APPENDIX H

BIOLOGICAL RESOURCE ASSESSMENT

BIOLOGICAL RESOURCES ASSESSMENT

IONE BAND OF MIWOK INDIANS
CASINO PROJECT

APRIL 2005

Lead Agency:

U.S. Department of the Interior, Bureau of Indian Affairs
Pacific Region, 2800 Cottage Way, Room W-2820
Sacramento, CA 95825-1846

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Prepared For:

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AES

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BIOLOGICAL RESOURCES ASSESSMENT

IONE CASINO PROJECT

PLYMOUTH, CALIFORNIA

APRIL 2005

1.0 INTRODUCTION

1.1 PROJECT LOCATION AND DESCRIPTION

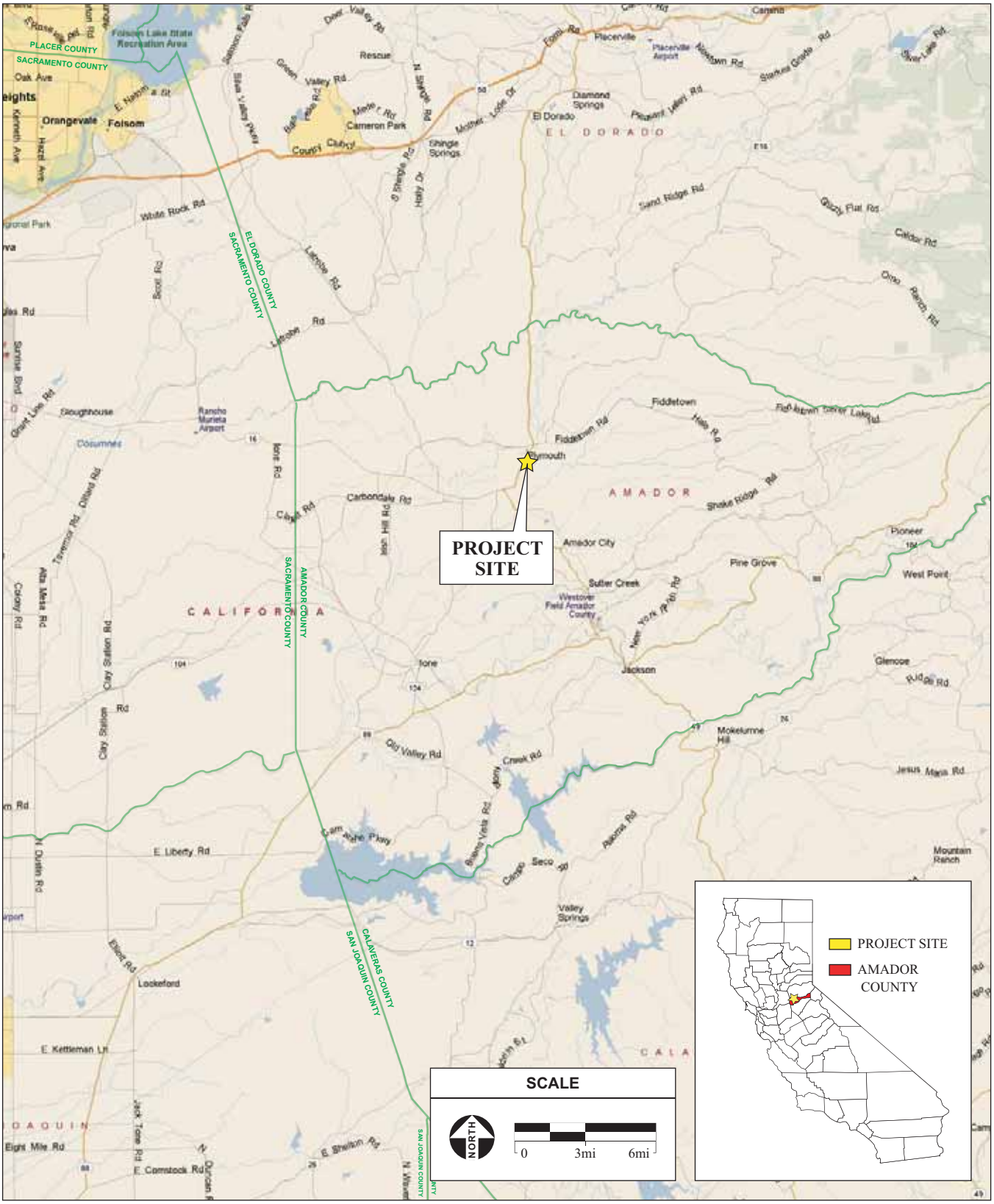
On behalf of the Ione Band of Miwok Indians (Tribe), Analytical Environmental Services (AES) has conducted a biological resources assessment for the proposed Ione Casino Project (hereafter, "project"). The study area consists of approximately 228 acres of land, 10±-acres of which are located within the City of Plymouth, while the remaining acres are located on unincorporated land within Amador County (**Figure 1**). This location is found within portions of Sections 11, 14 and 15 of Township 7 North, Range 10 East, Mount Diablo Baseline and Meridian, on the "Amador City, Calif." U.S. Geological Survey 7.5-minute quadrangle map (**Figure 2**). The project area is shown on an aerial photograph in **Figure 3**. The Proposed Action consists of the development of a casino and hotel in two phases described below.

PHASE I

Phase I of the Proposed Action would consist of the development of approximately 76 acres of the project site. During this phase a 120,000 square foot casino (4.4 acres), surface parking lots (32.1 acres), landscaping (5.3 acres), internal roadways (2.9 acres), surface runoff detention basin (3.6 acres), fire station (1.1 acres), wastewater treatment plant (3.6 acres), treated wastewater disposal areas (16.6 acres), and a seasonal wastewater storage reservoir and buffer (4.0 and 2.6 acres) would be developed. The casino would be built on land currently within the City of Plymouth. Primary access to the casino will be via State Highway 49. The surface parking lot would contain approximately 3,000 parking spaces for casino patrons and employees. The main parking area, which includes bus parking, would be located immediately east of the casino. Sediment and grease traps located within the surface parking lots, together with the on-site detention basins, would filter and capture surface runoff originating on-site thereby minimizing the impairment of off-site water quality due to project operations.

PHASE II

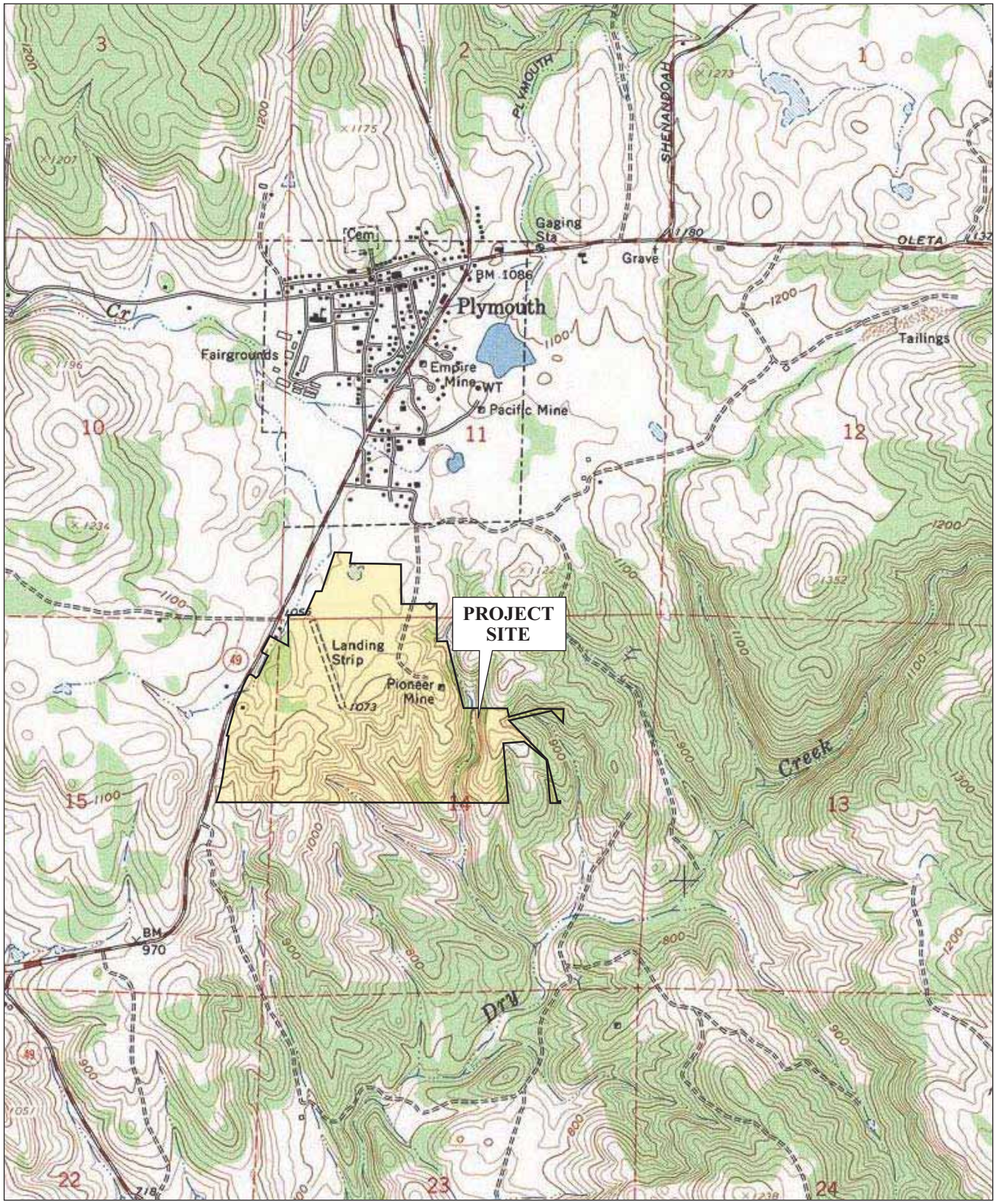
Phase II of the Proposed Action would consist of the construction of a development on 3.5 acres. At this phase, a 166,500 square foot hotel, 30,000 square foot conference center, and additional parking east of the casino will be developed. The construction of the hotel and conference center would not result in an expansion in the development area since these facilities will be constructed on land developed for surface



SOURCE: Microsoft Streets & Trips, 2003 ; AES, 2004

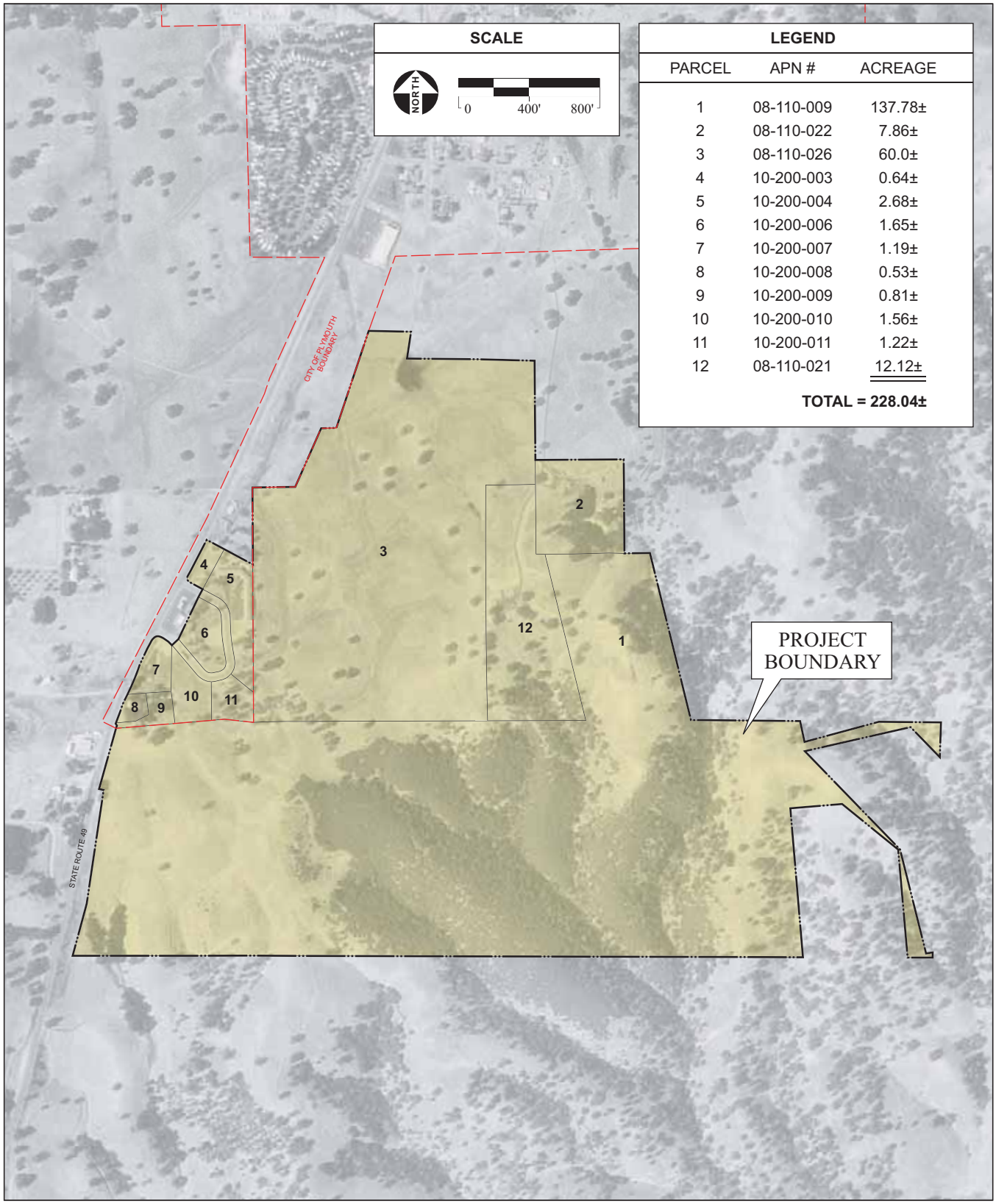
Ione Band of Miwok Indians Casino Project BRA / 203525 ■

Figure 1
Regional Location Map



SOURCE: "Amador City, CA" USGS 7.5 Minute Topographic Quadrangle, Sections 11, 14, & 15, T7N, R10E, Mt. Diablo Baseline and Meridian ; AES, 2004

Figure 2
Site and Vicinity



SOURCE: USGS Aerial Photograph, 8/16/1998 ; AES, 2004

Figure 3
Aerial Site Map

parking developed during Phase I. Phase II will result in a 3.48 acre expansion of the development area due to additional parking spaces that will be added to the eastern portion of the proposed parking area. Phase II is anticipated to be developed in the year 2009. Primary vehicle access to the hotel would be provided by the main casino and surface-parking driveway. **Figure 4** provides a site plan overlaid with mapped habitat types. The development footprint for Phase I and Phase II will total 79.48 acres.

DEVELOPMENT AND OPERATION

As described under Phase I above, the Tribe would construct a fire station on the project site (**Figure 4**). The fire station will be located south of the casino near Highway 49. The fire station will provide a location for the operation of a fire/emergency medical services department to provide fire protection and emergency medical services for the proposed development. Fire protection to the proposed project site would not be necessary from the district after the construction of the proposed new fire station.

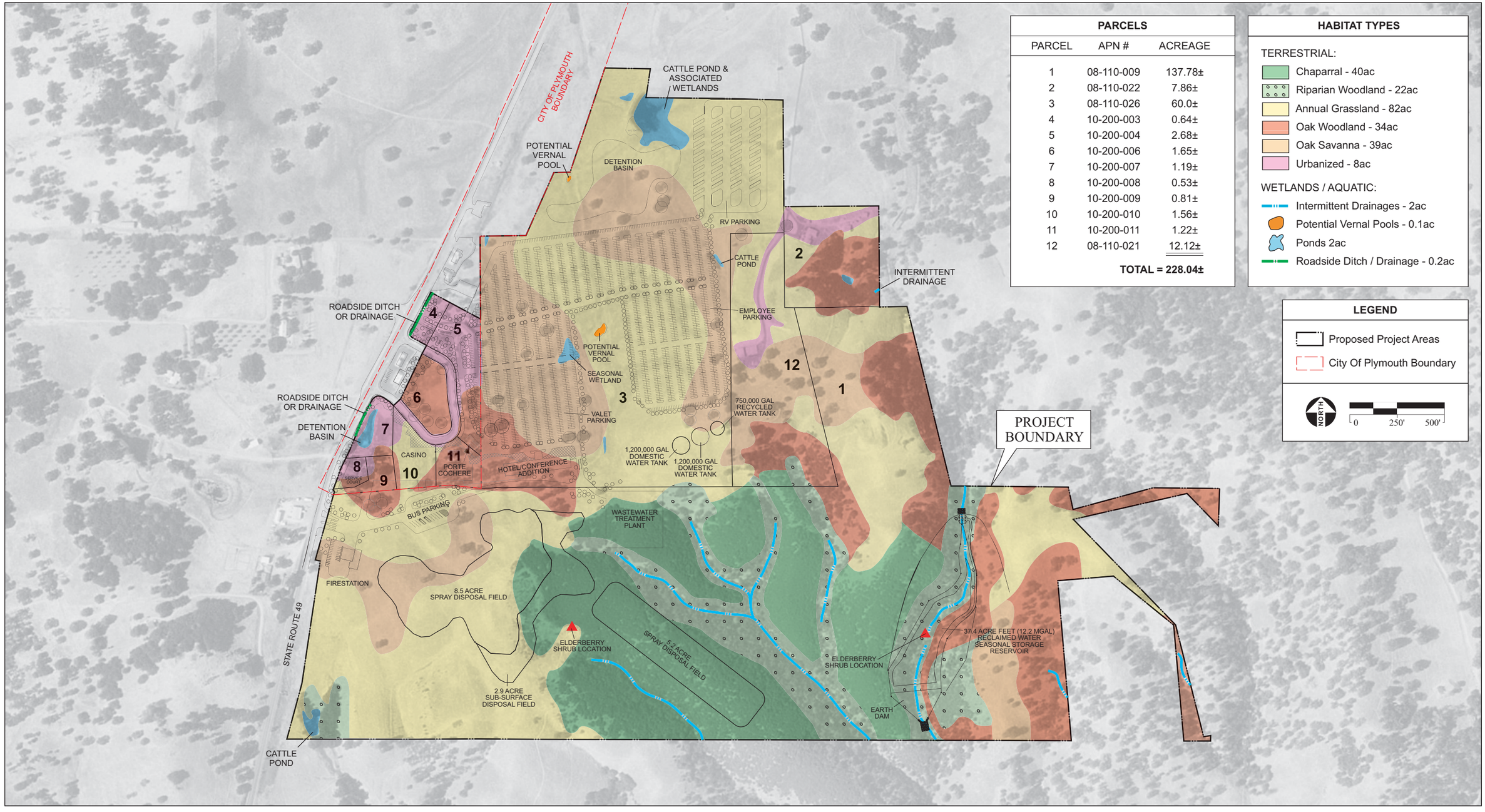
A wastewater treatment plant (WWTP) would be developed during Phase I to treat water generated by the casino. The WWTP would be located southeast of the casino (**Figure 4**). The WWTP would be an immersed membrane bioreactor system designed to treat wastewater to California Title 22 unrestricted recycled water use standards. The hotel and casino would be designed with a dual plumbing system for potable and recycled water to allow the use of recycled water and reduce the use of potable water. Tribe's recycled water program would also reuse the treated effluent for site irrigation. As described under Phase I, approximately 13.7 acres of spray fields, 2.9 acres of sub-surface disposal field, and a 37.4 acre feet seasonal wastewater storage reservoir and buffer (4.0 and 2.6 acres) are necessary to dispose of the treated effluent. The seasonal wastewater storage reservoir would be constructed of a 75-foot high earth or rock fill dam. The location of the WWTP, disposal areas and reservoir are shown in **Figure 4**.

It is expected that all existing structures on the project site parcels would be removed and/or demolished to make way for site improvements and casino facility new construction.

1.2 PURPOSE OF ASSESSMENT

The purpose of this biological resources assessment is to:

- Characterize the habitat types present within the 228 ± acre study area;
- Evaluate the potential for the occurrence of special-status plant and animal species;
- Assess the property for the presence of waters of the U.S. and other sensitive biological resources;
- Assess the potential for the proposed project to adversely impact sensitive biological resources; and
- Recommend mitigation measures designed to avoid or minimize project-related impacts.



PARCELS		
PARCEL	APN #	ACREAGE
1	08-110-009	137.78±
2	08-110-022	7.86±
3	08-110-026	60.0±
4	10-200-003	0.64±
5	10-200-004	2.68±
6	10-200-006	1.65±
7	10-200-007	1.19±
8	10-200-008	0.53±
9	10-200-009	0.81±
10	10-200-010	1.56±
11	10-200-011	1.22±
12	08-110-021	12.12±
	TOTAL = 228.04±	

HABITAT TYPES

TERRESTRIAL:
- Chaparral - 40ac
- Riparian Woodland - 22ac
- Annual Grassland - 82ac
- Oak Woodland - 34ac
- Oak Savanna - 39ac
- Urbanized - 8ac

WETLANDS / AQUATIC:
- Intermittent Drainages - 2ac
- Potential Vernal Pools - 0.1ac
- Ponds 2ac
- Roadside Ditch / Drainage - 0.2ac

LEGEND
- Proposed Project Areas
- City Of Plymouth Boundary

NORTH
0 250' 500'

SOURCE: USGS Aerial Photograph, 8/16/1998 ; KKE Architects, 2004 ; American Aerial Mapping, 2003 ; AES, 2004

Figure 4
Habitat Types with Proposed Alternative A Phase II Site Plan and Water / Wastewater Features

1.3 REGULATORY SETTING

The following section summarizes the applicable federal and state regulations of biological resources on real property.

SPECIAL-STATUS SPECIES

Most bird species, especially those that are breeding, migratory, or of limited distribution, are protected under federal and state regulations. Under the Migratory Bird Treaty Act of 1918 (16 USC §703-711), migratory bird species, and their nests and eggs that are on the federal list (50 CFR §10.13) are protected from injury or death, and project-related disturbances must be reduced or eliminated during the nesting cycle.

The United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) implement the Federal Endangered Species Act of 1973 ("FESA," 16 USC §1531 *et seq*.). Threatened and Endangered Species on the federal list (50 CFR §17.11, 17.12) are protected from "take" (direct or indirect harm), unless a Section 10 Permit is granted or a Biological Opinion with incidental take provisions is rendered. Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed species may be present in the project area and determine whether the proposed project will have a potentially significant impact upon such species. Under FESA, habitat loss is an impact to the species considered to be take. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3], [4]). USFWS also designates species of concern which receive attention from federal agencies during environmental review, although they are not otherwise protected under FESA. Project-related take impacts to these species and their habitat must be avoided, minimized, or mitigated.

WETLANDS AND OTHER WATERS OF THE UNITED STATES

Any project that involves working in navigable waters of the U.S. requires a permit from the United States Army Corps of Engineers (USACE) under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). Discharge of dredged or fill material into waters of the United States without a Section 404 permit from USACE is prohibited by Section 301 of the Clean Water Act (33 U.S.C. 1344). The U.S. Environmental Protection Agency (USEPA) may require a Water Quality Certification (Clean Water Act Section 401 permit), before other permits are issued.

2.0 ENVIRONMENTAL SETTING

Amador County is moderately moist and the average annual temperature is approximately 65 ^{o} F, with temperatures ranging from below freezing to over 100^{o} F. The region is in climate Zone 7 – "Great Valley and Surrounding Low Mountains," characterized by marked seasons of hot, dry summers, and moderately cold, wet winters, with most of the precipitation falling during the six months of winter (Sketchley 1965; Hickman 1993). Annual precipitation totals 25-30 inches, and the prevailing wind is westerly, averaging less than 10 miles per hour.

The study area is located in the foothills of the western slope of the Sierra Nevada Mountain Range, at an elevation ranging from 900 to 1,150 feet above sea level. The geology of the surrounding area (Amador County) is dominated by steeply dipping, faulted and folded metamorphic rocks that have been intruded by several types of igneous rocks, and overlaying the bedrock in many places are mantles of river gravel and volcanic debris (Sketchley 1965). The general trend of ridges and rock formations is northwest to southeast, and drainage is generally to southeast. The northern portion of the county lies within the Cosumnes River basin, and the southern portion, including the study area, lies within the Mokelumne River basin. The geology in the project vicinity consists of metasedimentary rocks of the Calaveras Complex such as slate, metamorphosed sandstone, conglomerate, and some limestone and volcanic rock. The sediments that formed these rocks were deposited in an ocean basin during the Upper Paleozoic Period and were then intensely folded, sheared, heated, and fractured by processes that created the Sierra Nevada ranges. The Calaveras Complex is highly fractured and has exposures at the project site in stream bottoms. This fractured bedrock serves as a shallow groundwater aquifer.

3.0 METHODOLOGY

3.1 PRELIMINARY DATA GATHERING AND RESEARCH

Prior to conducting the field assessment the following information sources were reviewed:

- USGS "Amador City, California" 7.5 minute topographic quadrangle,
- Aerial photography of the property and vicinity,
- Soil Survey of the Amador Area, California (Sketchley 1965),
- U.S. Fish and Wildlife species list (**Appendix A**),
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2001),
- CDFG California Natural Diversity Data Base (RareFind Version 3, September 2003; **Appendix B**),
- Vegetation and Wildlife Assessment for the Upper Dry Creek Extension (Woodward 2001), and
- Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*) (USFWS 2002).

For the purposes of this assessment, "special-status" is defined as species that are of management concern to federal resource agencies, and include those species that are:

- Listed as endangered, threatened, or candidate for listing under the Federal Endangered Species Act; State Endangered Species Act, and;
- Designated as species of concern or species of local concern by USFWS.

3.2 FIELD SURVEYS

Analytical Environmental Services (AES) biologists John Howe and Dr. G. O. Graening conducted reconnaissance-level field assessments on September 30 and October 1, 2003. A complete coverage, variable-intensity pedestrian survey was performed of the study area, with transect spacing from 10 to 20 meter intervals, and modified to account for differences in terrain, vegetation density, and visibility. All discernable fauna and flora were noted and identified to the lowest possible taxon. A checklist of vascular plants was used to facilitate the cataloging of plant species of the site. Habitat types occurring in the study area were characterized and evaluated for their potential to support regionally occurring special-status species; and the study area was assessed for the presence of jurisdictional water features (Waters of the U.S.), isolated wetlands, and other biologically sensitive features. A full wetland delineation study was conducted with the assistance of Dr. John Miller, and the site was visited for this purpose on November 19 and 25, 2003; and January 16, 2004. In addition, a late-spring survey for special-status animal species was conducted on June 14, 2004 by AES staff biologists Dr. John Miller and Tim Armstrong. Spring time vascular plant surveys were not conducted in 2004 due to lack of funding; additional spring surveys are recommended. A protocol level survey for the longhorn valley elderberry beetle was conducted by staff biologist John Downs on October 5, 2004.

Scientific texts referenced included: bird identification – Ehrlich *et al.* (1988), Sibley (2000 2003); plant identification –Abrams (1923, 1950, 1951), Abrams and Ferris (1960), Baldwin *et al*. (2003), Brenzel (2001), CDFG (2003), Hickman (1993), Pavlik *et al.* (1991), Stuart and Sawyer (2001); habitat descriptions and requirements - Mayer and Laudenslayer (1988), Zeiner *et al.* (1990), Sawyer and Keeler-Wolf (1995), California Native Plant Society (2003); and wetland classification and delineation - Cowardin *et al*. (1979), and Environmental Laboratory (1987).

3.3 ANALYSES AND SYNTHESIS

Vegetation communities (assemblages of plant species growing in an area of similar biological and environmental factors), were classified using the CDFG Terrestrial Natural Communities of California system, or "Holland type" (Holland 1986), and where applicable, detailed by "Vegetation Series" (distinctive associations of plants, described by dominant species and particular environmental setting) using the CNPS

Vegetation Classification system (Sawyer and Keeler-Wolf 1995). Wetlands and other aquatic habitats were classified using USFWS National Wetlands Inventory / Classification System for Wetland and Deepwater Habitats, or "Cowardin class" (Cowardin *et al*. 1979). Wildlife habitats were classified according to the CDFG California Wildlife Habitat Relationships System, or "CWHR type" (Mayer and Laudenslayer 1988).

Observed occurrences of special status species and habitat boundaries within the study area were recorded on color aerial photographs (scale 1"=200') and combined with known occurrences in the California Natural Diversity Database (CNDDB) to produce the final habitat map presented in section 4.0. A delineation of potentially jurisdictional waters within the study was conducted in the fall and winter of 2003 and 2004. Features were surveyed using a Global Positioning System to produce delineation maps, USACE approval of the delineation is pending. Geographic analyses were performed using geographical information system software (Arc View 3.2 GIS, ESRI, Inc.).

4.0 RESULTS

4.1 VEGETATION COMMUNITY AND WILDLIFE HABITAT TYPES

The study area is located within the northern Sierra Nevada floristic district, which is contained within the Sierra Nevada biogeographic region of the larger California floristic province (Hickman 1993). Seven vegetation community types occur in the study area (**Figure 4; Figure 5**): annual grassland; chaparral, oak savanna; oak woodland; riparian woodland; seasonal wetlands; vernal pools; and urbanized land. These vegetation communities and associated habitat types are discussed in detail in the following paragraphs.

ANNUAL GRASSLAND

Historically, native perennial grasslands covered much of the Central Valley and adjacent foothills; settlement of the region included introduction of European annual forbs and grasses designed for livestock grazing. The northeastern portion of the study area is an 81.78-acre annual grassland (**Figure 4; Figure 5**). This community corresponds to the "non-native grassland – 42200 / valley and foothill grasslands - 42000" in the Holland (1986) system, and "California annual grassland" in the CNPS (2001) Vegetation Classification system. This vegetation community type is quite common in the region (Heritage rank G4S4).

Plant species of these areas found during site visits include creeping bent (*Agrostis stolonifera*), silver European hairgrass (*Aira caryophyllea*), sweet vernal grass (*Anthoxanthum odoratum*), wild oat (*Avena fatua*), cultivated oat (*Avena sativa*), California brome (*Bromus carinatus*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), yellow star-thistle (*Centaurea solstitialis*), dogtail fescue (*Cynosurus echinatus*), filaree (*Erodium cicutarium*), California fescue (*Festuca californica*), tarweed (*Hemizonia fasciculata*), meadow barley (*Hordeum brachyantherum*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), weed barley (*Hordeum murinum* ssp. *leporinum*), hedge mustard (*Sisymbrium officinale*), milk thistle (*Silybum*

Photograph 1
Annual grassland on the site looking northwest. State Highway 49 is in the distance.

Photograph 2
Oak savanna on the site looking north. Note the dried vernal pool in the foreground and annual grassland between the oak trees.

Photograph 3
View from the site looking south at the chamise chaparral on a ridge at the head of the north tributary to Dry Creek. Note the oak savanna and mixed oak and pine woodland in the distance.

Photograph 4
View from the site looking southeast in a tributary canyon of Dry Creek. Note the riparian woodland merging with mixed oak and pine woodland.

SOURCE: AES, 2004

Figure 5
Site Photographs

marianum), winter vetch (*Vicia villosa*), and Zorro fescue (*Vulpia myuros*). A complete list of vascular plants identified on the project site is available in **Appendix D**.

The CWHR type is classified as "Annual Grassland" wildlife habitat. Animals observed within the annual grassland during site visits include western bluebird (*Sialia mexicana*) and western meadowlark (*Sturnella neglecta*).

CHAPARRAL

Chaparral communities are dominated by dense, often nearly impenetrable vegetation found on dry, rocky, steep slopes with very little soil. Within the southern half of the project area 37.46 acres of chaparral occur (**Figure 4; Figure 5**). Several different types of chaparral vegetation communities are indigenous to the State. The chaparral within the project area is a chamise chaparral. According to Holland, "Chamise Chaparral" (37200) is defined as a 1-3m-tall brush community overwhelmingly dominated by chamise (*Adenostoma fasciculatum*), where associated species contribute little to cover. This shurb-dominated plant community is adapted to wildfire due to a propensity for stump sprouting. Mature stands are densely interwoven with very little herbaceous understory or litter. This community is also defined as a "Chamise Series" according to the CNPS Vegetation Classification system. Chamise chaparral is quite common in the region (Heritage rank G4S4).

Plants identified in these areas during site visits include chamise, manzanita (*Arctostaphylos manzanita*), wood fern (*Dryopteris arguta*), yerba santa (*Eriodictyon californicum*) cudweed (*Gnaphalium californicum*), sticky monkey flower (*Mimulus aurantiacus*), and interior live oak (*Quercus wislizenii*) (**Appendix D**).

The CWHR type most similar to chamise chaparral is "Chamise-Redshank Chaparral". Wildlife species identified in chamise chaparral of the site include western scrub jay (*Aphelocoma californica*) and California quail (*Callipepla californica*).

OAK SAVANNA

Oak savannas are considered sparse woodlands with a grassy understory. Oak savanna is typically defined by having oak trees comprising 2-10% of the canopy cover. Oak savanna comprises 37.86 acres of the project area (**Figure 4; Figure 5**). The oak savanna of the site is dominated by blue oak (*Quercus douglasii*). This plant community is equivalent to the Holland type "Blue Oak Woodland" (71140), which includes stands varying from open savannas with grassy understories (usually at lower elevations) to fairly dense woodlands with shrubby understories (Holland 1986). This community typically occurs in well-drained soils below 3,000 feet elevation. The community is the same as the "Blue Oak Series" according to the CNPS Vegetation Classification system. This vegetation community type is common in the Sierra foothills, but faces threats from land clearing (Heritage rank G3S3.2).

Plants identified in these areas during site visits included primarily blue oak and the same dominant annual grasses identified in the previous paragraphs (**Appendix D**).

The CWHR type is "Blue Oak Woodland." Wildlife species identified in these areas include gopher snake (*Pituophis catenifer*), western fence lizard (*Sceloporus occidentalis*), acorn woodpecker (*Melanerpes formicivorus*), brown-headed cowbird (*Molothrus ater*), western kingbird (*Tyrannus verticalis*), mourning dove (*Zenaida macroura*), and mule deer (*Odocoileus hemionus*).

OAK WOODLAND

Oak woodlands provide food and habitat for numerous wildlife species (Pavlik *et al*. 1991). Acorns form an important part of the diet for numerous woodland animals, the seeds of understory herbs and shrubs feed a wide variety of birds and mammals, and oak foliage supports large insect populations that in turn attract many different species of birds, reptiles, and amphibians. Oaks provide physical structure for nesting, burrows, and other microhabitats, the canopies moderate light, moisture, and wind. Oak woodland comprises 33.00 acres of the project area and is dominated by blue oaks and interior live oaks (**Figure 4; Figure 5**). This habitat corresponds to the Holland type "Blue Oak Woodland" (71140) discussed in the previous paragraph (Holland 1986). This community typically occurs in well-drained soils below 3,000 feet elevation. The community is best defined as a "Blue Oak Series" according to the CNPS Vegetation Classification system. This vegetation community faces the same type of exploitation as oak savanna discussed above (Heritage rank G3S3.2).

The oak woodland of the site is dominated by blue oaks but also includes scattered interior live oaks, black oaks (*Quercus kelloggii*), gray pines (*Pinus sabiniana*), and ponderosa pines (*Pinus ponderosa*). Understory vegetation included poison oak (*Toxicodendron diversilobum*), manzanita (*Arctostaphylos manzanita*), toyon (*Heteromeles arbutifolia*), dogtail fescue, and goldenback fern (*Pentagramma triangularis* ssp. *triangularis*) (**Appendix D**).

The CWHR type is classified as “Blue Oak – Gray Pine” wildlife habitat. Wildlife seen in the oak woodland during site visits include western scrub jay, Cooper's hawk (*Accipiter cooperii*), oak titmouse (*Baeolophus inornatus*), red-tailed hawk (*Buteo jamaicensis*), northern flicker (*Colaptes auratus*), Nuttall's woodpecker (*Picoides nuttallii*), American Robin (*Turdus migratorius*), mourning dove, white-crowned sparrow (*Zonotrichia leucophrys*), and mule deer.

RIPARIAN WOODLAND

Riparian or moisture-loving habitat often occurs in canyons and arroyos along rivers and streams and often forms scrub or woodland. Deciduous trees, shrubs, grasses and forbs dominate the riparian woodland of the site even though rivers and intermittent streams are absent. Riparian woodlands comprise 21.50 acres of the study area and occur in association with the ephemeral drainages in Parcel 1 (**Figure 4; Figure 5**). The actual floor of the ephemeral drainages is littered with partially rounded slate fragments and slabs, and vegetated with

non-native grasses and forbs and often shaded by the canopies of the riparian shrubs and trees. These ephemeral channels make up 0.79 acres of the site, in addition to the 21.50 acres of riparian woodland already discussed.

All but one of the riparian areas support a canopy dominated by interior live oaks, which intergrades with the adjoining chaparral. This riparian woodland is an intermediate of the Holland types "Interior Live Oak Woodland (71150)" and "Interior Live Oak Chaparral (37A00)". Riparian woodland of the site is classifiable in the "Interior Live Oak Series" according to the CNPS Vegetation Classification system. This vegetation community is quite common in California and elsewhere (Heritage rank G4S4). Dominant plant species identified in these areas during site visits included interior oak, California buckeye (*Aesculus californicus*), toyon, California black walnut (*Juglans californica*), holly-leaf redberry (*Rhamnus ilicifolia*), and poison oak

The deep eastern drainage on the site is steep sided with a well-developed ephemeral channel equivalent to mixed oak-pine riparian woodland. This drainage is the eastern most drainage in the contiguous portion of Parcel 1. Plant species identified in this area included interior live oak, black oak (*Quercus kelloggii*), California black walnut, gray pine, ponderosa pine (*Pinus ponderosa*), and red willow (*Salix laevigata*) (**Appendix D**).

The CWHR type is essentially “Blue Oak -Foothill Pine” wildlife habitat. Wildlife observed during site visits included black-tailed jackrabbit (*Lepus californicus),* western scrub jay, oak titmouse, morning dove, golden crowned sparrow (*Zonotrichia leucophrys*), and white-crowned sparrow (**Appendix E**).

SEASONAL WETLANDS

Seasonal wetlands are characterized by vegetation that is typically adapted to seasonal flooding and varying levels soils saturation. These areas are typically occurring either adjacent to streams or freshwater wetlands where seasonal flooding occurs, or in areas that have seasonally saturated soils either due to pooling of seasonal rains or due to shallow groundwater conditions. Seasonal wetlands comprise 2.88 acres of the study area. These features include cattle ponds, a detention basin, a roadside ditch, potential vernal pools, intermittent drainages, and other seasonal wetlands. Acreages for each these features are described generally in **Figure 5** and detailed in **Figure 6**.

Cattle Ponds

Four cattle ponds occur on the project site. A cattle pond was observed near the southwest corner of Parcel 1. This feature is fed by two swales that capture runoff from nearby Highway 49 and the surrounding landscape. The pond and its perimeter are devoid of vegetation, except for scattered willow weed (*Polygonum lapathifolium*). This feature is a result of excavation and damming to create an impoundment suitable for stock watering.

Another cattle pond is located near the northern boundary of Parcel 3. The impoundment consists of open water that varies in depth through out the season and a peripheral area that is saturated long enough through the wet season to support a thick herbaceous layer dominated by spikerush (*Eleocharis macrostachya*). This feature is a result of excavation and damming of a swale for purposes of stock watering. Below the dam face a small seep exists. The seep is vegetated with spikerush and Baltic rush (*Juncus balticus*).

A third cattle pond occurs along the eastern boundary of Parcel 3. No vegetation was observed in association with this pond. The fourth cattle pond is on the east side of the central parcel. It is at the head of a deep ravine and is sparsely vegetated.

These seasonal wetlands of the site are equivalent to the Holland Type "vernal marsh - 52500", the CNPS Vegetation Series "Spikerush Series", and the Cowardin Class of "palustrine seasonal emergent freshwater wetland." The cattle pond features resemble the CWHR type “wet meadow”. Dense populations of bullfrogs (*Rana catesbeiana*) colonize each pond and likely create heavy predation pressures on other species in the cattle ponds. No other wildlife was observed during the fall surveys.

Detention Basin and Roadside Ditch

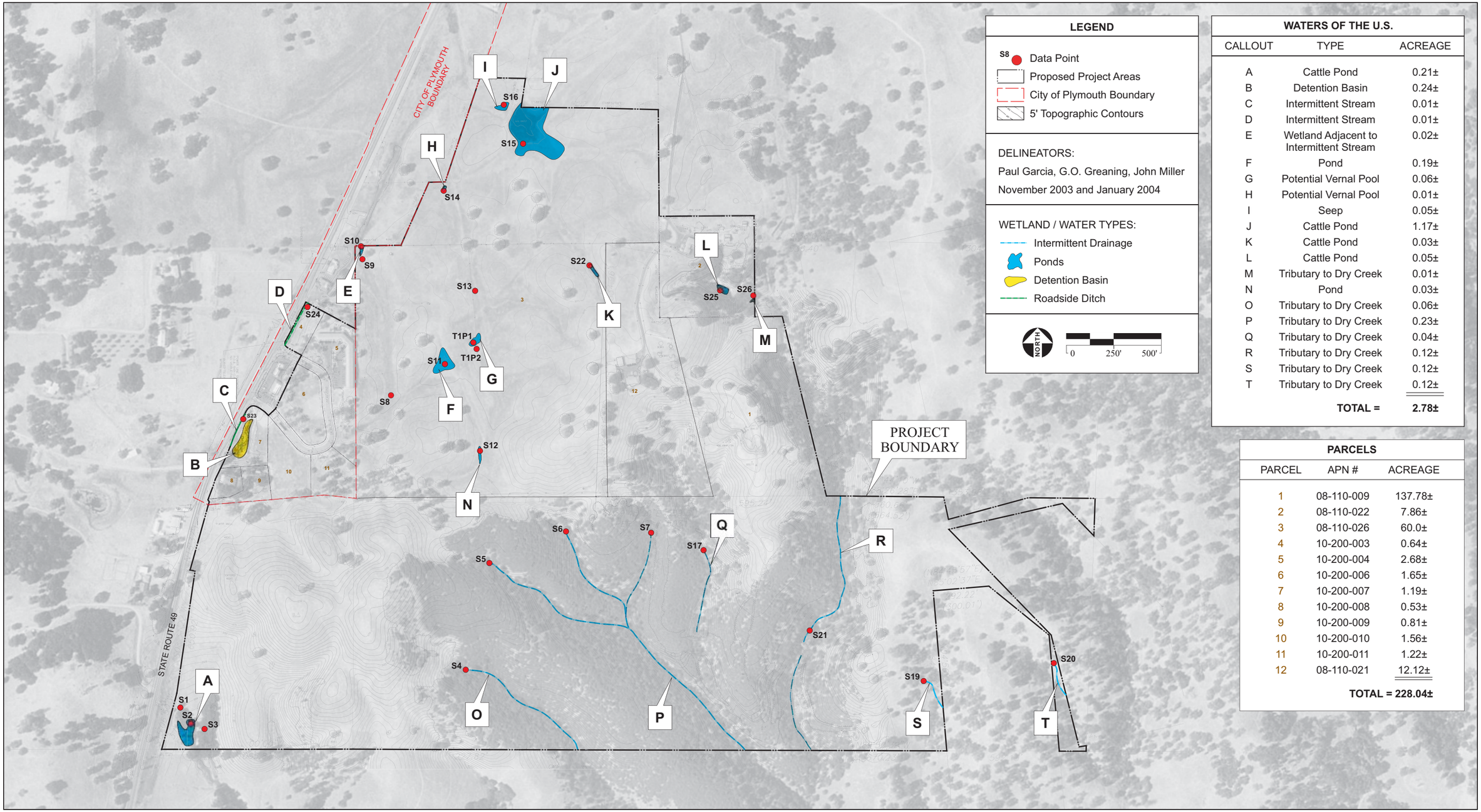
A detention basin exists along the western boundary of Parcel 7. This feature appears to collect runoff from this portion of the site and channel it into a culvert that daylights just north of the gas station and continues as a roadside ditch. The ditch is shown as an intermittent drainage on the USGS quadrangle map. This portion of the drainage appears to be a modification of a historic drainage that once flowed through the property of the current gas station and through the western portion of Parcel 4.

Dominant plants identified during site visits include broadleaf cattail (*Typha latifolia*), and Himalaya blackberry (*Rubus discolor*). Plants identified within the drainage include broadleaf cattail, curly dock (*Rumex crispus*), red willow (*Salix laevigata*), and arroyo willow (*Salix lasiolepis*).

The detention basin and ditch fronting State Hwy. 49 is similar in floristic composition to the CNPS Vegetation Series "Cattail- and "Red Willow Series." The Cowardin Class of "palustrine seasonal emergent freshwater wetland" defines the detention basin and "palustrine excavated scrub-shrub wetland" characterizes the intermittent drainage.

Vernal pools

Vernal pools are ephemeral wetlands forming in shallow depressions underlain by a substrate near the surface that restricts percolation of water (Sawyer and Keeler-Wolfe 1995). Vernal pools fill with rainwater and runoff from adjacent areas during the winter and remain inundated until spring or early summer. The area in the vicinity of the abandoned aircraft runway (visible on the USGS quadrangle map) in Parcel 3 contains several potential vernal pools (**Figure 6**).



WATERS OF THE U.S.

CALLOUT	TYPE	ACREAGE
A	Cattle Pond	0.21±
B	Detention Basin	0.24±
C	Intermittent Stream	0.01±
D	Intermittent Stream	0.01±
E	Wetland Adjacent to Intermittent Stream	0.02±
F	Pond	0.19±
G	Potential Vernal Pool	0.06±
H	Potential Vernal Pool	0.01±
I	Seep	0.05±
J	Cattle Pond	1.17±
K	Cattle Pond	0.03±
L	Cattle Pond	0.05±
M	Tributary to Dry Creek	0.01±
N	Pond	0.03±
O	Tributary to Dry Creek	0.06±
P	Tributary to Dry Creek	0.23±
Q	Tributary to Dry Creek	0.04±
R	Tributary to Dry Creek	0.12±
S	Tributary to Dry Creek	0.12±
T	Tributary to Dry Creek	0.12±
	TOTAL =	**2.78±**

PARCELS

PARCEL	APN #	ACREAGE
1	08-110-009	137.78±
2	08-110-022	7.86±
3	08-110-026	60.0±
4	10-200-003	0.64±
5	10-200-004	2.68±
6	10-200-006	1.65±
7	10-200-007	1.19±
8	10-200-008	0.53±
9	10-200-009	0.81±
10	10-200-010	1.56±
11	10-200-011	1.22±
12	08-110-021	12.12±
	TOTAL = 228.04±	

SOURCE: USGS Aerial Photograph, 8/16/1998 ; American Aerial Mapping, 2003; AES, 2007

Figure 6
Delineation of Waters of the United States

The potential vernal pool habitat is atypical of the types described by Holland and the CNPS system, in that they occur at an elevation that is well above the known Holland and CNPS types "Northern Hardpan Vernal Pools" and "Northern Claypan Vernal Pool." Furthermore the structure of these features is not consistent with the descriptions of known vernal pools types such as Holland's "Northern Volcanic Basalt Flow Vernal Pools" and CNPS's description of vernal pools derived from heavy clay, or volcanic ash and pyroclastic material. The potential vernal pools of the Plymouth site formed in thin subsoil, only a few inches thick; weathered from shallow, indurate slate bedrock, often in tilted or near vertical bedding planes. Evidently, the shallow slate bedrock blocks infiltration of surface water for a period of time long enough to support the growth of vernal pool indicator species and obligate wetland plants in ponded microsites. Plants identified at the time of the surveys included spikerush (*Eleocharis macrostachya*), Vasey's branching coyote thistle (*Eryngium castrense*), and pillwort (*Pilularia americana*) (**Appendix E**).

OTHER SEASONAL WETLANDS

Two other areas of seasonal wetlands exist within Parcel 3. One of these features is a seasonal wetland that the abandoned aircraft runway grade formed by impounding water on the uphill side of it. This feature pools water during the winter and is dominated by spikerush and are severely disturbed by cattle. These seasonal wetlands are equivalent to the Holland Type "vernal marsh - 52500" and the CNPS Vegetation Series "Spikerush Series" and "Introduced Perennial grassland series", respectively, and the Cowardin Class of "palustrine seasonal emergent freshwater wetland."

The seasonal wetland area associated with the abandoned aircraft runway is dominated by spikerush. Plant fragments identified in the wetland area near the drainage during the late fall surveys include Dallis grass (*Paspalum dilatatum*), crab grass (*Cynodon dactylon*), loosestrife hyssop (*Lythrum hyssopifolium*), and Himalaya blackberry (*Rubus discolor*).

URBANIZED AREAS

Portions of the study area are classified as disturbed or developed habitat. These areas are associated with the residential and commercial developments in portions of Parcels 2, 4, 5, 6, 7, 8, 9, 10, 11, and 12. Urbanized areas comprise approximately 14 acres of the study area. These areas support a combination of ornamental and ruderal vegetation. Ruderal vegetation identified in this area during site visits includes yellow star thistle, doveweed (*Eremocarpus setigerus*), prickly lettuce (*Lactuca serriola*), and winter vetch. No wildlife was observed in this area.

4.2 SPECIAL-STATUS SPECIES

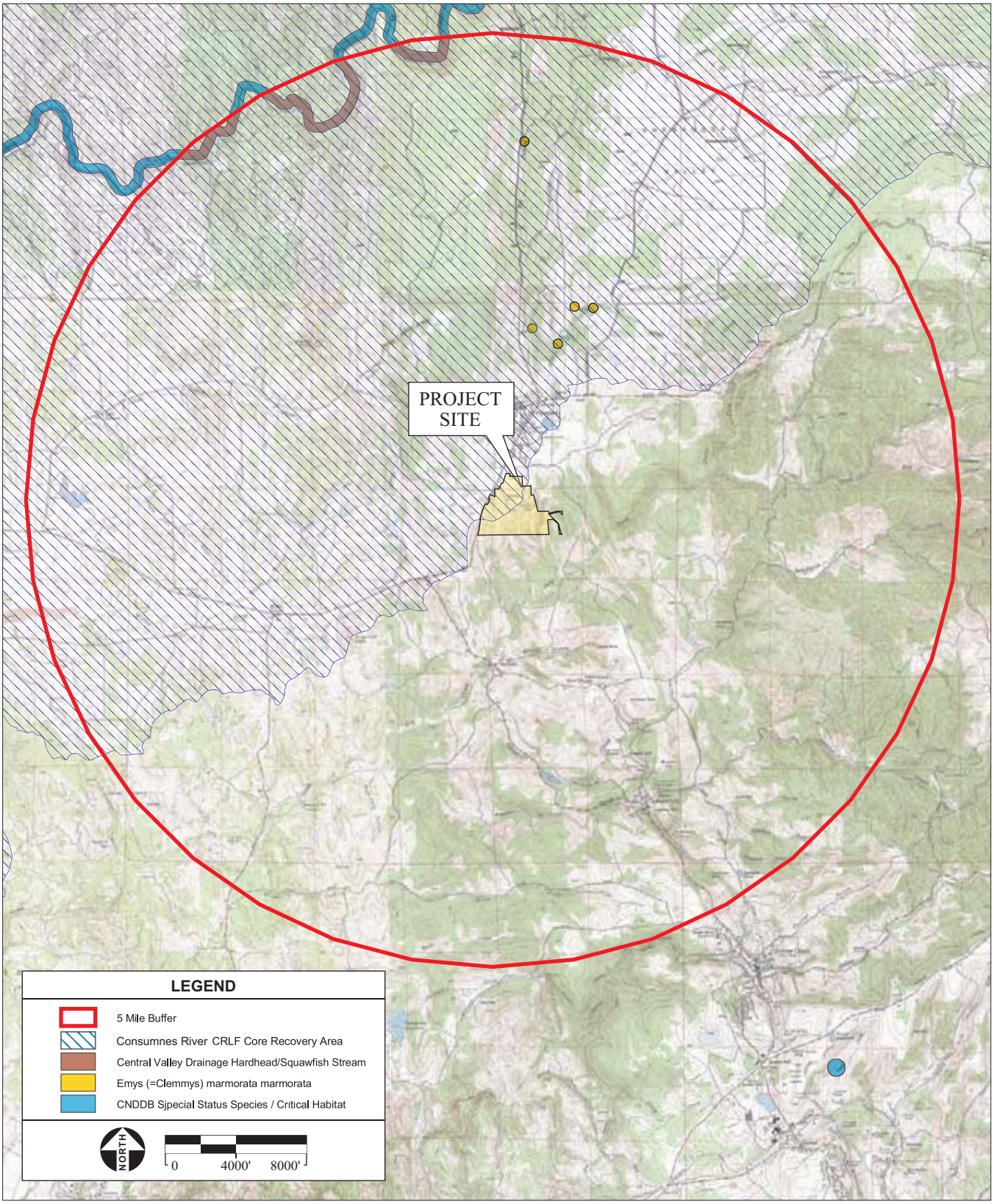
A list of regionally occurring special-status plant and animal species was compiled based on a review of pertinent literature including the California Native Plant Society Inventory of Rare and Endangered Vascular Plants of California (CNPS 2001) and Woodward (2001), reconnaissance-level site assessments, informal

consultation with the U.S. Fish and Wildlife Service via a letter requesting information (**Appendix A**), and the results of a CNDDB query (CDFG 2003) of all reported occurrences of special-status species within the "Amador City, California" USGS 7.5 minute topographic quadrangle map and the surrounding eight quadrangle maps (**Appendix B**). Habitat requirements for each special-status species were assessed and compared to the habitats occurring within the project area (**Appendix C**).

During the site visits on September 30, October 1, November 19, and November 25, 2003 two special-status species were observed within the study area: the oak titmouse and Nuttall's woodpecker. No special-status species were observed on the June 14, 2004 survey. This finding is consistent with an earlier survey of the southern land ownership parcel of the site by Dr. Roy Woodward in 2001, and studies on nearby properties proposed for mining (Woodward 1993). The CNDDB (CDFG 2003) was queried and occurrences of special-status species plotted in relation to the study area boundary using GIS software. The CNDDB reported no special-status species occurrences within the study area. The CNNDB did report occurrences in the vicinity of the study area. Within a 5-mile radius, the following occurrences have been reported to the CNDDB (CDFG 2004): northwestern pond turtle (*Emmys marmorata marmorata*) and the community type, Central Valley Drainage Hardhead/Squawfish Stream (**Figure 7**).

Based upon the review of regionally occurring special-status species and the results of the habitat assessments, the project area and/or surrounding vicinity represent potential habitat for two special-status plant species and twenty special-status animal species. The name, regulatory status, habitat requirements, and period of identification for these species are identified in **Table 1**. In addition, these species were further assessed for the potential to occur in the study area based on previously documented species occurrences on, or relatively near, the property and the quality and extent of available habitat on the property.

Each species was given a ranking of high, medium, or low for its potential to occur in the study area. A ranking of "high" was given for species where essential habitat elements exist on-site, where there have been previously documented occurrences on the site, or where field assessments have positively identified the species on the site. A ranking of "medium" was given for species where preferred habitat elements exist on-site and where there have been previously documented occurrences in the vicinity of the site. A ranking of "low" is given for species where habitat elements exist on-site, but the quality of that habitat is degraded or of poor quality, where on-site or nearby activity and conditions deter its use of the site, or when known occurrences are limited to areas outside the vicinity of the project area.



TOPOGRAPHICAL DATA: "Amador City, CA" USGS 7.5 Minute Topographic Quadrangle, Sections 34,35,36 T8N R10E, Sections 31,32,33,34 T8N R11E, Sections 2,3,4,9,10,11,12,13,14,15,16,21,22,23,24,25,26,27,28,33,34,35, 36 T7N R10E, Sections 3,4,5,6,7,8,9,10,15,16,17,18,19,20,21,22,28,29,30,31,32,33 T7N R11E, Sections 9,10,11,12 T6N R10E, Sections 5 & 6 T7N R11E;"Irish Hill, CA"USGS 7.5 Minute Topographic Quadrangle, Sections 1,4,5, 6,7,8,9,12,13,16,17,18,19,20,21,24,25,28,29,30,31,32,33 T7N R10E, Sections 31,32,33,36 T8N R10E, Sections 4,5,6,9 T6N R10E ; "Latrobe, CA" USGS 7.5 Minute Topographic Quadrangle, Sections 20,21,28,29,30,31,32,33 T8N R10E, "Fiddletown, CA" USGS 7.5 Minute Topographic Quadrangle, Sections 36 T8N R9E, Sections 19,29,30,31,32 T8N R11, Mt. Diablo Baseline and Meridian

SOURCE: California Natural Diversity Database ; AES, 2004

Figure 7

CNDDB Special Status Species Within a 5 Mile Radius of Project Site

TABLE 1
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name **Common name**	**Status USFWS/ CDFG/CNPS**	**General Habitat Description**	**Potential to Occur in Study Area**	**Ideal Period of Identification**
PLANTS				
Horkelia parryi Parry's horkelia	FSC/--/1B	Open chaparral and cismontane woodland between 300 and 3,000 ft. in elevation, found most often on Ione soils.	Low	April-June
Sphenopholis obtusata Prairie wedge grass	--/--/2	Meadows and seeps 1,000-6,500 ft. in elev.	Low	April-July
ANIMALS				
INVERTEBRATES				
Branchinecta lynchi Vernal pool fairy shrimp	FT/--/--	Vernal pools in Central Valley, coast ranges, and a limited number of sites in Transverse Ranges and Riverside County, California.	Medium	December-May
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT/--/--	Breeds and forages exclusively on elderberry shrubs (*Sambucus mexicana*) below 2,500 ft. in elev.; specifically on shrubs with stem diameter of one-inch or greater.	Medium	All year
Lepidurus packardi Vernal pool tadpole shrimp	FE/--/--	Life cycle within vernal pools and valley foothill grassland swales.	Medium	December-May
AMPHIBIANS				
Ambystoma californiense California tiger salamander	FT/CSC/--	Occurs in annual grasslands. Breeds and lays eggs November to February in vernal pools and other temporary rainwater ponds and sometimes permanent man-made ponds where predators are absent. May co-exist with bull frogs (Rana catesbeiana) in vegetated ponds that provide refugia.	Low	November-February
Rana aurora draytonii California red-legged frog	FT/CSC/--	Lowlands and foothills in or near permanent or late-season sources of deep water with dense, shrubby, or emergent vegetation.	Low	May - November
REPTILES				
Spea hammondii Western spadefoot toad	FSC/CSC/--	Occurs primarily in grassland habitats, but can be found in valley and foothill woodlands. Vernal pools are essential for breeding and egg laying.	Medium	November-March
Clemmys (Emmys) marmorata marmorata Northwestern pond turtle	FSC/CSC/--	Requires aquatic habitats with suitable basking sites. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks.	Low	All year
BIRDS				
Agelaius tricolor Tricolored blackbird	FSC/CSC/--	Nests in dense thickets of cattails, tules, willow, blackberry, wild rose, and other tall herbs near fresh water in Central Valley.	Low	April-July
Amphispiza belli belli Bell's sage sparrow	FSC/CSC/--	Seeks cover in fairly dense stands in chaparral and scrub habitats in breeding season.	Medium	April-September
Baeolophus inornatus Oak titmouse	SLC/--/--	Open woodlands of oak or mixed pine-oak. Sometimes forages and breeds in riparian areas.	High	March-July
Carduelis lawrencei Lawrence's goldfinch	FSC/--/--	Nests in open oak or other arid woodland near water.	Medium	March-August

Scientific Name Common name	Status USFWS/ CDFG/CNPS	General Habitat Description	Potential to Occur in Study Area	Ideal Period of Identification
Lanius ludovicianus (nesting) Loggerhead shrike	FSC/CSC/--	Occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Found in a variety of habitats with open areas, available perches, and dense shrubs for nesting	Medium	March-August
Melanerpes lewis (nesting) Lewis' woodpecker	FSC/--/--	Open oak savannahs, broken deciduous, and coniferous habitats. Requires open habitats with scattered trees and snags with cavities.	Medium	May-July
Picoides nuttallii Nuttall's woodpecker	FSC/--/--	Found in low-elevation riparian deciduous and oak habitats.	High	All year
Selasphorus rufus Rufous hummingbird	FSC/--/--	Found in a wide variety of habitats that provide nectar-producing flowers; uses valley foothill hardwood, valley foothill hardwood-conifer, riparian, and various chaparral habitats in both northward and southward migration; montane riparian, aspen, and high mountain meadows (to tree-line and above) used in southward migration.	Medium	February-September
Toxostoma redivivum California thrasher	FSC/--/--	Occupies moderate to dense chaparral habitats and, less commonly, extensive thickets in young or open valley foothill riparian habitat.	Medium	All year
MAMMALS				
Corynorhinus townsendii townsendii Pacific western big-eared bat	FSC/CSC/--	Found throughout CA, highly associated with mines and caves. Throughout much of known range, commonly occurs in mesic habitats characterized by coniferous and deciduous forests.	Medium	All year
Euderma maculatum Spotted bat	FSC/CSC/--	Habitats occupied range from arid deserts and grasslands through mixed conifer forests. Apparently prefers to roost in rock crevices. Occasionally found in caves and buildings. Cliffs provide optimal roosting habitat.	Low	All year
Eumops perotis californicus Greater western mastiff-bat	FSC/CSC/--	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban. Crevices in cliff faces, high buildings, trees, and tunnels are required for roosting.	Low	All year
Myotis ciliolabrum Small-footed myotis bat	FSC/--/--	Common bat of arid uplands preferring open stands, brushy, and woodland habitats. Uses caves, mines, buildings, bark, and crevices to roost.	Medium	April-October

STATUS CODES

FEDERAL: U.S. Fish and Wildlife Service and National Marine Fisheries Service

FE Listed as Endangered by the Federal Government
FT Listed as Threatened by the Federal Government
FPE Proposed for Listing as Endangered
FPT Proposed for Listing as Threatened
FC Candidate for Federal Listing
FSC Federal Species of Concern
SLC Federal Species of Local Concern

STATE: California Department of Fish and Game
CE Listed as Endangered by the State of California
CT Listed as Threatened by the State of California
CSC California Species of Special Concern
CFP California Fully Protected Species

CNPS: California Native Plant Society
List 1A Plants presumed extinct in California
List 1B Plants rare or endangered in California and elsewhere
List 2 Plants rare or endangered in California, but more common elsewhere

SOURCES: U.S. Fish and Wildlife Service 2003; California Natural Diversity Data Base 2004; CNPS 2001; NatureServe 2003.

FEDERALLY LISTED SPECIES

Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp is a small crustacean in the family Branchinectidae. It ranges in size from ½ to one inch long. The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Although the species has been collected from large vernal pools, it tends to occur in smaller pools. It is most frequently found in pools measuring less than 0.05 acre. These are most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. Vernal pool fairy shrimp have been collected from early December to early May.

Female fairy shrimp carry their eggs in a ventral brood sac. The eggs are either dropped to the pool bottom or remain in the brood sac until the mother dies and sinks. When the pool dries out, so do the eggs. They remain in the dry pool bed until rains and other environmental stimuli hatch them. Resting fairy shrimp eggs are known as *cysts*. They are capable of withstanding heat, cold and prolonged desiccation. When the pools refill, some, but not all, of the cysts may hatch. The cyst bank in the soil may contain cysts from several years of breeding. Average time to maturity is only forty-one days. In warmer pools, it can be as little as eighteen days (USFWS 2003 <web>). Due to the extensive loss of vernal pools in the Central Valley, the USFWS listed the vernal pool fairy shrimp as threatened in 1994 pursuant to the Federal Endangered Species Act.

Vernal pool fairy shrimp have been documented in western Amador County (USFWS 2004a). The potential vernal pool habitat identified on-site has the potential to support this species. Potential for occurrence of the vernal pool fairy shrimp on site is high and its presence is assumed.

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle (VELB) is completely dependent on its host plant, elderberry (*Sambucus mexicana*), in California's Central Valley during its entire life cycle (USFWS 1999). VELB larvae live within the soft pith of the elderberry where they feed for 1-2 years. Adults emerge from pupation inside the wood of elderberry shrubs during the spring as the plant begins to flower. The adults feed on the elderberry foliage up until they mate. Females lay their eggs in the crevices of elderberry bark. Upon hatching the larvae then tunnel into shrub stems and feed there. VELB typically utilize stems that are greater than one-inch in diameter

at ground level (USFWS 1999). Due largely to the loss of riparian habitat within California's Central Valley the VELB populations in the state had decreased to a point that in 1980 the USFWS listed the species as threatened pursuant to the Federal Endangered Species Act.

Three elderberry shrubs were observed within Parcel 1(**Figure 4)**:

- One large shrub was observed at the headwaters of the westernmost drainage in a non-riparian area. This shrub was observed to support 4 stems greater than 5" inches in diameter, 6 stems greater than 3" inches in diameter, and 10 stems greater than one inch in diameter. No exit holes were observed.
- Two small shrubs were observed on the northern slope of the road crossing of the eastern most drainage within the area of the proposed reclaimed water seasonal storage reservoir. Each of these two shrubs were greater than one but less than three inches in diameter. No exit holes were observed on either of these two shrubs.

The VELB is assumed not to be present within the project area.

Vernal Pool Tadpole Shrimp

The vernal pool tadpole shrimp (*Lepidurus packardi*) is a small crustacean in the family Triopsidae. It has compound eyes, a large shield-like carapace (shell) that covers most of the body, and a pair of long cercopods (appendages) at the end of the last abdominal segment. Vernal pool tadpole shrimp adults reach a length of 2 inches in length. This animal inhabits vernal pools containing clear to highly turbid water, ranging in size from 54 square feet to 89 acres (USFWS 2004b). The life history of the vernal pool tadpole shrimp is linked to the seasonal cycle of the vernal pool. After winter rainwater fills the pool, the population is reestablished from cysts that lie dormant in the dry pool sediments. Sexually mature adults have been observed in vernal pools three to four weeks after the pools had been filled. Some cysts hatch immediately and the others remain dormant in the soil to hatch during later rainy seasons (USFWS 2003). Due to the extensive loss of vernal pools in the Central Valley, the USFWS listed the vernal pool tadpole shrimp as threatened in 1994 pursuant to the Federal Endangered Species Act.

Vernal pool tadpole shrimp has the potential to occur in western Amador County (USFWS 2004b). The potential vernal pool habitat identified on-site has the potential to support this species. Potential for occurrence of the vernal pool fairy shrimp on site is high and its presence is assumed.

California Red-legged Frog

California red-legged frogs (CRLF) historically occupied portions of the western slope of the Sierra Nevada from Shasta County south to Tulare County. Over the years these populations have become fragmented or extirpated. The CRLF occupies a fairly distinct habitat, combining both specific aquatic and riparian components. The adults require dense, shrubby or emergent riparian vegetation closely associated with deep (greater than 2 1/3-foot deep) still or slow moving water. The largest densities of CRLFs are associated with deep-water pools with dense stands of overhanging willows (*Salix* spp.) and an intermixed fringe of cattails

(*Typha latifolia*). Well-vegetated terrestrial areas within the riparian corridor may provide important sheltering habitat during winter (USFWS 2003). The CRLF has sustained a 70 percent reduction in its geographic range in California as a result of several factors acting singly or in combination. Habitat loss and alteration, combined with over exploitation and introduction of exotic predators, were significant factors in the red-legged frogs' decline in the early to mid-1900s (USFWS 2003). As a result, the USFWS listed the CRLF as threatened in 1996.

Due to the listing of the CRLF, USFWS and other state, municipal and private protection measures have been implemented to assist in the recovery of the species. In 2002 USFWS published the Recovery Plan for the CRLF (Recovery Plan). In the Recovery Plan USFWS identifies eight recovery units within California that contain core areas that are targeted for development and implementation of management and protection plans for the CRLF. The project site is located within the Cosumnes River core recovery area for the CRLF. Conservation needs prescribed by USFWS for the Cosumnes River core area includes:

- Protect of existing populations,
- Restore additional habitat,
- Protect habitat connectivity, and
- Reestablish populations and/or augment existing populations.

The cattle ponds identified within the study area represent potential habitat for CRLF. The ponds are all permanent and all exceed 3-feet in depth during some time of the year, however they support sparse emergent, bank, or adjacent vegetation that could provide cover for adult CRLFs, therefore, ponds have a low potential for supporting viable populations of CRLFs. The nearest reported CRLF occurrence is 22 miles northeast of the site, on Sopiago Creek in neighboring El Dorado County. The combination of poor habitat conditions, a lack of CRLF occurrences within 5-miles of the project site as documented in the CNDDB, the lack of observations within the project site during site visits, and the presence of large populations of bull frogs within all the ponds further support this assumption. On this basis no additional surveys are recommended, however mitigation may be required by the USFWS to meet the conservation needs of the CRLF as outlined in the Recovery Plan for the Cosumnes River core areas.

California Tiger Salamander

In the Central California foothills, the California tiger salamander (CTS) is typically found at elevations below 1,500 feet. CTS spend the majority of their lives in upland habitats such as annual grasslands, oak savannah, mixed grassland and woodland habitats, woodlands, scrub, or chaparral habitats plant communities associated with vernal pools, vernal pool complexes, and seasonal ponds. Within these upland habitats, adult CTS spend part of their lives in the underground burrows of small mammals and are therefore rarely encountered even where abundant. They utilize seasonal ponds, natural vernal pools, vernal pool complexes, and roadside ditches for breeding during their aquatic phase. Small artificial water bodies such as stockponds may be used

but are often not optimum breeding habitat for the CTS because the hydroperiod of stockponds can be so short that larvae cannot metamorphose or so long that predatory fish and bullfrogs can colonize the pond. Periodic maintenance of stockponds may also cause a temporary loss of functioning aquatic habitat. Successful breeding ponds for California tiger salamanders need to be inundated for a minimum of 12 weeks to allow for successful metamorphosis (USFWS 2004c).

The California tiger salamander has been eliminated from an estimated 55 to 58 percent of its historic breeding sites and has lost an estimated 75 percent of its habitat. Although there are approximately 150 known local populations of California tiger salamanders, the species is currently protected only at Jepson Prairie Natural Preserve and Hickson Preserve. California tiger salamander was listed as a Federally threatened species under FESA in August of 2004. Proposed critical habitat for the CTS is 14 miles south west of the project site. Habitat for the CTS is closely related to habitat utilized by the CRLF. The CTS is included in the CRLF Recovery Plan as an associated species in the USFWS's ecosystem approach to conservation.

The cattle ponds identified within the study area represent potential habitat for CTS. The ponds are all permanent, however they support sparse emergent vegetation that could provide refugia for larval CTS and a large population of bull frogs. The nearest reported CTS occurrence is 11 miles west-southwest of the site in Amador County. The combination of poor habitat conditions, the lack of CTS occurrences within 5-miles of the project site documented in the CNDDB, and the presence of large populations of bull frogs within all the ponds on site supports the assumption that these ponds have a low potential for supporting viable breeding habitat for populations of CTS. On this basis no additional surveys are recommended, any mitigation proposed for the CRLF would also benefit the CTS.

FEDERAL SPECIES OF CONCERN FOUND ON THE SITE

Oak Titmouse

The oak titmouse shows a propensity to inhabit open oak woodlands and pine-oak woodlands. However, it is found in woodlands such as montane hardwood-conifer, montane hardwood, blue oak, valley oak, coastal oak, and montane, cismontane, and valley foothill riparian habitats. This species sometimes forages and breeds in riparian areas, and ventures into residential areas. Nesting material is primarily grass, moss, mud, hair, feathers, and fur in woodpecker hole, natural cavity, or nest box. Breeding is from mid-March into July. This species was seen in the riparian and oak woodland habitats during the fall surveys of 2003. It is listed as a federal species of local concern.

Nuttall's Woodpecker

Nuttall's woodpecker is a permanent resident of low-elevation riparian deciduous and oak habitats and tends to frequent elevations below 200 meters. This species forages mostly in oak and riparian deciduous habitats. Nesting is located mostly in riparian habitat in dead (occasionally live) trunk or limb of willow, sycamore, cottonwood, alder, and oaks. Breeding occurs from late March to early July; peak activity April to early June.

This species was spotted during the fall surveys of 2003 in the oak woodland habitat. Federal listing is a species of concern.

NESTING RAPTORS AND MIGRATORY BIRDS

Surveys of the study area in September and November 2003 did not reveal the presence of any nesting raptor or migratory bird species, or the presence of old nests. However, directed surveys for nesting birds were not conducted as part of these reconnaissance level surveys.

4.3 WATERS OF THE UNITED STATES

A formal delineation of jurisdictional Waters of the U.S. within the study area was conducted in November 2003 and January 2004, using the 1987 USACE Manual (Environmental Laboratory 1987).

Portions of the site within the watershed of Dry Creek are characterized by dissected topography, which supports ephemeral to intermittent drainages. Wetland features identified in the study area include the ephemeral and intermittent drainages, cattle ponds, potential vernal pools, swales, and seasonal wetlands previously discussed and illustrated in **Figure 4**. These "waters of the U.S." occupy a total of 2.88 acres (AES 2004). It is likely that these features would be considered jurisdictional waters of the U.S. subject to USACE regulation under Section 404 of the Clean Water Act.

5.0 IMPACTS AND MITIGATON MEASURES

5.1 SIGNIFICANCE CRITERIA

The project would be considered to have a significant adverse impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a threatened, endangered, proposed, candidate, sensitive, or special-status species by USFWS;

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; or

- Conflict with the provisions of an adopted Habitat Conservation Plan.

- Conflict with the CRLF Core Recovery Area in an adopted Recovery Plan.

5.2 SPECIAL-STATUS SPECIES

Based upon the special-status species review, review of habitat requirements, field assessments, and the habitat types present within the study area, two special-status plant species and twenty special-status animals have the potential to occur within the study area. Based on the significance criteria outlined in Section 5.1, eight of the species were removed from further consideration due to a low potential of occurrence, fourteen of the twenty-two species listed in **Table 1** have a medium or high potential to occur in the study area and may be adversely impacted by the proposed project: vernal pool fairy shrimp, valley elderberry longhorn beetle, vernal pool tadpole shrimp, western spadefoot toad, Bell's sage sparrow, oak titmouse, Lawerence's goldfinch, loggerhead shrike, Lewis' woodpecker, Nuttall's woodpecker, Rufous hummingbird, California thrasher, Pacific western big-eared bat, and small footed myotis bat. Pre-construction surveys and habitat protective measures are recommended as mitigation for special status species. However, only federal Endangered and Threatened Species, such as vernal pool fairy shrimp, and valley elderberry longhorn beetle, require mandatory mitigation on Indian Trust land. Specific mitigation measures include:

Potential Impact # 1

Development activity within Parcel 3 may result in indirect and/or direct impacts to the federally threatened vernal pool fairy shrimp, the federally endangered vernal pool tadpole shrimp and the federally threatened VELB. Vernal pool habitat identified within this parcel has the potential to support vernal pool invertebrate species. The presence of these species within the site has not yet been determined. The host species for the VELB occurs on site and has the potential to support this federally threatened species.

Recommended Measures

1A **If presence of these listed vernal pool invertebrates is not assumed then the identified potential vernal pools shall be surveyed for vernal pool fairy shrimp and vernal pool tadpole shrimp, as well as other potentially occurring special-status invertebrates. The invertebrate surveys shall be conducted by biologist with a Section 10(a)(1)(A) recovery permit for listed vernal pool branchiopods according to the USFWS *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*. If it is determined that federally listed species occur in these areas then formal consultation shall be initiated with USFWS. If it is determined that these features are subject to the jurisdiction of the Corps, then the Corps shall initiate Section 7 Consultation with the USFWS.**

1B **Project plans shall be designed to avoid direct and indirect impacts to the potential vernal pool habitat. For complete avoidance, the project shall be designed to avoid impacts to the upland areas that support the hydrology of these pools.**

1C **If impacts are unavoidable, then compensation for the loss of potential vernal pool habitat shall be accomplished through the purchase of mitigation credits at a USFWS approved mitigation bank. This mitigation would likely involve both the creation and preservation of potential vernal pool habitat. The compensatory mitigation ratio would be established during Section 7 consultation, either through Corps or the Bureau of Indian Affairs.**

1D **If listed vernal pool plants are identified in the potential vernal pool habitat, then mitigation for these species will be considered separate from the consultation for vernal pool invertebrates. The specifics of the mitigation for impacts to these species will be determined by the USFWS. This mitigation would likely involve the purchase of mitigation credits at a nearby mitigation bank.**

1E **Direct impacts to the elderberry shrub(s) shall be avoided.**

1F **Prior to any construction activities occurring within 100 feet of elderberry shrubs having stems greater than 1-inch in diameter, the USFWS shall be consulted. The project shall comply with the July 1999 Conservation Guidelines for the Valley Elderberry Longhorn Beetle and all USFWS recommendation and/or requirements resulting from the Section 7 Biological Opinion.**

5.3 WATERS OF THE U.S.

Many of the 2.88 acres of aquatic and palustrine features (including the intermittent and ephemeral watercourses) that were identified in the 2004 waters of the U. S. study would be considered jurisdictional waters of the U.S., subject to USACE regulation under Section 404 of the Clean Water Act. In addition, the proposed project would result in a change in flow through streambeds and thus would be subject to regulation under CDFG's Lake or Streambed Alteration Program. Impacts to jurisdictional waters include paving a portion of a potential vernal pool water shed, filling portions of several stock ponds, relocation of a roadside ditch, and filling of a detention basin. The total acreage of impact would be less than 1/2 acre.

Potential Impact # 2

Construction activities associated with development of the proposed project could result in adverse impacts to less than 1/2 acre of wetlands and other waters of the U. S.

Recommend Measures

2A **A formal delineation of waters of the U. S. occurring within the proposed project area shall be submitted to the USACE for verification.**

2B **Project site plans shall be modified to avoid or minimize impacts to jurisdictional waters of the U. S. and wetland habitats to the extent feasible.**

2C A Department of the Army permit shall be obtained from the USACE prior to the discharge of any dredged or fill material within jurisdictional wetlands and other waters of the U. S. In addition, Water Quality Certification shall be obtained from the USEPA.

2D Unavoidable impacts to waters of the U. S. and wetland habitat shall be mitigated by creating or restoring wetland habitats either onsite or at an appropriate off-site location. Compensatory mitigation shall occur at a minimum of 1:1 ratio and shall be approved by the USACE prior to any discharge into jurisdictional features.

2E Construction activities in the vicinity of any jurisdictional features shall be conducted during the dry season to minimize erosion.

2F Temporary fencing shall be installed around wetland and intermittent drainage features and associated riparian woodland that is outside of the construction area. Fencing shall be located as far as feasible from the edge of wetlands and riparian habitats and installed prior to any construction. The fencing shall remain in place until all construction activities on the site have been completed. Any temporarily disturbed areas of wetland, intermittent drainage or riparian habitat shall be restored to the degree feasible and revegetated with the appropriate species as soon as feasible after completion of construction activities.

2G Staging areas shall be located away from the areas of wetland, intermittent drainage and riparian habitat that are fenced-off. Temporary stockpiling of excavated or imported material shall occur only in approved construction staging areas. Excess excavated soil shall be used on site or disposed of at a regional landfill or other appropriate facility. Stockpiles that are to remain on the site through the wet season shall be protected to prevent erosion (e.g. tarps, silt fences, straw bales).

2H Standard precautions shall be employed by the construction contractor to prevent the accidental release of fuel, oil, lubricant, or other hazardous materials associated with construction activities into jurisdictional features. A contaminant containment program shall be developed and implemented in the event of release of hazardous materials.

2I Nighttime lighting for construction and parking areas will be employed so that they shine only on the construction and parking areas and not on surrounding areas. This can be achieved by employing down pointing lighting fixtures and low-pressure sodium bulbs

5.4 OTHER SENSITIVE RESOURCES

Oak savanna, oak woodland, and riparian woodland occurring on the property provide valuable habitat for a variety of wildlife and plant species including oak titmouse, a federal species of concern. Approximately 21 acres of oak savanna, 8 acres of oak woodland, and 3 acres of riparian woodland are proposed to be removed or may be indirectly affected by construction of the proposed project. Annual grassland and chaparral habitats are relatively abundant on a local and regional scale and are not considered sensitive resources due to disturbance levels and dominance of non-native species.

Potential Impact #3

The proposed project has the potential to result in adverse impacts to the biological resources associated with the loss of 21 acres of oak savanna and 8 acres of oak woodland habitat.

Recommend Measures

3A Project site plans shall be modified to avoid or minimize impacts to oak trees to the extent feasible.

3B Removal of oak trees, of approximately 24 inches dbh or greater, shall be avoided.

3D If an oak tree is removed, it shall be replaced at a ratio of 5:1 (5 oak trees replanted for every single oak tree, removed). A qualified biologist shall monitor the success of the plantings by for ten (10) years. Any failed oak tree plantings shall be replaced.

Potential Impact #4

The proposed project has the potential to result in adverse impacts to the biological resources associated with 3 acres of riparian woodland habitat to be removed by the construction of the wastewater storage reservoir.

Recommend Measures

4A Project site plans should be modified to avoid or minimize impacts to riparian woodland habitat to the extent feasible.

4B Measures to avoid or reduce degradation of this sensitive resource within the property shall include: installing temporary fencing around riparian woodland habitat that is outside the construction areas, placing fencing around the avoidance areas as far as feasible from the tree drip-lines, requiring fencing to remain in place until all construction activities on the site have been completed, and requiring any temporarily disturbed areas of riparian woodland habitat be restored to the degree feasible and revegetated with the appropriate species at a ratio of 5:1 as soon as feasible after completion of construction activities. Monitoring for ten (10) years shall be required to ensure these measures are successfully implemented (see Recommended Mitigation Measure 3D).

6.0 SUMMARY

Biologists from Analytical Environmental Services (AES) conducted background research on the biological resources of the region and visited the 230± acre cluster of parcels near Plymouth, in Amador County, California in 2003 and 2004. The site surveys revealed a mosaic of plant communities including non-native grassland, oak woodland, oak savanna, riparian woodland, and chaparral. Much of the site is underlain by tilted or near vertical beds of slate which has weathered into a thin topsoil. This substrate supports seasonal wetlands, potential vernal pools, and constructed stock watering ponds. Portions of the site within the watershed of Dry Creek are characterized by dissected topography and ephemeral to intermittent drainages.

Two special-status plant species and nineteen special-status wildlife species may occur on the site, of these, fourteen have a medium to high potential to occur, seven of the species were removed from further consideration due to a low potential of occurrence. Two federal species of concern were observed during the fall surveys: the oak titmouse and Nuttall's woodpecker. Finally, this biological resources assessment outlines recommended mitigation measures to compensate for possible impacts to special-status species habitat, waters of the U. S., oak trees, and riparian woodland. Pre-construction surveys during the appropriate time of year for the target species are recommended.

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APPENDIX A

U. S. FISH AND WILDLIFE SERVICE SPECIES LIST

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

February 7, 2005

Document Number: 050207124056

John Downs
Analytical Environmental Services
2021 N street Suite 200
Sacramento, CA 95814

Subject: Species List for Ione Casino

Dear: Mr. Downs

We are sending this official species list in response to your February 7, 2005 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested. You have stated that this list is for consultation with the Fish & Wildlife Service.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed, candidate and special concern species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be May 08, 2005.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at sacramento.fws.gov/es/branches.htm.

Endangered Species Division

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 050207125433

Database Last Updated: January 19, 2005

Quad Lists

AMADOR CITY (494A)

Listed Species

Invertebrates

- Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)

Fish

- Hypomesus transpacificus - delta smelt (T)
- Oncorhynchus mykiss - Central Valley steelhead (T) (NMFS)

Amphibians

- Rana aurora draytonii - California red-legged frog (T)

Birds

- Haliaeetus leucocephalus - bald eagle (T)

Mammals

- Sylvilagus bachmani riparius - riparian brush rabbit (E)

Candidate Species

Fish

- Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C) (NMFS)

Species of Concern

Fish

- Pogonichthys macrolepidotus - Sacramento splittail (SC)
- Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

- Rana boylii - foothill yellow-legged frog (SC)
- Spea hammondii - western spadefoot toad (SC)

Reptiles

- Clemmys marmorata marmorata - northwestern pond turtle (SC)
- Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

- Agelaius tricolor - tricolored blackbird (SC)
- Amphispiza belli belli - Bell's sage sparrow (SC)
- Athene cunicularia hypugaea - western burrowing owl (SC)
- Baeolophus inornatus - oak titmouse (SLC)
- Carduelis lawrencei - Lawrence's goldfinch (SC)
- Chaetura vauxi - Vaux's swift (SC)
- Cypseloides niger - black swift (SC)
- Empidonax traillii brewsteri - little willow flycatcher (CA)
- Falco peregrinus anatum - American peregrine falcon (D)
- Lanius ludovicianus - loggerhead shrike (SC)
- Melanerpes lewis - Lewis' woodpecker (SC)
- Numenius americanus - long-billed curlew (SC)
- Picoides nuttallii - Nuttall's woodpecker (SLC)
- Selasphorus rufus - rufous hummingbird (SC)
- Toxostoma redivivum - California thrasher (SC)

Mammals

- Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
- Euderma maculatum - spotted bat (SC)
- Eumops perotis californicus - greater western mastiff-bat (SC)
- Myotis ciliolabrum - small-footed myotis bat (SC)
- Myotis evotis - long-eared myotis bat (SC)
- Myotis thysanodes - fringed myotis bat (SC)
- Myotis volans - long-legged myotis bat (SC)
- Myotis yumanensis - Yuma myotis bat (SC)

County Lists

Amador County

Listed Species

Invertebrates

- - Critical habitat, vernal pool invertebrates (X)
- Branchinecta lynchi - Critical habitat, vernal pool fairy shrimp (X)
- Branchinecta lynchi - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
- Lepidurus packardi - Critical habitat, vernal pool tadpole shrimp (X)
- Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

- Hypomesus transpacificus - delta smelt (T)
- Oncorhynchus mykiss - Central Valley steelhead (T) (NMFS)

Amphibians

- Ambystoma californiense - California tiger salamander (T)
- Rana aurora draytonii - California red-legged frog (T)

Reptiles

- Thamnophis gigas - giant garter snake (T)

Birds

- Haliaeetus leucocephalus - bald eagle (T)

Mammals

- Sylvilagus bachmani riparius - riparian brush rabbit (E)

Plants

- - Critical habitat, vernal pool plants (X)
- Arctostaphylos myrtifolia - Ione manzanita (T)
- Eriogonum apricum var. apricum - Ione buckwheat (E)
- Eriogonum apricum var. prostratum - Irish Hill buckwheat (E)

Proposed Species

Amphibians

- Ambystoma californiense - Critical habitat, CA tiger salamander - Central Valley population (PX)

Candidate Species

Fish

- Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C) (NMFS)
- Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C) (NMFS)

Amphibians

- Bufo canorus - Yosemite toad (C)
- Rana muscosa - mountain yellow-legged frog (C)

Mammals

- Martes pennanti - fisher (C)

Plants

- Botrychium lineare - slender Moonwort (= narrowleaf grapefern) (C)

Species of Concern

Invertebrates

- Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

- Lampetra hubbsi - Kern brook lamprey (SC)
- Pogonichthys macrolepidotus - Sacramento splittail (SC)

Amphibians

- Hydromantes platycephalus - Mount Lyell salamander (SC)
- Rana boylii - foothill yellow-legged frog (SC)
- Spea hammondii - western spadefoot toad (SC)

Reptiles

- Anniella pulchra pulchra - silvery legless lizard (SC)
- Clemmys marmorata marmorata - northwestern pond turtle (SC)
- Clemmys marmorata pallida - southwestern pond turtle (SC)
- Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

- Accipiter gentilis - northern goshawk (SC)
- Agelaius tricolor - tricolored blackbird (SC)
- Amphispiza belli belli - Bell's sage sparrow (SC)
- Athene cunicularia hypugaea - western burrowing owl (SC)
- Baeolophus inornatus - oak titmouse (SLC)
- Botaurus lentiginosus - American bittern (SC)
- Branta canadensis leucopareia - Aleutian Canada goose (D)
- Buteo regalis - ferruginous hawk (SC)
- Buteo Swainsoni - Swainson's hawk (CA)
- Carduelis lawrencei - Lawrence's goldfinch (SC)
- Chaetura vauxi - Vaux's swift (SC)
- Charadrius montanus - mountain plover (SC)
- Cinclus mexicanus - American dipper (SLC)
- Contopus cooperi - olive-sided flycatcher (SC)
- Cypseloides niger - black swift (SC)
- Empidonax traillii brewsteri - little willow flycatcher (CA)
- Falco peregrinus anatum - American peregrine falcon (D)
- Melanerpes lewis - Lewis' woodpecker (SC)
- Numenius americanus - long-billed curlew (SC)
- Otus flammeolus - flammulated owl (SC)
- Picoides albolarvatus - white-headed woodpecker (SC)
- Picoides nuttallii - Nuttall's woodpecker (SLC)
- Plegadis chihi - white-faced ibis (SC)
- Riparia riparia - bank swallow (CA)
- Selasphorus rufus - rufous hummingbird (SC)
- Sphyrapicus ruber - red-breasted sapsucker (SC)
- Strix occidentalis occidentalis - California spotted owl (SC)
- Toxostoma redivivum - California thrasher (SC)

Mammals

- Corynorhinus (=Plecotus) townsendii pallescens - pale Townsend's big-eared bat (SC)
- Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
- Euderma maculatum - spotted bat (SC)
- Eumops perotis californicus - greater western mastiff-bat (SC)
- Gulo gulo luteus - California wolverine (CA)
- Lepus americanus tahoensis - Sierra Nevada snowshoe hare (SC)
- Martes americana - American (=pine) marten (SC)
- Myotis ciliolabrum - small-footed myotis bat (SC)
- Myotis evotis - long-eared myotis bat (SC)
- Myotis thysanodes - fringed myotis bat (SC)
- Myotis volans - long-legged myotis bat (SC)
- Myotis yumanensis - Yuma myotis bat (SC)
- Perognathus inornatus - San Joaquin pocket mouse (SC)
- Vulpes vulpes necator - Sierra Nevada red fox (CA)

Plants

- Botrychium lunaria - common moonwort (SC)
- Calochortus clavatus var. avius - Pleasant Valley mariposa lily (SC)
- Chlorogalum grandiflorum - Red Hills soaproot (SC)
- Eryngium pinnatisectum - Tuolumne coyote-thistle (=button-celery) (SC)
- Helianthemum suffrutescens - Amador (Bisbee Peak) rush-rose (SLC)
- Horkelia parryi - Parry's horkelia (SLC)
- Lomatium stebbinsii - Stebbins's lomatium (SC)
- Naverretia myersii spp. myersii - pincushion navarretia (SC)

Key:

- (E) Endangered - Listed (in the Federal Register) as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed (in the Federal Register) for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Marine Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (CA) Listed by the State of California but not by the Fish & Wildlife Service.
- (D) Delisted - Species will be monitored for 5 years.
- (SC) Species of Concern/(SLC) Species of Local Concern - Other species of concern to the Sacramento Fish & Wildlife Office.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7.5-minute quads. The United States is divided into these quads, which are about the size of San Francisco.
The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.

- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.

- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regard-less of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the quad or quads covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the nine surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

State-Listed Species

If a species has been listed as threatened or endangered by the State of California, but not by us nor by the National Marine Fisheries Service, it will appear on your list as a Species of Concern. However you should contact the California Department of Fish and Game Wildlife and Habitat Data Analysis Branch for official information about these species.

Your Responsibilities Under the Endangered Species Act

All plants and animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR Â§17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.
  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.
  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compen-sates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.
Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.
If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our critical habitat page for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

Your list may contain a section called Species of Concern. This is an informal term that refers to those species that the Sacramento Fish and Wildlife Office believes might be in need of concentrated conservation actions. Such conservation actions vary depending on the health of the populations and degree and types of threats. At one extreme, there may only need to be periodic monitoring of populations and threats to the species and its habitat. At the other extreme, a species may need to be listed as a Federal threatened or endangered species. Species of concern receive no legal protection and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed, candidate and special concern species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be May 08, 2005.

APPENDIX B

CALIFORNIA NATURAL DIVERSITY DATABASE REPORT

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name - Portrait
Amador City and Surrounding Eight Quadrangles

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS/R-E-D
1	***Agelaius tricolor*** tricolored blackbird	ABPBXB0020	Species of Concern		G2G3	S2	SC
2	***Arctostaphylos myrtifolia*** Ione manzanita	PDERI04240	Threatened		G2	S2.1	1B/2-2-3
3	***Central Valley Drainage Hardhead/Squawfish Stream***	CARA2443CA			G?	S?	
4	***Chlorogalum grandiflorum*** Red Hills soaproot	PMLIL0G020	Species of Concern		G2	S2.2	1B/2-2-3
5	***Desmocerus californicus dimorphus*** valley elderberry longhorn beetle	IICOL48011	Threatened		G3T2	S2	
6	***Emys (=Clemmys) marmorata marmorata*** northwestern pond turtle	ARAAD02031	Species of Concern		G3G4T3	S3	SC
7	***Eriogonum apricum var. apricum*** Ione buckwheat	PDPGN080F1	Endangered	Endangered	G2T2	S2.1	1B/3-3-3
8	***Eriogonum apricum var. prostratum*** Irish Hill buckwheat	PDPGN080F2	Endangered	Endangered	G2T1	S1.1	1B/3-3-3
9	***Helianthemum suffrutescens*** Bisbee Peak rush-rose	PDCIS020F0	Species of Concern		G2Q	S2.2	3/2-2-3
10	***Horkelia parryi*** Parry's horkelia	PDROS0W0C0	Species of Concern		G2	S2.2	1B/2-2-3
11	***Ione Chaparral***	CTT37D00CA			G1	S1.1	
12	***Navarretia myersii ssp. myersii*** pincushion navarretia	PDPLM0C0X1	Species of Concern		G1T1	S1.1	1B/3-3-3
13	***Rana boylii*** foothill yellow-legged frog	AAABH01050	Species of Concern		G3	S2S3	SC
14	***Sphenopholis obtusata*** prairie wedge grass	PMPOA5T030			G5	S2.2	2/2-2-1

APPENDIX C

SUMMARY OF REGIONALLY OCCURRING SPECIAL-STATUS SPECIES

SUMMARY OF REGIONALLY OCCURRING SPECIAL-STATUS SPECIES
IONE CASINO PROJECT

Scientific Name **Common name**	**Status USFWS/ CDFG/CNPS**	**General Habitat Description**	**Potentially Occurring on Project Site?**	**Ideal Period of Identification**
PLANTS				
Arctostaphylos myrtifolia Ione manzanita	FT/--/1B	Acidic sandy or clay soils in chaparral and oak woodland, 300 to 1,900 ft. in elev.	**No.** Typically found in western Amador County in association with Ione formation soils.	November-February (bloom period) February-June (fruiting period)
Chlorogalum grandiflorum Red Hills soaproot	FSC/--/1B	Serpentine outcrops, open shrubby or wooded hills between 1,000 and 4,000 ft. in elev.	**No.** Site does not provide suitable habitat for this species. Site does not have any documented serpentine soils.	May-June
Eriogonum apricum var. *apricum* Ione buckwheat	FE/CE/1B	Occurs on red-clay of Ione formation in western Amador County and eastern Sacramento County, around 300 ft. in elev.	**No.** Site does not provide suitable habitat for this species and is out of its known range.	July-October
Eriogonum apricum var. *prostratum* Irish Hill buckwheat	FE/CE/1B	Occurs on red-clay of Ione formation in western Amador County and eastern Sacramento County, around 300 ft. in elev.	**No.** Site does not provide suitable habitat for this species and is out of its known range.	June-July
Helianthemum suffrutescens Bisbee Peak rush-rose	FSC/--/3	Chaparral habitats on ultramafic or Ione soils below 5,000 ft. in elev.	**No.** Site does not provide suitable habitat for this species. These soil types do not exist on site.	April-June
Horkelia parryi Parry's horkelia	FSC/--/1B	Open chaparral and cismontane woodland between 300 and 3,000 ft. in elevation, found most often on Ione Soils.	**Yes.** Site does provide suitable habitat for this species.	April-June
Navarretia myersii ssp. *myersii* Pincushion navarretia	FSC/--/1B	Valley and foothill vernal pools 60 to 270 ft. in elev.	**No.** Site does provide suitable habitat, however is out of this species' known elevational range.	April-May
Sphenopholis obtusata Prairie wedge grass	--/--/2	Meadows and seeps 1,000-6,500 ft. in elev.	**Yes.** Seasonal wetlands and intermittent drainage represent suitable habitat.	April-July
ANIMALS				
Invertebrates				
Branchinecta lynchi Vernal pool fairy shrimp	FT/--/--	Vernal pools in Central Valley, coast ranges, and a limited number of sites in Transverse Ranges and Riverside County, California.	**Yes.** Site does not provide suitable habitat for this species.	December-May
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT/--/--	Breeds and forages exclusively on elderberry shrubs (*Sambucus spp.*) below 2,500 ft. in elev. Specifically on shrubs with stem diameter of one-inch or greater.	**Yes.** Elderberry shrubs were identified within Parcel 1.	All year
Lepidurus packardi Vernal pool tadpole shrimp	FE/--/--	Life cycle within vernal pools and valley foothill grassland swales.	**Yes.** Site does not provide suitable habitat for this species.	December-May
Fish				
Hypomesus transpacificus Delta smelt	FT/ST/--	Sacramento-San Joaquin Delta.	**No.** Site does not provide suitable habitat for this species.	All year
Oncorhynchus mykiss Central Valley steelhead	FT/--/--	Sacramento and San Joaquin Rivers and their tributaries	**No.** Site does not provide suitable habitat for this species.	December-July
Oncorhynchus tshawytscha Central fall/late fall-run Chinook salmon	FC/CSC/--	Sacramento and San Joaquin Rivers and their tributaries	**No.** Site does not provide suitable habitat for this species.	October-March
Pogonichthys macrolepidotus Sacramento splittail	FT/CSC/--	Sacramento-San Joaquin Delta and associated marshes. Requires flooded vegetation for spawning and juvenile foraging habitat.	**No.** Site does not provide suitable habitat for this species.	All year

Scientific Name **Common name**	**Status USFWS/ CDFG/CNPS**	**General Habitat Description**	**Potentially Occurring on Project Site?**	**Ideal Period of Identification**
Spirinchus thaleichthys Longfin smelt	FSC/CSC/--	Found in all major bays and estuaries from San Francisco Bay northward. Also known from portions of the Sacramento/San Joaquin Delta.	**No.** Site does not provide suitable habitat for this species.	February-April (period of time found in the Sacramento/San Joaquin Delta for spawning)
Amphibians				
Ambystoma californiense California tiger salamander	FT/CSC/--	Occurs in annual grasslands. Breeds and lays eggs November to February in vernal pools and other temporary rainwater ponds and sometimes permanent man-made ponds where predators are absent. May co-exist with bull frogs (Rana catesbeiana) in vegetated ponds.	**Yes.** Site does provide habitat for this species, though it is of poor quality.	November-February
Rana aurora draytonii California red-legged frog	FT/CSC/--	Lowlands and foothills in or near permanent or late-season sources of deep water with dense, shrubby, or emergent vegetation.	**Yes.** Site does provide habitat for this species, though it is of poor quality.	May-November
Rana boylii Foothill yellow-legged frog	FSC/CSC/--	Found in shallow, flowing water, preferentially in small to moderate-sized streams with at least some cobble-sized substrate. Occur from near sea level to 6,000 ft. in elev.	**No.** Site does not provide suitable habitat for this species.	All year
Spea hammondii Western spadefoot toad	FSC/CSC/--	Occurs primarily in grassland habitats, but can be found in valley and foothill woodlands. Vernal pools are essential for breeding and egg laying.	**Yes.** Site does provide suitable habitat for this species.	November-March
Reptiles				
Clemmys marmorata marmorata Northwestern pond turtle	FSC/CSC/--	Requires aquatic habitats with suitable basking sites. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks.	**Yes.** Site does provide suitable habitat for this species.	All year
Phrynosoma coronatum frontale California horned lizard	FSC/CSC/--	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes.	**No.** Site does not provide suitable habitat for this species.	April-October
Birds				
Agelaius tricolor Tricolored blackbird	FSC/CSC/--	Nests in dense thickets of cattails, tules, willow, blackberry, wild rose, and other tall herbs near fresh water in Central Valley.	**Yes.** Site does provide some suitable habitat for this species.	April-July
Amphispiza belli belli Bell's sage sparrow	FSC/CSC/--	Seeks cover in fairly dense stands in chaparral and scrub habitats in breeding season.	**Yes.** Site does provide suitable habitat for this species.	April-September
*Athene cunicularia (hypugea)** Burrowing owl (burrow sites) *Western burrowing owl subspecies listed as Federal species of concern	FSC/CSC/--	Uses elevated rodent or other burrow for roosting and nesting. Frequents open grasslands and shrublands. Found as high as 5,000 ft. in elev.	**No.** Site does not provide suitable habitat for this species.	Dec. 1-Jan.31 & April 15-July15
Baeolophus inornatus Oak titmouse	SLC/--/--	Open woodlands of oak or mixed pine-oak. Sometimes forages and breeds in riparian areas.	**Yes.** Site does provide suitable habitat for this species, species observed on-site.	March-July
Carduelis lawrencei Lawrence's goldfinch	FSC/--/--	Nests in open oak or other arid woodland near water	**Yes.** Oak woodland on site and nearby cattle ponds provide potential habitat for this species.	March-August
Chaetura vauxi (nesting) Vaux's swift	FSC/CSC/--	Nests in large hollow trees and snags in coniferous forest habitats. Often nests in flocks.	**No.** Site does not provide suitable habitat for this species.	May-August
Cypseloides niger Black swift	FSC/CSC/--	Nests in moist crevices or caves on sea cliffs above surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons.	**No.** Site does not provide suitable habitat for this species.	May-September

Scientific Name **Common name**	**Status USFWS/ CDFG/CNPS**	**General Habitat Description**	**Potentially Occurring on Project Site?**	**Ideal Period of Identification**
Empidonax traillii brewsteri (nesting) Little willow flycatcher	FSC/--/--	Inhabits wet meadow and riparian montane habitats.	**No.** Site does not provide suitable habitat for this species.	May-August
Falco peregrinus anatum American peregrine falcon	FD/CE/--	Forages in marshes and grasslands. Nesting habitat includes high protected cliffs and ledges, also utilizes human-made structures.	**No.** Site does not provide suitable habitat for this species.	All year
Haliaeetus leucocephalus Bald eagle	FT/CE/--	Found near ocean shorelines, lakes, reservoirs, river systems, and coastal wetlands.	**No.** Site does not provide suitable habitat for this species.	All year
Lanius ludovicianus (nesting) Loggerhead shrike	FSC/CSC/--	Occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Found in a variety of habitats with open areas, available perches, and dense shrubs for nesting	**Yes.** Site does provide suitable habitat for this species.	March-August
Melanerpes lewis (nesting) Lewis' woodpecker	FSC/--/--	Open oak savannahs, broken deciduous, and coniferous habitats. Requires open habitats with scattered trees and snags with cavities.	**Yes.** Site does provide suitable habitat for this species.	May-July
Numenius americanus (nesting) Long-billed curlew	FSC/CSC/--	Breeding season habit includes elevated interior grasslands, adjacent to lakes and marshes. Winter habitat includes grasslands or borders of marshes at low elevations in interior valleys.	**No.** Site does not provide suitable habitat for this species.	April-September
Picoides nuttallii Nuttall's woodpecker	FSC/--/--	Found in low-elevation riparian deciduous and oak habitats.	**Yes.** Site does provide suitable habitat for this species, species observed on-site.	All year
Selasphorus rufus Rufous hummingbird	FSC/--/--	Found in a wide variety of habitats that provide nectar-producing flowers; uses valley foothill hardwood, valley foothill hardwood-conifer, riparian, and various chaparral habitats in both northward and southward migration; montane riparian, aspen, and high mountain meadows (to tree-line and above) used in southward migration.	**Yes.** Site does provide suitable habitat for this species.	February-September
Toxostoma redivivum California thrasher	FSC/--/--	Occupies moderate to dense chaparral habitats and, less commonly, extensive thickets in young or open valley foothill riparian habitat.	**Yes.** Site does provide suitable habitat for this species.	All year
Mammals				
Corynorhinus townsendii townsendii Pacific western big-eared bat	FSC/CSC/--	Found throughout CA, highly associated with mines and caves. Throughout much of known range, commonly occurs in mesic habitats characterized by coniferous and deciduous forests.	**Yes.** Site does provide suitable habitat for this species.	All year
Euderma maculatum Spotted bat	FSC/CSC/--	Habitats occupied range from arid deserts and grasslands through mixed conifer forests. Apparently prefers to roost in rock crevices. Occasionally found in caves and buildings. Cliffs provide optimal roosting habitat.	**Yes.** Site does provide suitable habitat for this species.	All year

Scientific Name Common name	Status USFWS/ CDFG/CNPS	General Habitat Description	Potentially Occurring on Project Site?	Ideal Period of Identification
Eumops perotis californicus Greater western mastiff-bat	FSC/CSC/--	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban. Crevices in cliff faces, high buildings, trees, and tunnels are required for roosting	**Yes.** Site does provide suitable habitat for this species.	All year
Myotis ciliolabrum Small-footed myotis bat	FSC/--/--	Common bat of arid uplands preferring open stands, brushy, and woodland habitats. Uses caves, mines, buildings, bark, and crevices to roost	**Yes.** Site does provide suitable habitat for this species.	April-October
Myotis evotis Long-eared myotis bat	FSC/--/--	This species has been found in nearly all brush, woodland, and forest habitats, from sea level to at least 9,000 ft, but coniferous woodlands and forests seem to be preferred. Roosts in caves, mines, buildings, and crevices	**No.** Site does not provide suitable roosting habitat for this species.	April-September
Myotis thysanodes Fringed myotis bat	FSC/--/--	Optimal habitats are pinyon-juniper, valley foothill hardwood and hardwood-conifer, generally at 4,000-7,000 ft. Roosts in caves, mines, buildings, and crevices	**No.** Site does not provide suitable roosting habitat for this species.	April-September
Myotis volans Long-legged myotis bat	FSC/--/--	Primarily in woodland and forest habitats above 4,000 ft. Trees are important day roosts; uses caves and mines for night roosts.	**No.** Site does not provide suitable roosting habitat for this species.	April-October
Myotis yumanensis Yuma myotis bat	FSC/--/--	Inhabits open forests and woodlands. Distribution is closely tied to bodies of water. Maternity colonies occur in caves, mines, buildings, or crevices.	**No.** The project area does not provide suitable habitat for this species.	April-October
Sylvilagus bachmannii riparius Riparian brush rabbit	FE/CE/--	Found in riparian communities dominated by willow thickets, California wild rose, Pacific blackberry, wild grape, Douglas' coyote bush, and various grasses.	**No.** The project area does not provide suitable habitat for this species.	All year

STATUS CODES:

FEDERAL: U.S. Fish and Wildlife Service or National Marine Fisheries Service

FE = Listed as Endangered by the Federal Government
FT = Listed as Threatened by the Federal Government
FPE = Proposed for Listing as Endangered
FPT = Proposed for Listing as Threatened
FC = Candidate for Federal Listing
FD = Delisted: Status to be Monitored for 5 Years
FSC = Federal Species of Special Concern
SLC = Species of Local Concern

STATE: California Department of Fish and Game

CE = Listed as Endangered by the State of California
CT = Listed as Threatened by the State of California
CR = Listed as Rare by the State of California (plants only)
CSC = California Species of Special Concern
CFP = California Fully Protected Species

CNPS: California Native Plant Society

List 1A = Plants presumed to be extinct
List 1B = Plants rare, threatened, or endangered in California and elsewhere
List 2 = Plants rare, threatened, or endangered in California, more common elsewhere
List 3 = Need more information
List 4 = Essentially a watch list

SOURCE: U.S. Fish and Wildlife Service, 2003; California Natural Diversity Data Base, 2003.

APPENDIX D

CHECKLIST OF VASCULAR PLANTS OBSERVED ON SITE

VASCULAR PLANT CHECKLIST

Ione Casino Project

FERNS AND FERN ALLIES

DRYOPTERIDACEAE
Dryopteris arguta (wood fern)

MARSILEACEAE
Pilularia americana (pillwort)

POLYPODIACEAE
Polypodium glycyrrhiza (licorice fern)

PTERIDACEAE
Adiantum jordanii (Jordan's maidenhair fern)
Pentagramma triangularis ssp. *triangularis* (goldenback fern)

CONIFERS

CUPRESSACEAE
Juniperus chinensis var. *pfitzeriana* (Pfitzer juniper)

PINACEAE
Pinus ponderosa (ponderosa pine)
Pinus sabiniana (gray pine)

FLOWERING PLANTS – DICOTS

ANACARDIACEAE
Toxicodendron diversilobum (poison oak)

APIACEAE
Anthriscus caucaulis (bur cheevil)
Conium maculatum (poison hemlock)
Eryngium castrense (Vasey's branching coyote thistle)
Yabea microcarpa (yabea)

ASTERACEAE
Anaphalis margaritacea (pearly everlasting)
Baccharis pilularis ssp. *consanguinea* (coyote brush)
Carduus pycnocephalus (Italian thistle)
Centaurea solstitialis (yellow star-thistle)
Filago californica (California herba impia)
Hemizonia congesta (hayfield tarweed)
Hemizonia fasciculata (fasciculate hemizonia)
Lactuca serriola (prickly lettuce)
Silybum marianum (milk thistle)

BORAGINACEAE
Cryptantha decipiens (crypantha)
Plagiobothrys bracteatus (bracteate allocarya)

BRASSICACEAE
Sisymbrium officinale (hedge mustard)

CAPRIFOLIACEAE
Lonicera hispidula (hispid honeysuckle)
Sambucus mexicana (Mexican elderberry)
Symphoricarpos mollis (creeping snowberry)

CARYOPHYLLACEAE
Spergularia rubra (red spurrey)
Stellaria media (common chickweed)

CRASSULACEAE
Crassula tillaea (moss-like pygmy weed)

ERICACEAE
Arctostaphylos manzanita ssp. *roofii* (Roof's manzanita)

EUPHORBIACEAE
Eremocarpus setigerus (doveweed)

FABACEAE
Genista monspessulana (French broom)
Lotus purshianus (Pursh's lotus)
Lotus scoparius (deerweed)
Lupinus latifolius (broad-leaved lupine)
Trifolium angustifolium (Mediterranean clover)
Trifolium fucatum (fucate clover)
Vicia villosa (winter vetch)

FAGACEAE
Quercus chrysolepis (canyon live oak)
Quercus douglasii (blue oak)
Quercus kelloggii (California black oak)
Quercus lobata (valley oak)
Quercus wislizenii (interior live oak)

GARRYACEAE
Garrya fremontii (Fremont's silk tassel bush)

GERANIACEAE
Erodium cicutarium (filaree)
Erodium moschatum (white-stemmed filaree)
Geranium dissectum (cut-leaved geranium)
Geranium molle (smooth geranium)

HIPPOCASTANACEAE
Aesculus californica (buckeye)

HYDROPHYLLACEAE
Eriodictyon californicum (yerba santa)

LAMIACEAE
Mentha pulegium (pennyroyal)

VASCULAR PLANT CHECKLIST

Ione Casino Project

LYTHRACEAE
Lythrum hyssopifolium (hyssop loosestrife)

ONAGRACEAE
Clarkia modesta (farewell-to-spring)
Epilobium ciliatum ssp. *ciliatum* (ciliate willow-herb)

PAPAVERACEAE
Eschscholzia californica (California poppy)

PLANTAGINACEAE
Plantago major (common plantain)

POLYGONACEAE
Polygonum lapathifolium (willow weed)
Rumex crispus (curly dock)
Rumex pulcher (fiddle dock)

PORTULACACEAE
Claytonia parviflora ssp. *parviflora* (Indian lettuce)
Claytonia perfoliata ssp. *perfoliata* (Miner's lettuce)

RHAMNACEAE
Rhamnus ilicifolia (redberry)

ROSACEAE
Adenostoma fasciculatum (chamise)
Craetegus douglasii (hawthorne)
Heteromeles arbutifolia (toyon)
Holodiscus discolor (ocean spray)
Rhaphiolepis indica (India hawthorne)
Rosa californica (California rose)
Rubus discolor (Himalaya blackberry)

RUBIACEAE
Galium porrigens (San Diego bedstraw)

SALICACEAE
Salix laevigata (red willow)
Salix lasiolepis (arroyo willow)

SCROPULARIACEAE
Mimulus aurantiacus (sticky monkeyflower)
Mimulus kelloggii (Kellogg's monkeyflower)
Scrophularia californica (California figwort)
Verbascum virgatum (wand mullein)

VISCACEAE
Phoradendron villosum (oak mistletoe)

FLOWERING PLANTS – MONOCOTS

ARECACEAE
Washingtonia robusta (Mexican fan palm)

CYPERACEAE
Cyperus eragrostis (paper nutsedge)
Cyperus fuscus (mud-puddle nutsedge)
Eleocharis macrostachya (spikerush)

JUNCACEAE
Juncus balticus (Baltic rush)
Juncus bufonius (toad rush)

POACEAE
Agrostis stolonifera (creeping bent)
Aira caryophyllea (silver European hairgrass)
Anthoxanthum odoratum (sweet vernal grass)
Avena fatua (wild oat)
Avena sativa (cultivated oat)
Bromus carinatus (California brome)
Bromus diandrus (ripgut brome)
Bromus hordeaceus (soft chess)
Bromus madritensis ssp. *rubens* (red brome)
Cynodon dactylon (Bermuda grass)
Cynosurus echinatus (dogtail fescue)
Elymus glaucus (blue wildrye)
Festuca californica (California fescue)
Hordeum brachyantherum (meadow barley)
Hordeum marinum ssp. *gussoneanum* (Mediterranean barley)
Hordeum murinum ssp. *leporinum* (weed barley)
Lolium multiflorum (Italian ryegrass)
Lolium perenne (perennial ryegrass)
Paspalum dilatatum (Dallis grass)
Poa annua (annual bluegrass)
Polypogon monspeliensis (rabbitsfoot grass)
Taeniatherum caput-medusae (taeniatherum)
Vulpia myuros (Zorro fescue)

TYPHACEAE
Typha latifolia (narrow-leaved cattail)

Sources: Abrams (1923, 1944, 1951); Abrams & Ferris (1960); AES 2003, 2004; Bailey (1973); Brenzel (2001); Hickman (1993).

APPENDIX E

CHECKLIST OF ANIMALS OBSERVED ON SITE

ANIMAL CHECKLIST

Ione Casino Project

MAMMALS

LEPORIDAE
Lepus californicus
(Black-tailed jackrabbit)

CERVIDAE
Odocoileus hemionus
(Mule deer)

REPTILES

COLUBRIDAE
Pituophis catenifer
(Gopher snake)

PHRYNOSOMATIDAE
Sceloporus occidentalis
(Western fence lizard)

AMPHIBIANS

RANIDAE
Rana catesbeiana
(bullfrog)

BIRDS

ACCIPITRIDAE
Accipiter cooperi
(Cooper's hawk)
Buteo jamaicensis
(Red-tailed hawk)

COLUMBRIDAE
Zenaida macroura
(Mourning dove)

CORVIDAE
Aphelocoma californica
(Western scrub-jay)

EMBERIZIDAE
Zonotrichia atricapilla
(Golden-crowned sparrow)
Zonotrichia leucophrys
(White-crowned sparrow)

ICTERIDAE
Molothrus ater
(Brown-headed cowbird)
Sturnella neglecta
(Western meadowlark)

ODONTOPHORIDAE
Callipepla californica
(California quail)

PARIDAE
Baeolophus inornatus
(Oak titmouse)

PICIDAE
Colaptes auratus
(Northern flicker)
Melanerpes formicivorus
(Acorn woodpecker)
Picoides nuttallii
(Nuttal's woodpecker)

TURDIDAE
Sialia mexicana
(Western bluebird)
Turdus migratorius
(American robin)

TYRANNIDAE
Tyrannus verticalis
(Western kingbird)

Sources: Alsop (2002); NatureServe, (2003); Jameson and Peters (2004).

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