacum officinale</i>	common dandelion	Asteraceae	A
forb	<i>Uropappus lindleyi</i>	silver puffs	Asteraceae	N
forb	<i>Wyethia glabra</i>	shining mule ears	Asteraceae	N
forb	<i>Amsinkia menziesii var. intermedia</i>	rancher's fireweed	Boraginaceae	N
forb	<i>Cynoglossum grande</i>	grand hound's tongue	Boraginaceae	N
forb	<i>Plagiobothrys nothofulvus</i>	rusty-haired popcornflower	Boraginaceae	N
forb	<i>Plagiobothrys undulatus</i>	coast allocarya	Boraginaceae	N

Habit	Species	Common Name	Family	Origin
forb	<i>Barbarea orthoceras</i>	American wintercress	Brassicaceae	N
forb	<i>Brassica nigra</i>	black mustard	Brassicaceae	A
forb	<i>Cardamine oligosperma</i>	toothwort	Brassicaceae	N
forb	<i>Lepidium nitidum</i> var. <i>nitidum</i>	shining peppergrass	Brassicaceae	N
forb	<i>Cerastium glomeratum</i>	mouse-ear chickweed	Caryophyllaceae	A
forb	<i>Minuartia californica</i>	California sandwort	Caryophyllaceae	N
forb	<i>Petrorhagia dubia</i>	wilding pink	Caryophyllaceae	A
forb	<i>Silene gallica</i>	common catchfly	Caryophyllaceae	A
forb	<i>Carex athrostachya</i>	slenderbeak sedge	Cyperaceae	N
forb	<i>Carex praegracilis</i>	clustered field sedge	Cyperaceae	N
forb	<i>Cyperus eragrostis</i>	tall flat sedge	Cyperaceae	N
forb	<i>Eleocharis macrostachya</i>	creeping spikerush	Cyperaceae	N
forb	<i>Scirpus acutus</i> var. <i>occidentalis</i>	tule (bulrush)	Cyperaceae	N
forb	<i>Equisetum laevigatum</i>	smooth scouring rush	Equisetaceae	N
forb	<i>Equisetum telmaeteia</i> ssp. <i>braunii</i>	giant horsetail	Equisetaceae	A
forb	<i>Eremocarpus setigerus</i>	turkey mullein	Euphorbiaceae	N
forb	<i>Lathyrus vestitus</i> var. <i>vestitus</i>	perennial sweet pea	Fabaceae	N
forb	<i>Lotus humistratus</i>	hill lotus	Fabaceae	N
forb	<i>Lotus micranthus</i>	smallflower lotus	Fabaceae	A
forb	<i>Lupinus bicolor</i>	miniature lupine	Fabaceae	N
forb	<i>Lupinus nanus</i>	sky lupine	Fabaceae	N
forb	<i>Medicago arabica</i>	spotted clover	Fabaceae	A
forb	<i>Medicago polymorpha</i>	burclover	Fabaceae	A
forb	<i>Trifolium depauperatum</i> var. <i>amplectens</i>	balloon sack clover	Fabaceae	N
forb	<i>Trifolium hirtum</i>	rose clover	Fabaceae	A
forb	<i>Trifolium microcephalum</i>	small-headed clover	Fabaceae	N
forb	<i>Trifolium repens</i>	white lawn clover	Fabaceae	A
forb	<i>Trifolium willdenovii</i>	tomcat clover	Fabaceae	N
forb	<i>Vicia sativa</i> ssp. <i>sativa</i>	spring vetch	Fabaceae	A
forb	<i>Vicia villosa</i> ssp. <i>villosa</i>	winter vetch	Fabaceae	A
forb	<i>Centaurium muehlenbergii</i>	Muehlenberg's centaury	Gentianaceae	N
forb	<i>Erodium cicutarium</i>	red-stem storksbill	Geraniaceae	A
forb	<i>Geranium dissectum</i>	cut-leaved geranium	Geraniaceae	A
forb	<i>Nemophila heterophylla</i>	small baby blue eyes	Hydrophyllaceae	N

Habit	Species	Common Name	Family	Origin
forb	<i>Nemophila menziesii</i>	baby blue eyes	Hydrophyllaceae	N
forb	<i>Nemophila pedunculata</i>	littlefoot nemophila	Hydrophyllaceae	N
forb	<i>Phacelia imbricata ssp. imbricata</i>	imbricate phacelia	Hydrophyllaceae	N
forb	<i>Iris macrosiphon</i>	bowl-tubed iris	Iridaceae	N
forb	<i>Romulea rosea var. australis</i>	rosy sand crocus	Iridaceae	A
forb	<i>Sisyrinchium bellum</i>	blue-eyed grass	Iridaceae	N
forb	<i>Juncus effusus var. pacificus</i>	Pacific bog rush	Juncaceae	N
forb	<i>Juncus oxymeris</i>	pointed rush	Juncaceae	N
forb	<i>Juncus patens</i>	spreading rush	Juncaceae	N
forb	<i>Juncus tenuis</i>	poverty rush	Juncaceae	N
forb	<i>Luzula comosa</i>	Pacific woodrush	Juncaceae	N
forb	<i>Mentha pulegium</i>	pennyroyal	Lamiaceae	A
forb	<i>Stachys albens</i>	white-stem hedge nettle	Lamiaceae	N
forb	<i>Trichostema lanceolatum</i>	vinegar weed	Lamiaceae	N
forb	<i>Calochortus amabilis</i>	Diogenes lantern	Liliaceae	N
forb	<i>Chlorogalum pomeridianum</i>	wavy-leaf soap plant	Liliaceae	N
forb	<i>Dichelostemma capitatum ssp. capitatum</i>	blue dicks	Liliaceae	N
forb	<i>Dichelostemma congestum</i>	ookow	Liliaceae	N
forb	<i>Hesperolinon spergulinum</i>	slender dwarf flax	Linaceae	N
forb	<i>Epilobium canum ssp. canum</i>	California fuchsia	Onagraceae	N
forb	<i>Epilobium minutum</i>	little willow herb	Onagraceae	N
forb	<i>Eschscholzia californica</i>	California poppy	Papaveraceae	N
forb	<i>Plantago erecta</i>	California plantain	Plantaginaceae	N
forb	<i>Plantago lanceolata</i>	English plantain	Plantaginaceae	A
forb	<i>Gilia tricolor ssp. tricolor</i>	bird's eyes	Polemoniaceae	N
forb	<i>Linanthus bicolor</i>	true baby stars	Polemoniaceae	N
forb	<i>Linanthus parviflorus</i>	variable linanthus	Polemoniaceae	N
forb	<i>Eriogonum covilleianum</i>	Coville's buckwheat	Polygonaceae	N
forb	<i>Eriogonum nudum var. auriculatum</i>	naked buckwheat	Polygonaceae	N
forb	<i>Rumex acetosella</i>	sheep sorrel	Polygonaceae	A
forb	<i>Rumex crispus</i>	curly dock	Polygonaceae	A
forb	<i>Calandrina ciliata</i>	red maids	Portulacaceae	N
forb	<i>Claytonia exigua ssp. exigua</i>	common montia	Portulacaceae	N
forb	<i>Claytonia perfoliata ssp. perfoliata</i>	miner's lettuce	Portulacaceae	N

Habit	Species	Common Name	Family	Origin
forb	<i>Claytonia parviflora ssp. parviflora</i>	narrow-leaved miner's lettuce	Portulacaceae	N
forb	<i>Potamogeton natans</i>	floating-leaved pondweed	Potamogetonaceae	N
forb	<i>Anagalis arvensis</i>	scarlet pimpernel	Primulaceae	A
forb	<i>Dodecatheon hendersonii</i>	Henderson's shooting stars	Primulaceae	N
forb	<i>Delphinium nudicaule</i>	red larkspur	Ranunculaceae	N
forb	<i>Ranunculus occidentalis</i>	western buttercup	Ranunculaceae	N
forb	<i>Rosa gymnocarpa</i>	wood rose	Rosaceae	N
forb	<i>Galium porrigens var. porrigens</i>	climbing bedstraw	Rubiaceae	N
forb	<i>Lithophragma parviflorum</i>	woodland star	Saxifragaceae	N
forb	<i>Castilleja lineariloba</i>	pallid owl clover	Scrophulariaceae	N
forb	<i>Collinsia sparsiflora</i>	spinster's blue-eyed Mary	Scrophulariaceae	N
forb	<i>Mimulus guttatus</i>	seep monkeyflower	Scrophulariaceae	N
forb	<i>Pedicularis densiflora</i>	Indian warrior	Scrophulariaceae	N
forb	<i>Verbascum thapsus</i>	woolly mullein	Scrophulariaceae	A
forb	<i>Typha latifolia</i>	broad-leaved cattail	Typhaceae	N
forb	<i>Urtica dioica ssp. gracilis</i>	stinging nettle	Urticaceae	N
forb	<i>Plectritis macrocera</i>	white plectritis	Valerianaceae	N
forb	<i>Viola douglasii</i>	Douglas' violet	Violaceae	N
grass	<i>Aira caryophyllea</i>	silver European hairgrass	Poaceae	A
grass	<i>Avena barbata</i>	wild oat	Poaceae	A
grass	<i>Briza minor</i>	small quaking grass	Poaceae	A
grass	<i>Bromus carinatus var. carinatus</i>	California brome	Poaceae	N
grass	<i>Bromus hordeaceus</i>	soft chess	Poaceae	A
grass	<i>Bromus madritensis ssp. rubens</i>	red brome	Poaceae	A
grass	<i>Cynosurus echinatus</i>	hedgehog dogtail	Poaceae	A
grass	<i>Elymus glaucus ssp. glaucus</i>	blue wildrye	Poaceae	N
grass	<i>Festuca arundinacea</i>	tall fescue	Poaceae	A
grass	<i>Festuca californica</i>	California fescue	Poaceae	N
grass	<i>Festuca rubra</i>	red fescue	Poaceae	N
grass	<i>Gastridium ventricosum</i>	nitgrass	Poaceae	A
grass	<i>Glyceria occidentalis</i>	western mannagrass	Poaceae	N
grass	<i>Nasella pulchra</i>	purple needle-grass	Poaceae	A
grass	<i>Phalaris aquatica</i>	Harding grass	Poaceae	A
grass	<i>Poa secunda ssp. secunda</i>	one-sided bluegrass	Poaceae	N

Habit	Species	Common Name	Family	Origin
grass	<i>Taeniatherum caput-medusae</i>	medusahead	Poaceae	A
grass	<i>Vulpia microstachys var. ciliata</i>	Eastwood fescue	Poaceae	N
grass	<i>Vulpia microstachys var. microstachys</i>	desert fescue	Poaceae	N
grass	<i>Vulpia myuros var. myuros</i>	rattail fescue	Poaceae	A
shrub	<i>Toxicodendron diversilobum</i>	poison oak	Anacardiaceae	N
shrub	<i>Baccharis pilularis</i>	coyote brush	Asteraceae	N
shrub	<i>Cynara cardunculus</i>	artichoke thistle	Asteraceae	A
shrub	<i>Sambucus mexicana</i>	blue elderberry	Caprifoliaceae	N
shrub	<i>Arctostaphylos manzanita ssp. glaucescens</i>	white-leaf common manzanita	Ericaceae	N
shrub	<i>Arctostaphylos manzanita ssp. manzanita</i>	common manzanita	Ericaceae	N
shrub	<i>Cytisus scoparius</i>	Scotch broom	Fabaceae	A
shrub	<i>Quercus wislizeni var. frutescens</i>	interior live oak	Fagaceae	N
shrub	<i>Eriodictyon californicum</i>	California yerba santa	Hydrophyllaceae	N
shrub	<i>Whipplea modesta</i>	western whipplea	Philadelphaceae	N
shrub	<i>Ceanothus cuneatus var. cuneatus</i>	buckbrush	Rhamnaceae	N
shrub	<i>Rhamnus californica ssp. californica</i>	California coffeeberry	Rhamnaceae	N
shrub	<i>Cercocarpus betuloides var. betuloides</i>	birch-leaf mountain mahogany	Rosaceae	N
shrub	<i>Heteromeles arbutifolia</i>	toyon	Rosaceae	N
shrub	<i>Rubus discolor</i>	Himalayan blackberry	Rosaceae	A
shrub	<i>Rubus parviflorus</i>	thimbleberry	Rosaceae	N
shrub	<i>Rubus ursinus</i>	California blackberry	Rosaceae	N
shrub	<i>Salix exigua</i>	narrow-leaved willow	Salicaceae	N
tree	<i>Acer macrophyllum</i>	big-leaf maple	Aceraceae	N
tree	<i>Alnus rhombifolia</i>	white alder	Betulaceae	N
tree	<i>Cupressus macnabiana</i>	MacNab cypress	Cupressaceae	N
tree	<i>Arbutus menziesii</i>	Pacific madrone	Ericaceae	N
tree	<i>Quercus chrysolepis</i>	canyon live oak	Fagaceae	N
tree	<i>Quercus douglasii</i>	blue oak	Fagaceae	N
tree	<i>Quercus kelloggii</i>	California black oak	Fagaceae	N
tree	<i>Quercus lobata</i>	California valley oak	Fagaceae	N
tree	<i>Aesculus californica</i>	California buckeye	Hippocastanaceae	N
tree	<i>Umbellularia californica</i>	California bay	Lauraceae	N
tree	<i>Fraxinus dipetala</i>	California ash	Oleaceae	N
tree	<i>Fraxinus latifolia</i>	Oregon ash	Oleaceae	N

Habit	Species	Common Name	Family	Origin
tree	<i>Pinus attenuata</i>	knobcone pine	Pinaceae	N
tree	<i>Pinus ponderosa</i>	ponderosa pine	Pinaceae	N
tree	<i>Pinus sabiniana</i>	foothill pine	Pinaceae	N
tree	<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	Douglas fir	Pinaceae	N
tree	<i>Malus sylvestris</i>	domestic apple	Rosaceae	A
tree	<i>Salix exigua</i>	narrow-leaved willow	Salicaceae	N
tree	<i>Salix laevigata</i>	red willow	Salicaceae	N
vine	<i>Lonicera ciliosa</i>	orange honeysuckle	Caprifoliaceae	N
vine	<i>Lonicera hispidula</i> var. <i>vacillans</i>	hairy honeysuckle	Caprifoliaceae	N
vine	<i>Vitis californica</i>	California wild grape	Vitaceae	N

† Ferns and fern allies

**Origin:** N = Native, A = Alien

**5.2 Wildlife Survey Results:** Surveys were conducted for sensitive herptiles, raptors, and bats. **Figure 4** provides a map of sensitive wildlife resources within the survey area.

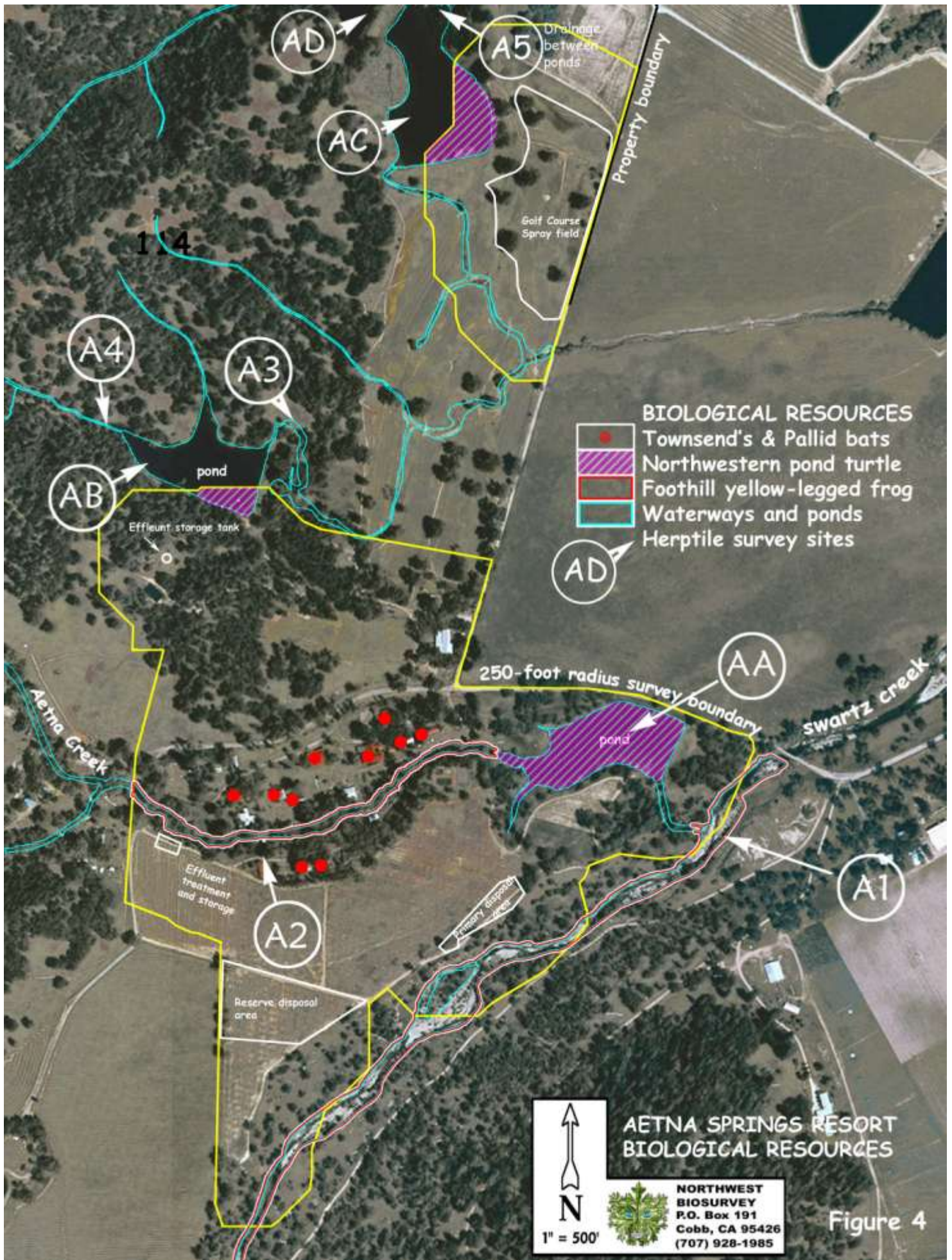
**5.2.1 Raptor Survey Results:** A raptor survey was conducted in 2006. The raptor survey techniques (described in Section 2.2) employed a method designed to locate and identify all sensitive raptor species potentially nesting within the valley oak woodlands of the valley floor. The visual survey and use of calls also provided a high probability of identifying any “visiting” raptors that, while not nesting on the property, may include the site in their home range. The following raptors with California Species of Concern status (in 2006) were specifically searched for during the survey: Cooper’s hawk (*Accipiter cooperii*), purple martin (*Progne subis*), northern harrier (*Circus cyaneus*), and white-tailed kite (*Elanus leucurus*). Red-tailed hawks, which do not have special status, were heard and observed in flight near Swartz Creek and near the golf course in April. A small hawk identified as a kestrel was seen in flight near the resort and adjacent vineyard in March of 2006.

There were no raptor nests found within the survey area surrounding the valley oak woodland of the valley floor. Due to the large number of field surveys, which included visual observation of potential nest sites, the negative survey results for the stick nests used by these raptors have a high level of certainty. While any of these species may include this site within a larger home range, they were not nesting within the survey area in 2006. Surveys for raptors and passerine (perching birds) are typically required during the year of proposed construction and while the 2006 surveys had negative results, new surveys will be conducted prior to construction in 2011 or in subsequent years.

**5.2.2 Herptile Survey Results:** As described in Section 2.2, the herptile (reptile and amphibian) survey was conducted pursuant to the U.S. Fish and Wildlife Service protocol for California red-legged frog surveys. The complete California red-legged frog survey report following the format required in the federal protocol is provided in **Appendix B**. This intensive survey method requires a minimum of six surveys, with daytime surveys spaced one week apart. These surveys were carried out between April and July, 2006. Additionally, the locations of where western pond turtles and foothill yellow-legged frogs were observed, and the locations of red-legged frog survey sites, are shown in **Figure 4**. The results of the surveys is summarized in **Table 7**. The results are as follows:

- **California red-legged frog:** No red-legged frogs were observed during the survey.
- **Foothill yellow-legged frog:** Foothill yellow-legged frogs were found throughout the two primary stream habitats of the survey area (Swartz and Aetna Creeks). Larvae were present by early June. All streams where the species was found are shown in **Figure 3**. These sites are delimited in **Figure 3** as creek channels within a white and red boundary line. For each delimited stream segment, one or more individuals were either directly observed, or the segment consists of suitable habitat continuous with similar habitat where a sighting was made. It is assumed that the species is at least seasonally present throughout suitable habitat within the drainage if it was found in other locations within the same drainage during the survey. Where drainages extended into highly xeric habitats, the map indicates that the species is not present unless it was found in suitable habitat upstream of these sites. While young individuals may disperse into this unsuitable habitat, it is unlikely to sustain the species beyond the winter and early spring and they are unlikely to survive there.





No foothill yellow-legged frogs were found in pond habitat other than where immediately adjacent inlet streams provided suitable habitat (Pond AC in Figure 4). Even there, no individuals were found on open shoreline or in open water.

- Western pond turtle: These turtles were found in all four ponds and in Aetna Creek. This species is readily apparent when present. Several individuals were usually seen at each recorded site and were usually seen during subsequent surveys. Numerous young-of-the-year were observed by mid-July indicating that the hatch occurred in early July.

**TABLE 7. AQUATIC HERPTILES OBSERVED DURING PROJECT SURVEYS**

SPECIES	SURVEY SITE									
	A	B	C	D	A-1	A-2	A-3	A-4	A-5	A-6*
Pacific chorus frog ( <i>Pseudacris regilla</i> )			X					X	X	
Foothill yellow-legged frog ( <i>Rana boylei</i> )			X		X	X				
Bullfrog ( <i>Rana catesbeiana</i> )	X	X	X	X	X	X	X	X	X	
Western toad ( <i>Bufo boreas</i> )					X	X				
Western pond turtle ( <i>Emys marmorata</i> )	X	X	X	X		X				

\*Survey site A6 is on Swartz Creek approximately 2,000 feet east of the survey area

5.2.3 Bat Survey Results: The bat survey was completed by the Central Coast Bat Research Group (CCBRG) in 2006. The results of the 2006 report are summarized here and shown in **Figure 4**. Acoustic analysis during the surveys identified 14 bat species within the project area. Seven of these have sensitive regulatory status. These are listed in the CCBRG bat survey report which is reproduced here as **Table 8**.

**TABLE 8. BAT SPECIES DETECTED IN THE SURVEY AREA**

Family VESPERTILIONIDAE (Plain-nosed or mouse-eared bats)			
Scientific name	Common name	Detection Method	Status
<i>Myotis lucifugus</i>	Little brown myotis	AC, 40Khz ***	
<i>Myotis yumanensis</i>	Yuma myotis	AC, 50Khz, MN, V, DR, NR, MR	
<i>Myotis evotis</i>	Long-eared myotis	AC, V, DR, NR	FSC/BLMS
<i>Myotis thysanodes</i>	Fringed myotis	AC,	FSC/BLMS/WBWWG
<i>Myotis volans</i>	Long-legged myotis	AC, 40Khz ***	FSC/BLMS/WBWWG
<i>Myotis californicus</i>	California myotis	AC, 50Khz, MN, V, DR, NR	
<i>Myotis ciliolabrum</i>	W. small footed myotis	AC, 40Khz ***	FSC/BLMS
<i>Lasionycteris noctivagans</i>	Silver-haired bat	AC Q25	
<i>Pipistrellus hesperus</i>	Western pipistrelle	AC	
<i>Eptesicus fuscus</i>	Big brown bat	AC, MN, V, DR, NR	
<i>Lasiurus blossevillii</i>	Western red bat	AC	FSS/WBWWG
<i>Lasiurus cinereus</i>	Hoary bat	AC, MN	
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	AC, MN, V, DR, NR, MR	FSC/CSC/FSS/WBWWG
<i>Antrozous pallidus</i>	Pallid bat	AC, MN, V, DR, NR, MR	CSC/FSS/BLMS/WGWWG

Family MOLOSSIDAE (Free-tailed bats)		
<i>Tadarida brasiliensis</i>	Mexican free-tailed bat	AC, V
AC = Detected acoustically		
AC XXKhz = Possibly detected in a phonic group		
MN = Captured in mist nets		
V = Observed Visually during building surveys		
DR = Observed Day Roosting, NR= Observed Night Roosting, MR=Maternity Roost observed		
***=Possible but not confirmed		
FSC=	Federal Special Concern Species	
CSC=	California Department of Fish and Game , California Species of Concern	
FSS=	Forest Service Sensitive Species	
BLMS=	Bureau of Land Management Sensitive Species	
WGWB=	Western Bat Working Group High Priority Species	

Two species with sensitive status were observed in buildings of the Aetna Springs Retreat:

**Townsend’s big-eared bat (*Corynorhinus Townsendii*):** This is the high profile bat species in the area. The Aetna Springs colony is a well known and monitored population (Pearson et al 1952). All six regularly monitored acoustic monitoring stations recorded *C. townsendii* calls, which is rather remarkable given that this species has a very low intensity echo location call. The Dewey and/or York buildings, Hartson, and the Owl’s Nest buildings all provide maternity roosting habitat and are important resources for this species.

**Pallid Bat (*Antrozous pallidus*):** Pallid bat calls were detected at all six of the regularly monitored acoustic sample sites. All of the acoustic sites seem to be foraging areas for pallid bats. Pallid bats were captured at all of the mist netting sites. There is abundant roosting habitat for pallid bats in the Living quarters and the Winship and Social hall provide day and night roosting habitat for these bats. The mature oak woodland should provide roosting habitat for pallid bats.

## 6.0 DELINEATION OF WATERS OF THE U.S.

**6.1 Purpose of Delineation:** This delineation has been conducted at the request of the property owner in order to identify and avoid the locations of Waters of the U.S. within the project area.

**6.2 Delineation Procedure:** This delineation has been conducted as prescribed in the *Corps of Engineers Wetlands Delineation Manual*, January 1987 and in conformance with the amended 2006 Arid West Guidelines. Plant taxonomy and nomenclature is from the *Jepson Manual, Higher Plants of California*, 1996. Other texts, such as *Munz’s A California Flora and Supplement*, 1973, and *Mason’s Flora of the Marshes of California*, 1957, were used as supplemental texts; however, all nomenclature and wetland indicator status have been checked with the *National List of Plant Species that Occur in Wetlands: California (Region 0)*. Staff training was obtained under Terry Huffman of Terry Huffman Associates, Inc.

**6.3 Location, Drainage, and Soils:** These subjects are discussed in detail in Section 1.2 (Location), Section 3.1 (Topography and Drainage), and Section 3.2 (Soils) in the biological assessment report in which this delineation is included.

**6.4 Delineation Results:** The results of the delineation are shown on the 1”=500’ aerial photo base map provided in **Figure 5**. A total of 4.17 acres of possible waters of the U.S.

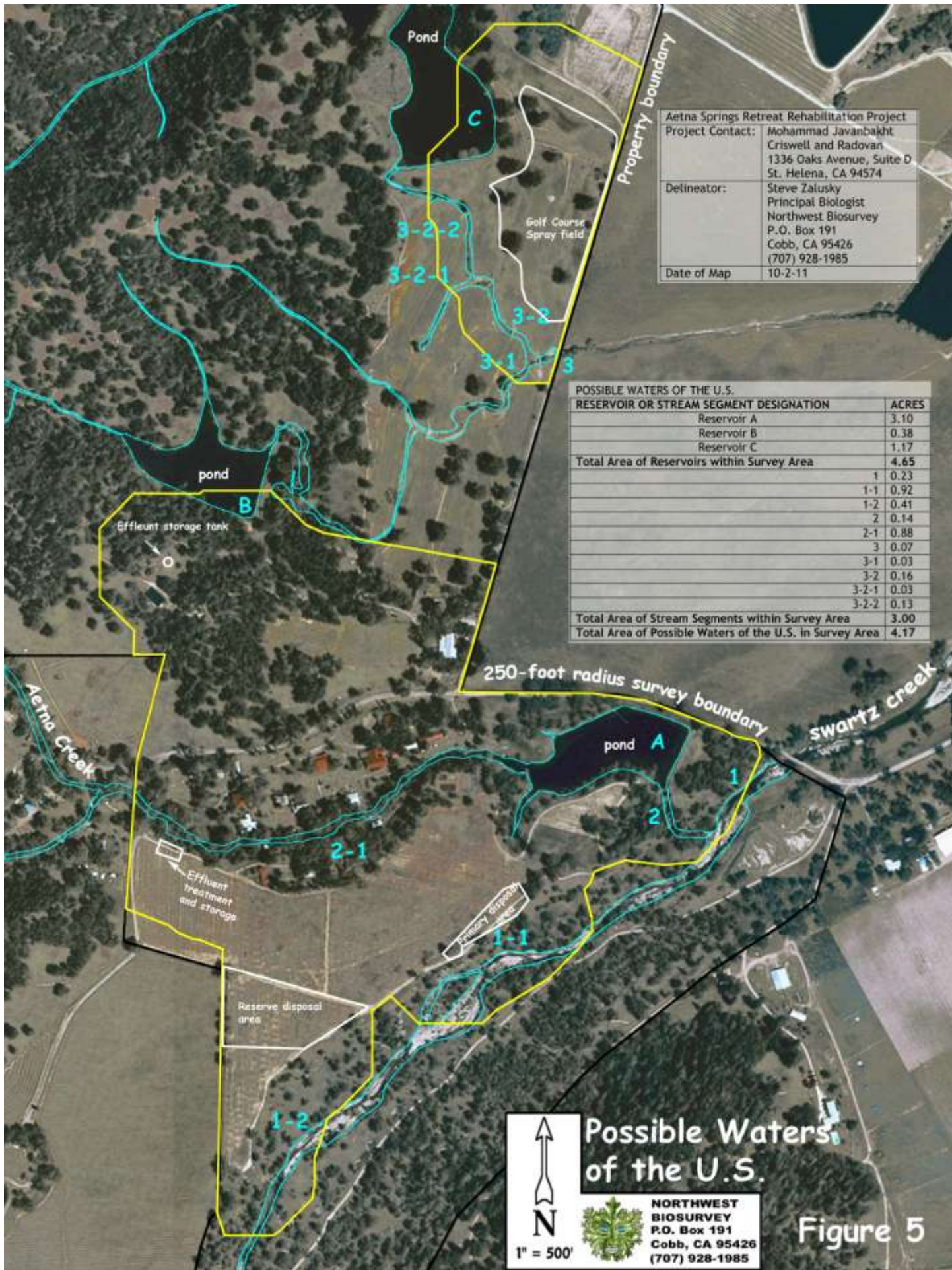
occur within the survey boundaries. This includes portions of three reservoirs. All possible waters of the U.S. identified within the survey area consist of Creeks and on-stream Reservoirs, all of which qualify as “Other Waters of the U.S.” No wetlands occur within the survey area. The acreage is tabulated in Table 9 below:

**TABLE 9. POSSIBLE WATERS OF THE U.S.**

<b>RESERVOIR OR STREAM SEGMENT DESIGNATION</b>	<b>ACRES</b>
Reservoir A	3.10
Reservoir B	0.38
Reservoir C	1.17
<b>Total Area of Reservoirs within Survey Area</b>	<b>4.65</b>
1	0.23
1-1	0.92
1-2	0.41
2	0.14
2-1	0.88
3	0.07
3-1	0.03
3-2	0.16
3-2-1	0.03
3-2-2	0.13
<b>Total Area of Stream Segments within Survey Area</b>	<b>3.00</b>
<b>Total Area of Possible Waters of the U.S. in Survey Area</b>	<b>4.17</b>

**Aetna Springs Retreat Rehabilitation Project**  
 Project Contact: Mohammad Javanbakht  
 Criswell and Radovan  
 1336 Oaks Avenue, Suite D  
 St. Helena, CA 94574  
 Delineator: Steve Zalusky  
 Principal Biologist  
 Northwest Biosurvey  
 P.O. Box 191  
 Cobb, CA 95426  
 (707) 928-1985  
 Date of Map: 10-2-11

POSSIBLE WATERS OF THE U.S.	
RESERVOIR OR STREAM SEGMENT DESIGNATION	ACRES
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3-1	0.03
3-2	0.16
3-2-1	0.03
3-2-2	0.13
<b>Total Area of Stream Segments within Survey Area</b>	<b>3.00</b>
<b>Total Area of Possible Waters of the U.S. in Survey Area</b>	<b>4.17</b>



**Possible Waters of the U.S.**

↑  
N  
1" = 500'

**NORTHWEST BIOSURVEY**  
 P.O. Box 191  
 Cobb, CA 95426  
 (707) 928-1985

**Figure 5**

## 7.0 SUMMARY AND ACTION ITEMS

**7.1 Summary:** This biological assessment involved the following analyses and surveys for sensitive plants and wildlife potentially occurring in the vicinity of the Aetna Springs Resort project:

- Review of current California Natural Diversity Database (CNDDDB) mapping of known sensitive plant and wildlife populations within the region
- An analysis of the suitability of the site for sensitive plants and wildlife using the California Native Plant Society *Electronic Inventory of Rare and Endangered Vascular Plants of California*, and the California Department of Fish and Game *Wildlife Habitat Relations System*
- A floristic-level field survey of the plants occurring within and in the immediate vicinity of the project
- Surveys for sensitive raptors (birds of prey)
- Bat surveys, conducted pursuant to current protocol
- A red-legged frog survey/herptile survey, conducted pursuant to the “2005 Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frog (*Rana aurora draytonii*)”

**Sensitive Plants:** A total of 178 native and introduced plant species were identified within the current survey area during the in-season, floristic-level botanical survey performed in 2006. No plant taxa with sensitive regulatory status were found within this survey area.

- **Special Status Plants Known to be Present Within the Survey Area:** None

**Sensitive Wildlife:** A total of 16 sensitive wildlife species were assessed for potential occurrence at the site because of inclusion in the CNDDDB database for the this region, based on the WHR database analysis, or based on Northwest Biosurvey staff experience in this region. Surveys were conducted for sensitive herptiles with positive results for western pond turtle and foothill yellow-legged frog and for bats with positive results for the two federal and state listed bat species.

- **Species known to be present via herptile survey:** western pond turtle, foothill yellow legged frog
- **Species known to be present via bat survey:** Townsend’s big-eared bat\*, pallid bat\*; long-eared myotis, fringed myotis, long-legged myotis, w. small footed myotis, western mastiff bat, western red bat (Forest Service and/or BLM Sensitive status only)  
\* Federal and State listed species
- **Species that may be present in their sensitive state:** Coopers hawk, ferruginous hawk, long-eared owl, short-eared owl, sharp-shinned hawk, northern spotted owl, purple martin, yellow warbler, yellow-breasted chat

- **Species determined not, or unlikely, to be present in their sensitive state:** Vandykea tuberculata, California red-legged frog, tricolor blackbird, northern harrier, white-tailed kite

Note: Sensitive “state” refers to the period in which the species is considered sensitive, i.e. while nesting, year-around, etc. (See Table 5)

**7.2 Action Items:** The following action items have been reviewed by the project applicant and have been incorporated in the project description in order to ensure that there is no potential for significant adverse impacts to biological resources within the context of the CEQA Guidelines.

### **Modifications of Specific Project Components:**

1. Relocation of five existing buildings from within the stream setback zone: Construction equipment (trucks, rubber-tired and tracked excavating equipment, etc.) will not be allowed within 10 feet of the bank top but may reach with booms, etc., to dismantle buildings. In instances where this 10 foot exclusion may result in unsafe conditions for workers, equipment may approach more closely provided that a qualified biological monitor is present. The monitor will document the action with a photograph and brief written description of the need for the incursion and measures taken to avoid impacts to biological resources. The incursion report will be provided to the county permitting agency for compliance review on a weekly basis. Fencing will be placed above the average high flow elevation of Aetna Creek to prevent movement of disturbed soil into the creek channel. Disturbed soils within the stream setback zone will be subject to a stream restoration plan being developed for this project or will otherwise be included in project landscaping.
2. Relocation of the swimming pool from within the stream setback: If the existing swimming pool adjacent to the creek is to be partially filled with soil, a soil ramp or other permanent structure will be constructed to extend from the fill to ground elevation at a slope of not less than 2:1 at one end of the pool, in order to avoid trapping small amphibians, reptiles, and mammals. Partial filling of the pool is intended to maintain historic landscape values while rendering it non-hazardous to guests. The filled-in pool may be included in the landscape plan as a water feature or if not, a drain will be installed to prevent filling of the pool during the rainy season. The new pool will be placed in a location that does not require placement within the driplines of existing oaks.
3. Restoration of two historic bridges across Aetna Creek: Work on these bridges will be conducted during the summer at a time when Aetna Creek is dry in order to avoid potential impacts to foothill yellow-legged frogs and to reduce the potential for sedimentation of stream flows. Construction of new abutments or placement of other bridge components requiring work within waters of the U.S. will be avoided if existing abutments can be used in their current condition. If work is required within waters of the U.S. it will be conducted pursuant to action item 14 and in conformance with the restrictions listed in action items 3&6.

4. Reconfiguration of two parking lots: The reconfigured parking lots will be constructed within existing clearings; however, the canopy of some adjacent oaks does extend over the proposed parking areas. If new paving is to be done beneath a portion of the canopy of adjacent oaks, the paving plan will be reviewed and, where necessary, modified by a qualified landscape architect in order to assure that the design provides adequate root aeration and avoids root compaction.
5. Realignment of vehicular circulation paths within the resort property: Realignments will be designed to avoid the loss of oaks and, where practical, will avoid the drip lines of oaks. The realignment plan will be reviewed and approved by a qualified landscape architect and arborist in order to minimize potential impacts to oaks and, specifically, to assure that the design provides adequate root aeration and avoids root compaction in areas where roadways will occur within driplines.

#### **Modifications to Avoid Impacts to Sensitive Wildlife:**

6. Foothill yellow-legged frog: In order to avoid potential impacts to foothill yellow-legged frogs, vegetation removal, grading, and construction will be avoided within all channels indicated in Figure 4 as foothill yellow-legged frog habitat during periods when the affected stream segment contains water (either flowing or ponded). Necessary new road crossings will be located to avoid stream segments containing perennial or long duration (mid-July) pools and stream segments with densely shaded channels.
7. Western pond turtles: In order to avoid potential impacts to western pond turtles, grading, vegetation removal, and construction will be avoided within the reservoirs of the project area. In the event that work is proposed within these locations, it will not occur until between August 16 and April 1 of any year, by which time eggs have hatched and the young are independent<sup>5</sup>. Any modification resulting in permanent loss of open water, and emergent bulrush-cattail wetland in these areas will be avoided. Downed trees, stumps and other basking sites within these aquatic habitats will remain undisturbed.
8. Townsend's big-eared bat; Pallid bat:
  - a. Proper timing of construction: Construction will be timed to have the least impact on bats. The period of least impact would be during times that the structures are not being used for reproduction. The maternity season for the species detected during the surveys is April 15 through September 15.

Bat exclusion will be conducted at all historic structures before construction activities begin. Bats can be excluded from structures by using netting or other devices that allow bats to leave the structure but not get back in. Netting or other exclusion devices may need to be designed for specific openings where bats are coming and going. Bat exclusion netting or other devices will be put in place during the season when buildings are not being used as maternity roosts. To ensure the least adverse affect on bats the exclusion will be conducted between October 1 and March 30. Buildings that have

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<sup>5</sup> During the 2006 survey season, young-of-the-year turtles were present throughout aquatic habitats in the Pope Valley by August 15.



recently (within the last year) been used by bats as night or maternity roosts will be deconstructed in phases. The first phase will involve making the roost sites (e.g., attics) unattractive to bats by removing parts of walls or roofs that enclose the roost site; thus exposing the roost to sunlight and drafts. This will be accomplished between October 1 and March 30. In addition, buildings that have been used by bats will be surveyed prior to construction activities. A qualified biologist will monitor the initial phases of work on buildings with history of high bat use. If bats are found during such work, they would be relocated by a qualified biologist to a predetermined site that provides suitable day roost habitat, such as an artificial roost structure. A construction monitoring plan detailing the procedures discussed above will be developed in consultation with the CDFG before rehabilitation work on historic structures is started.

b. The biological consulting firm of LSA has produced a “conceptual plan to replace the loss of bat roosting habitat” resulting from the rehabilitation project. This plan will serve as a basis for development of a habitat compensation plan to construct replacement habitat. The plan will receive review and approval by the California Department of Fish and Game if required by that agency. If required, all new bat roosting habitat will be constructed and approved by the Department of Fish and Game prior to exclusion of bats from existing structures.

9. Long-eared myotis, fringed myotis, long-legged myotis, western small-footed myotis, western red bat: If removal of trees is proposed, the work will be restricted to between September 15 and October 15, when young of the year are capable of flying, or between February 15 to April 1 to avoid hibernating bats and prior to formation of maternity sites. If tree removal is proposed outside of those dates, the work should be preceded by a survey for bat habitat. In the event that potential habitat is present (trees with hollows or peeling bark), surveys for the presence of pallid bats will be conducted within 3 days prior to tree removal. If bats are found, work will be restricted to the dates listed above for any trees within 100 feet of the roosting or maternity site.
10. Cooper’s hawk: If roadways, building pads, or other project-related disturbance is proposed within the valley oak riparian woodland and mixed willow riparian as mapped in Figure 3, this work will be preceded by a survey for Cooper’s hawk if the work is to be conducted between February 1 and August 31 of any year. In the event that the species is found to be nesting within 300 feet of the proposed disturbance, work within a 300-foot buffer will be delayed until after August 1 or until fledging is complete as determined by a qualified biologist. Buffer width may be reduced if it is determined by a qualified biologist that a defined, smaller width will protect nesting birds from disturbance based on topography and intervening vegetation and, or structures.
11. Purple martin: If roadways, building pads, or other project-related disturbance is proposed within mixed oak woodland as mapped in Figure 3, this work will be preceded by a survey for purple martin if the work is to be conducted between February 1 and August 31 of any year. In the event that the species is found to be nesting within 300 feet of the proposed disturbance, work within a 300-foot buffer will be delayed until after August 31 or until fledging is complete as determined by a qualified biologist. Buffer width may be reduced if it is determined by a qualified biologist that a defined, smaller width will protect nesting birds from disturbance based on topography and intervening vegetation and, or structures.

12. Short-eared owl: If roadways, building pads, or other project-related disturbance is proposed within wild oat grassland as mapped in Figure 3, this work will be preceded by a survey for short-eared owl if the work is to be conducted between February 1 and August 31 of any year. In the event that the species is found to be nesting within 300 feet of the proposed disturbance, work within a 300-foot buffer will be delayed until after August 1 or until fledging is complete as determined by a qualified biologist. Buffer width may be reduced if it is determined by a qualified biologist that a defined, smaller width will protect nesting birds from disturbance based on topography and intervening vegetation and, or structures.
13. Long-eared owl, yellow warbler, yellow-breasted chat: If roadways, building pads, or other project-related disturbance is proposed within the mixed willow riparian habitat as mapped in Figure 3, this work will be preceded by a survey for these species if the work is to be conducted between April 15 and August 1 of any year. In the event that one or more of these species are found to be nesting within 300 feet of the proposed disturbance, work within a 300 foot buffer will be delayed until after August 31 or until fledging is complete as determined by a qualified biologist. Buffer width may be reduced if it is determined by a qualified biologist that a defined, smaller width will protect nesting birds from disturbance based on topography and intervening vegetation and, or structures.
14. Wetlands and other waters of the U.S.: If construction activities are proposed within any waters of the U.S., required permits will be secured from the following regulatory agencies:
  - California Department of Fish and Game - 1601 Stream Alteration Agreement
  - U.S. Army Corps of Engineers - 404 permit (Nationwide)
  - Regional Water Quality Control Board - Water Quality Certification 401 Permit

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## ***APPENDIX A***

**CNDDDB SENSITIVE PLANT AND WILDLIFE SPECIES  
WITHIN THE AETNA SPRINGS AND  
SURROUNDING CALIF. 7½' QUADS.**

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFG	CNPS
Aetna Springs	<i>Rana boylei</i>	foothill yellow-legged frog	None	None	SSC	
Aetna Springs	<i>Agelaius tricolor</i>	tricolored blackbird	None	None	SSC	
Aetna Springs	<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	None	SSC	
Aetna Springs	<i>Antrozous pallidus</i>	pallid bat	None	None	SSC	
Aetna Springs	<i>Emys marmorata</i>	western pond turtle	None	None	SSC	
Aetna Springs	Serpentine Bunchgrass	Serpentine Bunchgrass	None	None		
Aetna Springs	Wildflower Field	Wildflower Field	None	None		
Aetna Springs	<i>Vandykea tuberculata</i>	serpentine cypress long-horned beetle	None	None		
Aetna Springs	<i>Centromadia parryi</i> ssp. <i>parryi</i>	pappose tarplant	None	None		1B.2
Aetna Springs	<i>Layia septentrionalis</i>	<i>Colusa layia</i>	None	None		1B.2
Aetna Springs	<i>Harmonia hallii</i>	Hall's harmonia	None	None		1B.2
Aetna Springs	<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	None	None		1B.2
Aetna Springs	<i>Streptanthus hesperidis</i>	green jewel-flower	None	None		1B.2
Aetna Springs	<i>Streptanthus morrisonii</i>	Morrison's jewel-flower	None	None		
Aetna Springs	<i>Calystegia collina</i> ssp. <i>oxyphylla</i>	Mt. Saint Helena morning-glory	None	None		4.2
Aetna Springs	<i>Lupinus sericatus</i>	Cobb Mountain lupine	None	None		1B.2
Aetna Springs	<i>Hesperolinon bicarpellatum</i>	two-carpellate western flax	None	None		1B.2
Aetna Springs	<i>Hesperolinon</i> sp. nov. <i>serpentinum</i> "	Napa western flax	None	None		1B.1
Aetna Springs	<i>Leptosiphon jepsonii</i>	Jepson's leptosiphon	None	None		1B.2
Aetna Springs	<i>Navarretia rosulata</i>	Marin County navarretia	None	None		1B.2
Aetna Springs	<i>Ceanothus confusus</i>	Rincon Ridge ceanothus	None	None		1B.1
Aetna Springs	<i>Penstemon newberryi</i> var. <i>sonomensis</i>	Sonoma beardtongue	None	None		1B.3
Aetna Springs	<i>Brodiaea californica</i> var. <i>leptandra</i>	narrow-anthered California brodiaea	None	None		1B.2
Aetna Springs	<i>Fritillaria pluriflora</i>	adobe-lily	None	None		1B.2
Calistoga	<i>Accipiter striatus</i>	sharp-shinned hawk	None	None	WL	
Calistoga	<i>Falco peregrinus anatum</i>	American peregrine falcon	Delisted	Delisted	FP	
Calistoga	<i>Oncorhynchus mykiss irideus</i>	steelhead - central California coast	DPS Threat.	None		
Calistoga	<i>Myotis thysanodes</i>	fringed myotis	None	None		
Calistoga	<i>Antrozous pallidus</i>	pallid bat	None	None	SSC	
Calistoga	<i>Emys marmorata</i>	western pond turtle	None	None	SSC	
Calistoga	Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	None	None		
Calistoga	<i>Syncaris pacifica</i>	California freshwater shrimp	End.	End.		
Calistoga	<i>Eryngium constancei</i>	Loch Lomond button-celery	End.	End.		1B.1
Calistoga	<i>Centromadia parryi</i> ssp. <i>parryi</i>	pappose tarplant	None	None		1B.2
Calistoga	<i>Lasthenia burkei</i>	Burke's goldfields	End.	End.		1B.1

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFG	CNPS
Calistoga	<i>Plagiobothrys strictus</i>	Calistoga popcorn-flower	End.	Threat.		1B.1
Calistoga	<i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i>	Rincon Ridge manzanita	None	None		1B.1
Calistoga	<i>Amorpha californica</i> var. <i>napensis</i>	Napa false indigo	None	None		1B.2
Calistoga	<i>Astragalus claranus</i>	Clara Hunt's milk-vetch	End.	Threat.		1B.1
Calistoga	<i>Lupinus sericatus</i>	Cobb Mountain lupine	None	None		1B.2
Calistoga	<i>Trifolium hydrophilum</i>	saline clover	None	None		1B.2
Calistoga	<i>Sidalcea hickmanii</i> ssp. <i>napensis</i>	Napa checkerbloom	None	None		1B.1
Calistoga	<i>Leptosiphon jepsonii</i>	Jepson's leptosiphon	None	None		1B.2
Calistoga	<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	Baker's navarretia	None	None		1B.1
Calistoga	<i>Ceanothus confusus</i>	Rincon Ridge ceanothus	None	None		1B.1
Calistoga	<i>Ceanothus divergens</i>	Calistoga ceanothus	None	None		1B.2
Calistoga	<i>Penstemon newberryi</i> var. <i>sonomensis</i>	Sonoma beardtongue	None	None		1B.3
Calistoga	<i>Brodiaea californica</i> var. <i>leptandra</i>	narrow-anthered California brodiaea	None	None		1B.2
Calistoga	<i>Poa napensis</i>	Napa blue grass	End.	End.		1B.1
Chiles Valley	<i>Rana boylei</i>	foothill yellow-legged frog	None	None	SSC	
Chiles Valley	<i>Agelaius tricolor</i>	tricolored blackbird	None	None	SSC	
Chiles Valley	<i>Myotis yumanensis</i>	Yuma myotis	None	None		
Chiles Valley	<i>Myotis evotis</i>	long-eared myotis	None	None		
Chiles Valley	<i>Antrozous pallidus</i>	pallid bat	None	None	SSC	
Chiles Valley	<i>Emys marmorata</i>	western pond turtle	None	None	SSC	
Chiles Valley	Northern Vernal Pool	Northern Vernal Pool	None	None		
Chiles Valley	<i>Erigeron greenei</i>	Greene's narrow-leaved daisy	None	None		1B.2
Chiles Valley	<i>Layia septentrionalis</i>	Colusa layia	None	None		1B.2
Chiles Valley	<i>Streptanthus hesperidis</i>	green jewel-flower	None	None		1B.2
Chiles Valley	<i>Hesperolinon bicarpellatum</i>	two-carpellate western flax	None	None		1B.2
Chiles Valley	<i>Hesperolinon</i> sp. nov. <i>serpentinum</i> ""	Napa western flax	None	None		1B.1
Chiles Valley	<i>Leptosiphon jepsonii</i>	Jepson's leptosiphon	None	None		1B.2
Chiles Valley	<i>Navarretia rosulata</i>	Marin County navarretia	None	None		1B.2
Detert Reservoir	<i>Rana boylei</i>	foothill yellow-legged frog	None	None	SSC	
Detert Reservoir	<i>Falco peregrinus anatum</i>	American peregrine falcon	Delisted	Delisted	FP	
Detert Reservoir	<i>Falco mexicanus</i>	prairie falcon	None	None	WL	
Detert Reservoir	<i>Progne subis</i>	purple martin	None	None	SSC	
Detert Reservoir	<i>Agelaius tricolor</i>	tricolored blackbird	None	None	SSC	
Detert Reservoir	<i>Lasionycteris noctivagans</i>	silver-haired bat	None	None		

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFG	CNPS
Detert Reservoir	<i>Lasiurus cinereus</i>	hoary bat	None	None		
Detert Reservoir	<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	None	SSC	
Detert Reservoir	<i>Antrozous pallidus</i>	pallid bat	None	None	SSC	
Detert Reservoir	<i>Emys marmorata</i>	western pond turtle	None	None	SSC	
Detert Reservoir	Northern Vernal Pool	Northern Vernal Pool	None	None		
Detert Reservoir	<i>Hydrochara rickseckeri</i>	Ricksecker's water scavenger beetle	None	None		
Detert Reservoir	<i>Trachykele hartmani</i>	serpentine cypress wood-boring beetle	None	None		
Detert Reservoir	<i>Erigeron greenei</i>	Greene's narrow-leaved daisy	None	None		1B.2
Detert Reservoir	<i>Layia septentrionalis</i>	<i>Colusa layia</i>	None	None		1B.2
Detert Reservoir	<i>Harmonia hallii</i>	Hall's harmonia	None	None		1B.2
Detert Reservoir	<i>Cryptantha dissita</i>	serpentine cryptantha	None	None		1B.1
Detert Reservoir	<i>Streptanthus brachiatus</i> ssp. <i>brachiatus</i>	Socrates Mine jewel-flower	None	None		1B.2
Detert Reservoir	<i>Streptanthus hesperidis</i>	green jewel-flower	None	None		1B.2
Detert Reservoir	<i>Streptanthus morrisonii</i>	Morrison's jewel-flower	None	None		
Detert Reservoir	<i>Streptanthus vernalis</i>	early jewel-flower	None	None		1B.2
Detert Reservoir	<i>Calystegia collina</i> ssp. <i>oxyphylla</i>	Mt. Saint Helena morning-glory	None	None		4.2
Detert Reservoir	<i>Arctostaphylos manzanita</i> ssp. <i>elegans</i>	Konocti manzanita	None	None		1B.3
Detert Reservoir	<i>Amorpha californica</i> var. <i>napensis</i>	Napa false indigo	None	None		1B.2
Detert Reservoir	<i>Astragalus rattanii</i> var. <i>jepsonianus</i>	Jepson's milk-vetch	None	None		1B.2
Detert Reservoir	<i>Lupinus sericatus</i>	Cobb Mountain lupine	None	None		1B.2
Detert Reservoir	<i>Trichostema ruygtii</i>	Napa bluecurls	None	None		1B.2
Detert Reservoir	<i>Limnanthes floccosa</i> ssp. <i>floccosa</i>	woolly meadowfoam	None	None		4.2
Detert Reservoir	<i>Hesperolinon bicarpellatum</i>	two-carpellate western flax	None	None		1B.2
Detert Reservoir	<i>Hesperolinon</i> sp. nov. <i>serpentinum</i> ""	Napa western flax	None	None		1B.1
Detert Reservoir	<i>Sidalcea oregana</i> ssp. <i>hydrophila</i>	marsh checkerbloom	None	None		1B.2
Detert Reservoir	<i>Leptosiphon jepsonii</i>	Jepson's leptosiphon	None	None		1B.2
Detert Reservoir	<i>Navarretia myersii</i> ssp. <i>deminuta</i>	small pincushion navarretia	None	None		1B.1
Detert Reservoir	<i>Ceanothus confusus</i>	Rincon Ridge ceanothus	None	None		1B.1
Detert Reservoir	<i>Ceanothus divergens</i>	Calistoga ceanothus	None	None		1B.2
Detert Reservoir	<i>Ceanothus sonomensis</i>	Sonoma ceanothus	None	None		1B.2
Detert Reservoir	<i>Penstemon newberryi</i> var. <i>sonomensis</i>	Sonoma beardtongue	None	None		1B.3
Detert Reservoir	<i>Juncus luciensis</i>	Santa Lucia dwarf rush	None	None		1B.2
Detert Reservoir	<i>Brodiaea californica</i> var. <i>leptandra</i>	narrow-anthered California brodiaea	None	None		1B.2
Jericho Valley	<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	End.	FP	
Jericho Valley	<i>Aquila chrysaetos</i>	golden eagle	None	None	FP   WL	



QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFG	CNPS
Jericho Valley	<i>Falco mexicanus</i>	prairie falcon	None	None	WL	
Jericho Valley	<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	None	SSC	
Jericho Valley	<i>Emys marmorata</i>	western pond turtle	None	None	SSC	
Jericho Valley	Serpentine Bunchgrass	Serpentine Bunchgrass	None	None		
Jericho Valley	Northern Interior Cypress Forest	Northern Interior Cypress Forest	None	None		
Jericho Valley	<i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>	big-scale balsamroot	None	None		1B.2
Jericho Valley	<i>Harmonia hallii</i>	Hall's harmonia	None	None		1B.2
Jericho Valley	<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	None	None		1B.2
Jericho Valley	<i>Streptanthus brachiatus</i> ssp. <i>hoffmanii</i>	Freed's jewel-flower	None	None		1B.2
Jericho Valley	<i>Streptanthus hesperidis</i>	green jewel-flower	None	None		1B.2
Jericho Valley	<i>Streptanthus morrisonii</i>	Morrison's jewel-flower	None	None		
Jericho Valley	<i>California macrophylla</i>	round-leaved filaree	None	None		1B.1
Jericho Valley	<i>Juglans hindsii</i>	Northern California black walnut	None	None		1B.1
Jericho Valley	<i>Hesperolinon drymarioides</i>	drymaria-like western flax	None	None		1B.2
Jericho Valley	<i>Hesperolinon</i> sp. nov. <i>serpentinum</i> ""	Napa western flax	None	None		1B.1
Jericho Valley	<i>Sidalcea keckii</i>	Keck's checkerbloom	End.	None		1B.1
Jericho Valley	<i>Eriogonum nervulosum</i>	Snow Mountain buckwheat	None	None		1B.2
Jericho Valley	<i>Castilleja rubicundula</i> ssp. <i>rubicundula</i>	pink creamsacs	None	None		1B.2
Jericho Valley	<i>Fritillaria pluriflora</i>	adobe-lily	None	None		1B.2
Knoxville	<i>Rana boylii</i>	foothill yellow-legged frog	None	None	SSC	
Knoxville	<i>Falco mexicanus</i>	prairie falcon	None	None	WL	
Knoxville	<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	None	SSC	
Knoxville	<i>Emys marmorata</i>	western pond turtle	None	None	SSC	
Knoxville	Northern Interior Cypress Forest	Northern Interior Cypress Forest	None	None		
Knoxville	<i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>	big-scale balsamroot	None	None		1B.2
Knoxville	<i>Layia septentrionalis</i>	<i>Colusa layia</i>	None	None		1B.2
Knoxville	<i>Harmonia hallii</i>	Hall's harmonia	None	None		1B.2
Knoxville	<i>Plagiobothrys hystriculus</i>	bearded popcorn-flower	None	None		1B.1
Knoxville	<i>Streptanthus hesperidis</i>	green jewel-flower	None	None		1B.2
Knoxville	<i>Streptanthus morrisonii</i>	Morrison's jewel-flower	None	None		
Knoxville	<i>Astragalus rattanii</i> var. <i>jepsonianus</i>	Jepson's milk-vetch	None	None		1B.2
Knoxville	<i>Hesperolinon drymarioides</i>	drymaria-like western flax	None	None		1B.2
Knoxville	<i>Sidalcea keckii</i>	Keck's checkerbloom	End.	None		1B.1
Knoxville	<i>Eriogonum nervulosum</i>	Snow Mountain buckwheat	None	None		1B.2
Knoxville	<i>Castilleja rubicundula</i> ssp. <i>rubicundula</i>	pink creamsacs	None	None		1B.2

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFG	CNPS
Knoxville	<i>Fritillaria pluriflora</i>	adobe-lily	None	None		1B.2
Middletown	<i>Rana boylei</i>	foothill yellow-legged frog	None	None	SSC	
Middletown	<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	End.	FP	
Middletown	<i>Lasiorycteris noctivagans</i>	silver-haired bat	None	None		
Middletown	<i>Lasiurus cinereus</i>	hoary bat	None	None		
Middletown	<i>Emys marmorata</i>	western pond turtle	None	None	SSC	
Middletown	Northern Basalt Flow Vernal Pool	Northern Basalt Flow Vernal Pool	None	None		
Middletown	<i>Erigeron greenei</i>	Greene's narrow-leaved daisy	None	None		1B.2
Middletown	<i>Lasthenia burkei</i>	Burke's goldfields	End.	End.		1B.1
Middletown	<i>Harmonia hallii</i>	Hall's harmonia	None	None		1B.2
Middletown	<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	None	None		1B.2
Middletown	<i>Streptanthus hesperidis</i>	green jewel-flower	None	None		1B.2
Middletown	<i>Streptanthus morrisonii</i>	Morrison's jewel-flower	None	None		
Middletown	<i>Legenere limosa</i>	legenere	None	None		1B.1
Middletown	<i>Calystegia collina</i> ssp. <i>oxyphylla</i>	Mt. Saint Helena morning-glory	None	None		4.2
Middletown	<i>Calystegia purpurata</i> ssp. <i>saxicola</i>	coastal bluff morning-glory	None	None		1B.2
Middletown	<i>Sedella leiocarpa</i>	Lake County stonecrop	End.	End.		1B.1
Middletown	<i>Arctostaphylos manzanita</i> ssp. <i>elegans</i>	Konocti manzanita	None	None		1B.3
Middletown	<i>Astragalus rattanii</i> var. <i>jepsonianus</i>	Jepson's milk-vetch	None	None		1B.2
Middletown	<i>Trifolium hydrophilum</i>	saline clover	None	None		1B.2
Middletown	<i>Hesperolinon bicarpellatum</i>	two-carpellate western flax	None	None		1B.2
Middletown	<i>Hesperolinon didymocarpum</i>	Lake County western flax	None	End.		1B.2
Middletown	<i>Hesperolinon</i> sp. nov. <i>serpentinum</i> ""	Napa western flax	None	None		1B.1
Middletown	<i>Leptosiphon jepsonii</i>	Jepson's leptosiphon	None	None		1B.2
Middletown	<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	Baker's navarretia	None	None		1B.1
Middletown	<i>Navarretia leucocephala</i> ssp. <i>plieantha</i>	many-flowered navarretia	End.	End.		1B.2
Middletown	<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	None	End.		1B.2
Middletown	<i>Fritillaria pluriflora</i>	adobe-lily	None	None		1B.2
Middletown	<i>Orcuttia tenuis</i>	slender Orcutt grass	Threat.	End.		1B.1
St. Helena	<i>Rana draytonii</i>	California red-legged frog	Threat.	None	SSC	
St. Helena	<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	End.	FP	
St. Helena	<i>Progne subis</i>	purple martin	None	None	SSC	
St. Helena	<i>Oncorhynchus mykiss</i> irideus	steelhead - central California coast DPS	Threat.	None		
St. Helena	<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	None	SSC	
St. Helena	<i>Antrozous pallidus</i>	pallid bat	None	None	SSC	

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFG	CNPS
St. Helena	<i>Emys marmorata</i>	western pond turtle	None	None	SSC	
St. Helena	Northern Vernal Pool	Northern Vernal Pool	None	None		
St. Helena	<i>Erigeron greenei</i>	Greene's narrow-leaved daisy	None	None		1B.2
St. Helena	<i>Layia septentrionalis</i>	Colusa layia	None	None		1B.2
St. Helena	<i>Streptanthus hesperidis</i>	green jewel-flower	None	None		1B.2
St. Helena	<i>Amorpha californica</i> var. <i>napensis</i>	Napa false indigo	None	None		1B.2
St. Helena	<i>Astragalus claranus</i>	Clara Hunt's milk-vetch	End.	Threat.		1B.1
St. Helena	<i>Lupinus sericatus</i>	Cobb Mountain lupine	None	None		1B.2
St. Helena	<i>Trichostema ruygtii</i>	Napa bluecurls	None	None		1B.2
St. Helena	<i>Hesperolinon bicarpellatum</i>	two-carpellate western flax	None	None		1B.2
St. Helena	<i>Hesperolinon</i> sp. nov. <i>serpentinum</i> ""	Napa western flax	None	None		1B.1
St. Helena	<i>Sidalcea oregana</i> ssp. <i>hydrophila</i>	marsh checkerbloom	None	None		1B.2
St. Helena	<i>Leptosiphon jepsonii</i>	Jepson's leptosiphon	None	None		1B.2
St. Helena	<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	Baker's navarretia	None	None		1B.1
St. Helena	<i>Ceanothus purpureus</i>	holly-leaved ceanothus	None	None		1B.2
St. Helena	<i>Ceanothus divergens</i>	Calistoga ceanothus	None	None		1B.2
St. Helena	<i>Penstemon newberryi</i> var. <i>sonomensis</i>	Sonoma beardtongue	None	None		1B.3
St. Helena	<i>Brodiaea californica</i> var. <i>leptandra</i>	narrow-anthered California brodiaea	None	None		1B.2
Walter Springs	<i>Rana boylei</i>	foothill yellow-legged frog	None	None	SSC	
Walter Springs	<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	End.	FP	
Walter Springs	<i>Aquila chrysaetos</i>	golden eagle	None	None	FP   WL	
Walter Springs	<i>Falco mexicanus</i>	prairie falcon	None	None	WL	
Walter Springs	<i>Athene cucularia</i>	burrowing owl	None	None	SSC	
Walter Springs	<i>Emys marmorata</i>	western pond turtle	None	None	SSC	
Walter Springs	Northern Vernal Pool	Northern Vernal Pool	None	None		
Walter Springs	<i>Layia septentrionalis</i>	Colusa layia	None	None		1B.2
Walter Springs	<i>Streptanthus hesperidis</i>	green jewel-flower	None	None		1B.2
Walter Springs	<i>Astragalus rattanii</i> var. <i>jepsonianus</i>	Jepson's milk-vetch	None	None		1B.2
Walter Springs	<i>Hesperolinon bicarpellatum</i>	two-carpellate western flax	None	None		1B.2
Walter Springs	<i>Hesperolinon</i> sp. nov. <i>serpentinum</i> ""	Napa western flax	None	None		1B.1
Walter Springs	<i>Leptosiphon jepsonii</i>	Jepson's leptosiphon	None	None		1B.2
Walter Springs	<i>Fritillaria pluriflora</i>	adobe-lily	None	None		1B.