LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

RECONNAISSANCE SURVEYS
AMPHIBIAN AND REPTILE SPECIES
TEJON RANCH CONSERVANCY ACQUISITION AREAS

Prepared by

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EXECUTIVE SUMMARY

Dr. Mark Jennings coordinated reconnaissance level surveys for amphibians and reptiles in 2009-2010 on five tracts of property (i.e., White Wolf, Old Headquarters, Bi-Centennial, Tri-Centennial, and Michener) slated for potential acquisition by the Tejon Ranch Conservancy. Surveys were conducted during the early fall of 2009 and 2010 and the spring of 2010. Assisting Dr. Jennings were Dr. Michael White and Chris Niemela of the Tejon Ranch Conservancy, Mr. Neal Kramer of Live Oak Associates, Inc., and members of the California chapter of the North American Field Herping Association.

Habitats of the Tehachapi Mountains support a considerable diversity of amphibian and reptile species. Based on a review of the available literature it has been determined that as many as 9 species of amphibians and 49 species of reptiles could occur within the boundaries of the Tejon Ranch. None of the five acquisition tracts examined in this study support all 9 amphibian or all 49 reptile species. The diversity of amphibian species occurring on the ranch is generally greatest on the northwest side of the Tehachapi Mountains. The diversity of reptile species occurring on the ranch is generally the greatest on the southeast side of the Tehachapi Mountains.

During reconnaissance level surveys conducted in 2009 and 2010, a number of amphibian and reptile species presumed to have been historically present on the proposed acquisition tracts were observed. Three native amphibian species and 22 native reptile species were detected during the three survey periods. One non-native amphibian, the American bullfrog (*Rana Catesbeiana*), was also observed. At least one state and federally listed species, the blunt-nosed leopard lizard (*Gambelia sila*), was observed in one of the tracts of the Ranch. An assessment of habitats present on the Ranch reveals a high likelihood that other state and federally listed species would be present, including the California red-legged frog (*Rana draytonii*) and desert tortoise (*Gopherus agassizii*). In terms of their overall value to special status amphibians and reptiles, the tracts would be ranked as follows: 1) Old Headquarters, 2) Tri-Centennial, 3) Bi-Centennial, 4) White Wolf, and 5) Michener.

Anthropogenic threats to native amphibian and reptile diversity within the five tracts are a real and significant concern. Introduced bullfrogs were observed in aquatic habitats of the Old Headquarters tract by Dr. Jennings and the survey team. It is likely to be present in aquatic habitats potentially present in other tracts of the Ranch. This species is predatory on some native amphibians and poses a threat to native amphibian diversity of the Tejon Ranch. The reintroduction of some native listed amphibian and reptile species to various tracts of the Ranch would be more likely to succeed if bullfrog populations were eliminated from the Ranch, or at a minimum, controlled. A plan for managing current sport fishing on the Ranch with the express purpose of preventing the accidental introduction of additional species of predatory fishes and amphibians would benefit existing populations of amphibians, as well as those that may be reintroduced.

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INTRODUCTION

In the summer of 2009, Live Oak Associates, Inc., entered into a contract with the Tejon Ranch Conservancy to conduct three, 3-day reconnaissance level surveys of five tracts of the Tejon Ranch for amphibian and reptile species. The five tracts, which are potential acquisition areas for the Conservancy, are White Wolf, Old Headquarters, Tri-Centennial, Bi-Centennial, and Michener Ranch. Dr. Mark Jennings coordinated the surveys and was able to extend the survey coverage over much of the 62,000-acre study area with the assistance of Dr. Michael D. White and Chris N. Niemela of the Tejon Ranch Conservancy, Neal B. Kramer of Live Oak Associates, Inc., and volunteers with the California Chapter of the North American Field Herping Association. Surveys were conducted in the spring of 2009 and the fall of 2009 and 2010. Although the area to be covered was extensive, the review of background information and the survey effort were sufficient to obtain valuable information related to the known and likely herpetofauna of the Tejon ranch. This information is important for the following reasons: (1) it provides an overview of the herpetofauna once present and now present on the Tejon Ranch; (2) it facilitates the ranking of the five acquisition tracts with regard to their suitability for amphibians and reptiles in general, and for state and federally listed in particular; and (3) it facilitates the development of a number of management options, which if implemented, would improve habitats of the ranch for native amphibian and reptile species.

MATERIALS AND METHODS

Prior to field work, Dr. Jennings reviewed literature related to the herpetofauna of the Tejon Ranch. Included in this literature review was a printout of the California Natural Diversity Data Base (California Department of Fish and Game 2010) for those U.S.G.S. quadrangle maps providing coverage of the Tejon Ranch. This data provided valuable information about special status amphibian and reptile species that have been documented on the Tejon Ranch. Dr. Jennings also reviewed historic records of special status amphibian and reptile species observed on the entire Tejon Ranch property (i.e., Hallowell 1854, 1859; Yarrow 1882; Cope 1889, 1900; Cochran 1961; Jennings and Hayes 1994). Also examined was literature that assisted in the documentation of the type localities of other vertebrate species on the Ranch (i.e., Grinnell 1932, 1933; Zwinger 1986). This latter information was particularly helpful in determining which 19th and 20th century zoologists may have actually visited the Ranch, which in turn is useful information in locating potentially important museum specimens and field notes.

The information gathered from the literature review was used to develop a list of amphibian and reptile species that would potentially occur on the Ranch. Individual species not observed on the ranch are presumed to be potentially present, because their habitat requirements appear to be met within one or more of the acquisition tracts, and their ranges seem to overlap one or more of these tracts as well. The habitat requirements for each of these species are those described on CaliforniaHerps.com, but corroborated by Dr. Jennings. The habitat requirements are based loosely on physical and floristic factors and do not conform to any adopted classification system of vegetation types. Therefore, the habitat descriptions provided in this document are useful (hopefully), but could be improved by standardizing them in a way that would allow investigators to better predict which species would be present in which habitats. This in turn would permit investigators to better predict which species would occur on proposed acquisition tracts of the Ranch, and which species would co-occur with one another. The development of a standardized habitat classification system, or the modification of an existing system (e.g., Keeler-Wolfe), went well beyond the scope of this study. Therefore, the habitat descriptions found on CaliforniaHerps.com (as modified by Dr. Jennings) were considered useful and must suffice.

In addition to a literature review as described above, Live Oak Associates, Inc. used high resolution aerial photographs to determine the most likely "hot spots" of the five acquisition areas for special status amphibian and reptile species. These photographs identified the boundaries of the five acquisition areas, as well as details of each that would be useful in directing the reconnaissance level surveys. (e.g., roads, springs, watercourses, land use, etc.).

Surveys were conducted in 2009 and 2010. The survey dates for each of the acquisition area can be found in Table 1.

TABLE ONE. SURVEY DATES FOR EACH OF FIVE ACQUISITION AREAS.

Tract	Location	Date(s) Surveyed
White Wolf	West and south of Bakersfield National Cemetary	09/20/09; 09/18/2010
Old Headquarters	Tejon Creek, Tunis Creek, Reservoirs, old oil well lands.	09/19/09; 05/14/10; 05/15/10 09/17/10
Bi-Centennial	Contour Road, Cement Plant area, exit of California Aqueduct	09/18/10
Tri-Centennial	Bronco Canyon., Antelope Canyon., Pescado Creek	09/18/09; 05/16/10; 09/17/10
Michener	Various drainages (dry)	09/17/10

RESULTS AND DISCUSSION

In general, native herpetofaunal habitats of the five acquisition tracts were found to be remarkably intact, notwithstanding more than 150 years of ranching activities on them. There was little evidence that these habitats had been significantly disturbed at any time in the past by mining, farming, or commercial development. The Tejon Ranch is and has been a working cattle ranch, and ranching activities have done little to alter native habitats suitable for amphibian and reptile species. Large intact areas of oak (*Quercus* spp.) woodlands, Joshua tree (*Yucca brevifolia*) forests, and native and natural grasslands (the latter supporting primarily naturalized annual grasses and forbs of European origin) remain present on the ranch. Grasslands featuring native perennial grasses (which are particularly susceptible to abusive grazing practices) were especially prominent on lands of the Tri-Centennial tract in the Antelope Valley. Native grasses are less prominent on the San Joaquin Valley side of the ranch (in the Old Headquarters and White Wolf tracts) than they are in the Antelope Valley side (in the Bi-Centennial and Tri-Centennial tracts).

Aquatic habitats used by native amphibians are particularly susceptible to degradation resulting from the introduction of non-native fishes and amphibians. Perennial aquatic habitats of the ranch (e.g., Tunis, El Paso, and Tejon Creeks) have not, however, been stocked with fishes of any kind. This is perhaps the last major ecosystem within the foothills of the San Joaquin Valley that supports a native aquatic fauna (especially invertebrates) unmodified by predacious fishes (e.g., see Ehrman 1996).

All habitats of all the tracts therefore supported expected native amphibians and reptiles during the three field surveys given the various weather conditions at that time of the year. A total of 9 amphibian and 49 reptile taxa are potentially present on the Tejon Ranch, but not all would occur on every acquisition tract studied (Table 2). Mojave Desert taxa would be confined to acquisition parcels located southeast of the Tehachapi Mountains. A number of Central Valley taxa would be confined to acquisition parcels located to the northwest of the Tehachapi Mountains. Sierran species would occur in the Tehachapi Mountains and may occur in acquisition tracts located on both sides of this mountain range.

TABLE 2. AMPHIBIAN AND REPTILE SPECIES POTENTIALLY OCCURRING IN PROPOSED ACQUISITION TRACTS OF THE TEJON RANCH (“†” denotes a special status species, “x” denotes potential occurrence; asterisk denotes that a species was sighted during field surveys conducted in 2009 and 2010; “?” denotes that a species was possibly observed during field surveys conducted in 2009 and 2010, but that the identification was not certain).

Species	Habitats	Acquisition Areas				
		Whitewolf	Old Headquarters	Tri-Centennial	Bi-Centennial	Michener Ranch
Salamanders						
†Yellow-blotched Ensatina (*Ensatina eschscholtzii croceator*):	Mixed conifer forest, montane hardwood forest, hardwood conifer forest, mixed chaparral)	x	x	x	x	x
Black-Bellied Salamander (*Bactrachoseps nigriventris*):	Open oak woodlands, mixed conifer forests, and mixed chaparral		x			x
†Tehachapi Slender Salamander (*Batrachoseps stebbinsi*):	Oak woodlands, valley foothill riparian, and hardwood conifer forest		x			
Toads						
†Western Spadefoot (*Spea hammondi*)	Primarily grasslands, but may also occur in oak woodlands		*			
California Toad (*Bufo boreas halophilus*)	Most California habitats except deserts.	x	x	*	*	x
Frogs						
Pacific Treefrog (*Hyla regilla*)	Most California habitats except deserts.	x	*	*	*	x
†Foothill Yellow-legged Frog (*Rana boylii*)	Streams and rivers with rocky substrates and open sunny banks in forests, chaparral, and woodlands.		x			
†California Red-Legged Frog (*Rana draytonii*)	Found in perennial ponds and slow- moving streams with overhanging vegetation that are part of oak, mixed oak, and hardwood-conifer woodlands.		x			
Bullfrog (*Rana catesbeiana*)	Perennial ponds, rivers, and creeks located within many habitats of California. Not typically found in deserts or mountains above 4,000 feet.		*	x	x	x

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Species	Habitats	Acquisition Areas				
		Whitewolf	Old Headquarters	Tri-Centennial	Bi-Centennial	Michener Ranch
Turtles						
†Southwestern Pond Turtle (*Actinemys marmorata pallida*)	Ponds, lakes, rivers, streams, marshes, and irrigation ditches with abundant vegetation and rocks, logs, and exposed banks for basking.		x			
†Desert Tortoise (*Gopherus agassizii*)	Desert areas; arid sandy or gravelly locations along riverbanks, washes, sandy dunes, alluvial fans, canyon bottoms, desert oases, etc.			x	x	
Lizards						
San Diego Alligator Lizard (*Elgaria multicarinata webbii*)	Grasslands, open forest, chaparral, and foothill oak woodlands.	*	x	x	x	x
†Silvery Legless Lizard (*Anniella pulchra pulchra*)	Occurs in moist warm loose soils with plant cover; beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with riparian trees.		x			
Great Basin Collared Lizard (*Crotaphytus bicinctores*	Desert areas; prefers rocky hilly deserts with sparse vegetation.			x	x	
†Blunt-Nosed Leopard Lizard (*Gambelia sila*)	Semi-arid grasslands and alkali flats of the Tulare Basin; prefers open sparsely vegetated flats.	x	*			
Long-Nosed Leopard Lizard (*Gambelia wislizenii*)	Desert areas; creosote flats, sagebrush desert, sparse grasslands; prefers open sparsely vegetated flats.			x	x	
Desert Banded Gecko (*Coleonyx variegatus variegatus*)	Desert areas; creosote flats, sagebrush desert, pinon/juniper woodland, chaparral; prefers rocky areas.			x	x	
Northern Desert Iguana (*Dipsosaurus dorsalis dorsalis*)	Desert areas; dunes, washes, sandy flats, etc. Also associated with creosote scrub.			x	x	
Common Chuckwalla (*Sauromalus ater*)	Desert areas; rocky flats, lava flows, and large outcrops. Creosote is a common shrub associated with this species habitat.			x	x	

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Lizards

Species	Habitats	Acquisition Areas				
		Whitewolf	Old Headquarters	Tri-Centennial	Bi-Centennial	Michener Ranch
Western Zebra-Tailed Lizard (*Callisaurus draconoides rhodostictus*)	Desert areas: open sandy washes, desert pavement, and other open areas with sparse vegetation.			*	x	
†San Diego Blainville's Horned Lizard (*Phrynosoma blainvillii*)	Areas of sandy loose soil and low vegetation; grasslands, open woodlands, and chapparal.	x	x	*	x	x
Southern Desert Horned Lizard (*Phrynosoma platyrhinos calidiarum*)	Desert areas; sandy flats, edges of sand dunes, alluvial fans, and dry washes. Associated vegetation includes creosote, salt bush, cacti, etc.			x	x	
Western Sagebrush Lizard (*Sceloporus graciosus gracilis*)	Shrub-dominated habitats consisting of sagebrush, manzanita, and ceanothus; can also be found in pine and fir forest.	x	x	x	x	x
Yellow-backed Spiny Lizard (*Sceloporus magister uniformis*)	Desert flats, semiarid plains, low mountain slopes, palm oases, riparian woodlands, Joshua tree woodlands, creosote scrub, etc.			*	*	
San Joaquin Fence Lizard (*Sceloporus occidentalis biseriatus*)	Open sunny habitats including grasslands, chaparral, woodlands, and forests; also along pond margins, stream banks, and around suburban dwellings.	*	*			*
Great Basin Fence Lizard (*Sceloporus occidentalis longipes*)	Open sunny habitats including grasslands, chaparral, woodlands, and forests; also along pond margins, stream banks, and around suburban dwellings.			*	*	
California Side-Blotched Lizard (*Uta stansburiana elegans*)	Rocky areas with scattered vegetation including edges of sandy washes in areas of grassland, chaparral, sparse woodland, and cactus.	*	*	*	*	*
Skilton's Skink (*Eumeces skiltonianus skiltonianus*)	Grasslands, chaparral, sagebrush, oak woodlands, and pine forests, especially in open sunny areas such as clearings and the edges of creeks and rivers.	x	*	x	x	x

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Species	Habitats	Acquisition Areas				
		Whitewolf	Old Headquarters	Tri-Centennial	Bi-Centennial	Michener Ranch
Lizards						
Western Red-Tailed Skink (*Eumeces gilberti rubricaudatus*)	Grasslands, chaparral, open oak woodlands, and pine forests where moisture is present nearby.	x	x	x	*	x
California Whiptail (*Aspidoscelis tigris munda*)	Hot dry open areas with sparse foliage; sparse grasslands, chaparral, and open woodland.	x	x			
Great Basin Whiptail (*Aspidoscelis tigris tigris*)	Hot dry open areas with sparse foliage; deserts, chaparral, sagebrush, and desert riparian areas.			*	*	
Desert Night Lizard (*Xantusia vigilis vigilis*)	Arid and semi-arid areas, including Joshua tree woodland, desert scrub, pinon juniper woodland, Great Basin sagebrush, etc.			*	*	
Snakes						
Desert Rosy Boa (*Lichanura trivirgata gracia*)	Arid and semi-arid scrublands, rocky deserts, desert oases, canyons, and rocky areas.			x	x	
Mojave Glossy Snake (*Arizona elegans candida*)	Barren open sandy desert, desert scrub, rocky washes, and grasslands.			x	x	
Western Yellow-Bellied Racer (*Coluber constrictor mormon*)	Open sunny areas including meadows, grassland, sagebrush flats, chaparral, woodlands and riparian edges.	x	*	x	x	x
Coral-bellied Ringneck Snake (*Diadophis punctatus pulchellus*)	Prefers moist habitats, including wet meadows, rocky hillsides, gardens, farmland, grassland, mixed conifer forests, oak woodlands.	x	x	x	x	x
California Glossy Snake (*Arizona elegans occidentalis*)	Arid scrub, rocky washes, grasslands, and chaparral.	x	x	x	x	x
California Night Snake (*Hypsiglena torquata nuchalata*)	Found often in arid habitats such as chaparral, sagebrush flats, deserts, mountain meadows, and grasslands.	*	x			

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Snakes

Species	Habitats	Acquisition Areas				
		Whitewolf	Old Headquarters	Tri-Centennial	Bi-Centennial	Michener Ranch
Northern Desert Nightsnake (*Hypsiglena chlorophaea deserticola*)	Found often in arid habitats such as chaparral, sagebrush flats, deserts, mountain meadows, and grasslands.			x	x	
California Kingsnake (*Lampropeltis getula californiae*)	Oak woodlands, conifer forest, chaparral, grassland, marshes, farmland, deserts, and brushy suburban areas.	*	x	x	x	x
Sierra California Mountain Kingsnake (*Lampropeltis zonata multicincta*)	Coniferous forest, oak-pine woodlands, riparian woodlands, chaparral, and coastal sage scrub.	x	x			
†San Joaquin Coachwhip (*Masticophis flagellum ruddocki*)	Open, dry, treeless areas; grasslands and alkali sink scrub are favored habitats.	x	x			
Red Coachwhip (*Masticophis flagellum piceus*)	Open areas of desert, grassland, scrub, and sagebrush, including rocky, sandy, flat, and hilly ground.			*	x	
California Striped Racer (*Masticophis lateralis lateralis*)	Open areas in canyons, rocky hillsides, chaparral, scrub, open woodlands, pond edges, stream courses.	x	x	x	x	x
Great Basin Gophersnake (*Pituophis catenifer deserticola*)	Grassland, coastal sage scrub, agricultural lands, riparian areas, woodlands, and desert.			x	*	
San Diego Gophersnake (*Pituophis catenifer annectens*)	Open grassland, chaparral, scrub, mixed woodlands, coniferous forest, farm-land, marshes, and riparian habitat.					x
Pacific Gophersnake (*Pituophis catenifer catenifer*)	Open grassland, chaparral, scrub, mixed woodlands, coniferous forest, farmland, marshes, and riparian habitat.	*	*			x
Western Long-nosed snake (*Rhinocheilus lecontei lecontei*)	Arid and semi-arid deserts, grasslands, shrublands, and prairies.	x	x	x	x	x
Mojave Patch-nosed snake (*Salvadora hexalepis mojavensis*)	Open arid and semi-arid areas – deserts, brushland, grassland, and scrub in canyons, rocky hillsides and sandy plains.			x	x	

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Snakes

Species	Habitats	Acquisition Areas				
		Whitewolf	Old Headquarters	Tri-Centennial	Bi-Centennial	Michener Ranch
Coast Patch-nosed snake (*Salvadora hexalepis virgultea*)	Semi-arid brush areas and chaparral in canyons, rocky hillsides, and plains.					x
Sierra Gartersnake (*Thamnophis couchii*)	Associated with water such as seasonal creeks, large mountain rivers, meadow ponds, and small lakes, in montane coniferous forests, oak woodlands, chaparral, pinyon/juniper woodland, and sagebrush.	x	*	*	x	
†Two-striped Gartersnake (*Thamnophis hammondii*)	Found around pools, creeks, cattle tanks, and other water sources, often in rocky areas, in oak woodland, chaparral and coniferous forest.		x	?		
Valley Gartersnake (*Thamnophis sirtalis fitchi*)	Many habitats; forests, mixed woodlands, grassland, chaparral, farmlands, often near ponds and marshes.	x	*			
Mojave Desert Sidewinder (*Crotalus cerastes cerastes*)	Prefers areas of wind-blown sand, but also occurs in open flats, rocky hillsides, and other desert areas.			x	x	
Sonoran Lyresnake (*Trimorphodon biscutatus lambda*)	Primarily occurs in rocky deserts.			x	x	
Mojave Green Rattlesnake (*Crotalus scutulatus scutulatus*)	Grassland, desert scrub, rocky slopes, creosote bush scrub, open juniper woodland and sparse chaparral.			x	x	
Northern Pacific Rattlesnake (*Crotalus oreganus oreganus*)	Rocky hillsides and outcrops, rocky stream courses, rocky areas in grasslands, mixed woodlands, montane forests, and sage brush.	*	*	*	*	x
Panamint Rattlesnake (*Crotalus mitchellii stephensi*)	Rocky outcrops and boulders, creosote bush scrub, cactus deserts, and open coniferous woodlands.			x	x	

Not surprisingly, the greatest number of amphibian species occurring or potentially occurring on the Tejon Ranch would occur on the moister northwestern side of the Tehachapi Mountains (Table 2). Nine amphibian species have the potential to occur on the Old Headquarters Tract of the Ranch, which is located on the Central Valley side of the Tehachapi Mountains. Only four amphibian taxa are expected to occur on the dry Mojave Desert side of the Tehachapi Mountains (Tri-Centennial and Bi-Centennial Tracts). The Michner Tract, which is located to the south and west of the main body of the Tehachapi Mountains (neither in the Central Valley nor the Mojave Desert), is expected to support as many as five amphibian taxa.

The greatest number of reptile taxa occurring on the Ranch would likely occur on the drier Mojave Desert side of the Tehachapi Mountains. This is confirmed by an examination of Table 2. Up to twenty-five reptile taxa would occur on the White Wolf and Old Headquarters acquisition tracts located on the Central Valley side of the Tehachapi Mountains. Thirty-seven reptile taxa are expected on the Bi-Centennial and Tri-centennial acquisition tracts located on the Mojave Desert side of the Tehachapi Mountains. The Michner Tract, which is located immediately south of the Tehachapi mountains, would likely support as many as 17 reptile taxa, a relatively small number compared to the other tracts.

SPECIAL STATUS SPECIES

As will be noted in Table 2, a number of amphibian and reptile species have been identified as "special status species." Several species of animals within the state of California have low populations, limited distributions, or both. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. State and federal laws have provided the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of animal species native to the state. A sizable number of native animal species has been formally designated as threatened or endangered under state and federal endangered species legislation. Others have been designated as "candidates" for such listing. Still others have been designated as "species of special concern" by the CDFG. Collectively, animals formally listed as state and/or threatened

or endangered, candidate species for such listing, and California species of special concern are referred to as "special status species."

The five proposed acquisition parcels provide habitat for a number of special status amphibian and reptile species, some of which have been documented within the acquisition parcels themselves. Special status species occurring or potentially occurring on the acquisition parcels are as follows:

Amphibians

Yellow-blotched Ensatina (*Eschscholtzii croceator*); California Species of Special Concern
Tehachapi Slender Salamander (*Batrachoseps stebbinsi*); California Threatened
Western Spadefoot (*Spea hammondi*); California Species of Special Concern
Foothill Yellow-legged Frog (*Rana boylii*); California Species of Special Concern
California Red-legged Frog (*Rana draytonii*); Federally Threatened; California Species of Special Concern

Reptiles

Southwestern Pond Turtle (*Actinemys marmorata pallida*); California Species of Special Concern
Desert Tortoise (*Gopherus agassizii*); Federally Threatened; California Threatened
California Legless Lizard (*Anniella pulchra*); California Species of Special Concern
Blunt-Nosed Leopard Lizard (*Gambelia sila*); Federally Endangered; California Endangered
San Diego Blainville's Horned Lizard (*Phyrnosoma blainvillii*); California Species of Special Concern
San Joaquin Coachwhip (*Masticophis flagellum ruddocki*); California Species of Special Concern
Two-Striped Gartersnake (*Thamnophis hammondii*); California Species of Special Concern

HERPETOFAUNA OF PROPOSED ACQUISITION TRACTS

The herpetofauna of each of the tracts is discussed in greater detail below:

White Wolf

White Wolf is located on the west side of the Tehachapi Mountains. It is generally a very xeric tract consisting of the Arvin Hills, which achieve elevations in excess of 2,000 feet National Geodetic Vertical Datum (NGVD). Natural drainages of the tract are generally ephemeral, meaning that they carry surface flows during major storm events, but generally dry up within a

few days of the last major rainfall. One seasonal drainage, which appears to carry flows for extended periods of the winter and spring parallels for a short distance Highway 223. The primary habitats of this tract include grassland dominated by annuals of European origin (the common genera are *Bromus*, *Vulpia*, and *Avena*) and a savannah of grassland supporting widely spaced blue oaks (*Quercus douglassii*).

Habitats of the White Wolf Tract are expected to support up to 3 amphibian species and 22 reptile species. No amphibian species were observed. Seven reptile species were observed during two consecutive fall surveys (Table 2).

Although no amphibians were observed, several may occur within the Whitewolf Tract. Amphibian species would generally occur in the most mesic areas of the tract. For example, sparse oak woodlands located just west of the intersection of Highways 58 and 223 may support yellow-blotched ensatinas (*Ensatina eschscholtzi croceator*) and black-bellied slender salamanders (*Batrachoseps nigriventris*). California toads (*Bufo boreas halophilus*) and Pacific treefrogs (*Hyla regilla*) would also be expected along one wet drainage located just north of Highway 223. Aquatic habitat in the form of stock ponds or seasonal drainages with permanent pools is absent from this tract. Therefore, habitat suitable for foothill yellow-legged frogs (*Rana boylii*), California red-legged frogs (*Rana draytonii*), and bullfrogs (*Rana catesbeiana*) appears to be absent from this tract.

Seven reptile species were observed in this tract during the course of two reconnaissance level surveys (Table 2). The species observed are common to grassland habitats of the San Joaquin Valley and include San Diego alligator lizard (*Elgaria multicarinata webbii*), San Joaquin fence lizard (*Sceloporus occidentalis biseriatus*), California side-blotched lizard (*Uta standburiana elegans*), California night-snake (*Hypsiglena torquata nuchalata*), California kingsnake (*Lampropeltis getula californiae*), Pacific Gophersnake (*Pituophis catenifer catenifer*), and Northern Pacific rattlesnake (*Crotalus oreganus oreganus*).

A number of expected reptile species were not observed during the two fall surveys. Exfoliating granite slabs appeared initially to provide suitable habitat for the Sierra night lizard (*Xantusia vigilis sierrae*), a State Species of Special Concern, but upon closer examination, it was determined that the granite slabs lacked the physical structure typical of Sierra night lizard habitat.

The survey team could not exhaustively examine all the granite slabs of this tract, so presumably some habitat suitable for this species could be present. The drier lands to the south and west of this tract could harbor species such as blunt-nosed leopard lizards (*Gambeila sila*), Blainville horned lizards (*Phrynosoma blainvillii*) [a State Species of Special Concern], western long-nosed snakes (*Rhinocheilus lecontei lecontei*), and California glossy snakes (*Arizona elegans occidentalis*). These species are representatives of xeric habitats which previously were wide-spread on the San Joaquin Valley floor and in the surrounding foothills. All of these species are infrequently encountered in this part of California at the present time, and the blunt-nosed leopard lizard is sufficiently rare that it has been listed as endangered by both the California Department of Fish and Game and the U.S. Fish and Wildlife Service.

Based on field observations of the fauna and extant habitat, this tract should probably be ranked #4 in order of importance for acquisition.

Old Headquarters

Like the White Wolf tract, the Old Headquarters tract lies to the west of the Tehachapi Mountains. This tract, however, supports a greater diversity of habitat types than the White Wolf tract, or any of the other tracts that were surveyed during this study. Elevations range from a low of approximately 700 feet NGVD on the alluvial fan created by El Paso Creek to a high of nearly 2,700 feet NGVD in the Tejon Hills at the north end of the tract. Habitats of the tract include grassland (consisting of the same introduced grass species observed on the White Wolf tract), blue oak woodland, small vernal pools, and foothill riparian habitats along Tejon, El Paso, and Tunis Creeks. The upper reaches of these three creeks are perennial most years.

Habitats of the Old Headquarters Tract are expected to support as many as 9 amphibian species and 25 reptile species. Three amphibian species and nine reptile species were observed during one spring and two consecutive fall surveys (Table 2).

The Old Headquarters Tract provides significant habitat for a number of amphibian species in the form of perennial creeks and associated riparian habitat, man-made ponds, seasonally rain-filled pools, and blue oak woodland. In fact, of all the tracts surveyed, this tract provides the greatest amount and variety of habitat suitable for amphibians. The aquatic habitats of this tract are

suitable for amphibians such as California toads and Pacific treefrogs. Western spadefoots (*Spea hammondii*) [a State Species of Special Concern] were observed during a May 2010 survey in the seasonally rain-filled pools near the Old Headquarters where they have been known to reproduce in past years. This tract also provides the best chance for the presence of rare frogs, such as the foothill yellow-legged frog (*Rana boylii*), a State Species of Special Concern, and the California red-legged frog (*Rana aurora draytonii*), a federally and California threatened species. Tejon, El Paso, and Tunis Creeks provide possible habitat for these species. Additional surveys for both are warranted. The higher elevations of this tract (i.e., areas supporting blue oak woodland), and areas along the major creeks passing through it), are known to be good habitat for yellow-blotched ensatinas and black-bellied slender salamanders. The California threatened Tehachapi slender salamander (*Batrachoseps stebbinsi*) has been documented within the Tejon Creek watershed. Since this species has been documented near Fort Tejon to the south and west of this tract, and in the Caliente Creek watershed to the north, it is reasonable to conclude that it would occur in other watersheds of the Old Headquarters tract, as well.

Reptile species would occupy both mesic and xeric habitats of this tract. The three creek corridors provides habitat for southwestern pond turtles (*Actinemys marmorata*), which is a California Species of Special Concern), San Diego alligator lizards, western red-tailed skinks (*Eumeces gilberti rubricaudatus*), and Sierra and valley gartersnakes (*Thamnophis couchii* and *T. sirtalis fitchi* respectively). Blunt-nosed leopard lizards (state and federally listed as endangered) were observed sparse grassland habitats on the alluvial fans located at the base of the Tehachapi Mountains. Other desert-type reptiles such as California glossy snakes, western long-nosed snakes, and San Diego Blainville's horned lizard, species which have now disappeared from many of the valley floor habitats due to agriculture, would likely be present. There may be other important reptiles such as mountain kingsnakes (*Lampropeltis zonata*) and southern rubber boas (*Charina bottae umbratica*) [a State listed species] at higher elevations.

It is worth noting that Dr. Jennings has observed large snakes and an extensive number of tracks of very large snakes on this part of the ranch during surveys conducted in August of 1993 for Planning Consultants Research. Large specimens of snakes such as northern Pacific rattlesnakes (*Crotalus oreganus oreganus*) (one specimen that had been killed by ranch employees), Pacific gophersnakes (*Pituophis catenifer catenifer*), and California kingsnakes (*Lampropeltis getula*

californiae) are rare these days. The ranch appears to harbor baseline populations of natural snake communities that have been extirpated from nearby lands by farming. Extant snake populations of the Tejon Ranch certainly give a better picture of what these resources were like in this part of California before widespread agricultural activities and urbanization.

This tract was the only parcel where introduced species predaceous on native amphibians were observed. Introduced bullfrogs were found to be common in the reservoirs and stock ponds near the agricultural areas in the vicinity of the Old Headquarters buildings. Many of the reservoirs also contained introduced fishes such as western mosquitofish (*Gambusia affinis*). Fortunately, these introduced aquatic predators have not moved upstream and become established in Tejon, El Paso, and Tunis Creeks. To prevent these introduced species (and others) from becoming established in these creeks, and to maintain and/or improve aquatic habitats of the ranch for amphibian and reptile species, a long-term management plan should be developed. This management plan should address the control of alien amphibians species (i.e., the American bullfrog) and introduced plant species such as giant reed (*Arundo donax*). Reservoirs now providing sport fishing opportunities may continue to do so, but steps should be taken to ensure that they do not become focal points for the illegal release of aquatic organisms like larval tiger salamanders (*Ambystoma tigrinum*) [i.e.: "waterdogs"], crayfish, baitfish, or bullfrogs.

Based on field observations of the fauna and habitats present, the Old Headquarters tract should be ranked #1 in order of importance for acquisition.

Tri-Centennial

The Tri-Centennial Tract lies to the east of the Tehachapi Mountains (the Mojave Desert side). This tract consists of essentially two areas, the foothills of the eastern side of the Tehachapi Mountains with springs and streams, and the arid desert floor. Elevations range from a low of approximately 3,000 feet NGVD on the alluvial fan created by natural streams draining the Tehachapi Mountains to a high of nearly 5,000 feet NGVD near the Canyon del Gato-Montes in the northwest corner of the tract. Habitats of the tract include non-native and native perennial grassland, Joshua tree woodland, small areas of pinyon-juniper woodland, desert scrub, and patchy desert riparian habitats (consisting of seep zones supporting herbaceous hydrophytes and willows) along unnamed drainages that have formed in the eastern flank of the Tehachapi

Mountains. Habitats of the Tri-Centennial Tract are expected to support up to 4 amphibian species and 37 reptile species. Two amphibian species and 10 reptile species were observed and definitively identified within this tract during two consecutive fall surveys (Table 2).

The springs and seep zones associated with natural drainages passing through the foothills are potentially important areas for amphibians. California toads and Pacific treefrogs were both observed in these mesic habitats of this otherwise arid tract. Slender salamanders are expected to occur here. Because the genus *Batrachoseps* continues to be intensively studied, and the taxonomy of the species present in this part of California is under review (Hansen and Wake 2005), a previously undescribed species may be present. This habitat is also suitable for yellow-blotched ensatinas, designated a California species of special concern. There is also a remote chance that California red-legged frogs (*Rana draytonii*) (a federally threatened species) occurs in springs or pools occurring in higher elevations in this tract.

As previously noted, 10 reptile species were definitively identified, with an eleventh tentatively identified within this tract. San Diego Blainville's horned lizards were observed within this tract, and a gartersnake that has been tentatively identified as a two-striped gartersnakes (*Thamnophis hammondii*) was also observed. Both are California Species of Special Concern. Other reptile species observed on this site include California side-blotched lizards, western zebra-tailed lizards (*Callisaurus draconoides rhodostictus*), yellow-backed spiny lizards (*Sceloporus magister uniformis*), Great Basin fence lizards (*Sceloporus occidentalis biseriatus*), Great Basin whiptails (*Aspidoscelis tigris tigris*), desert night lizards (*Xantusia vigilis vigilis*), Sierra gartersnakes (*Thamnophis couchi*), red-coachwhips (*Masticophis flagellum piceus*), and Northern Pacific rattlesnakes.

On the desert floor proper, the desert tortoise (*Gopherus agassizii*) (a federally threatened species) has been recently observed immediately adjacent to the southern edge of this tract. Thus, this species is probably present in suitable habitats located along the southern edge of this tract as well. The desert areas on the valley floor are certainly historic habitat for desert tortoises and could be used for a potential species reintroduction into the area via the Endangered Species Act regulations. All designated critical habitat for the Mojave Desert populations of this species lies generally to the east of the Tejon Ranch, with the nearest critical habitat being located

immediately east of California City approximately 40 miles to the northeast of the Tri-Centennial tract..

The isolated springs within this tract might be considered for future potential reintroduction (or expansion) of listed California red-legged frogs. These areas could be ideal for re-introduction because of their isolation from introduced predators such as bullfrogs, warm water fishes, and crayfishes.

Based on field observation of the fauna and habitats present, the Tri-Centennial tract should be ranked #2 in order of importance for acquisition.

Bi-Centennial

Like the Tri-Centennial Tract, the Bi-Centennial Tract lies to the east of the Tehachapi Mountains (the Mojave Desert side). This tract can also be broken up into two major areas, the foothills dissected by seasonal drainages fed by springs, and the desert floor. Elevations range from a low of approximately 3,000 feet NGVD on the alluvial fan created by natural streams draining the Tehachapi Mountains to a high of approximately 5,000 feet NGVD on either side of Pescado Canyon in the northeast corner of the tract. Habitats of the tract include non-native and native perennial grassland, oak woodland (including *Quercus lobata* in the upper reaches for one or more canyons), patchy oak scrub (*Quercus* x *alvordiana*), desert scrub, and riparian habitats (*Platanus*, *Populus*, *Quercus*, and *Salix*) along several seasonal drainages that have formed in the eastern flank of the Tehachapi Mountains. The most significant drainages of Bi-Centennial include Pescado and Los Alamos Creeks, and unnamed creeks draining Big Sycamore and Little Sycamore Canyons. Habitats of the Bi-Centennial Tract are expected to support up to 4 amphibian species and 37 reptile species (same as for Tri-Centennial). Two amphibian species and 8 reptile species were observed within this tract during two consecutive fall surveys (Table 2).

The foothill springs, streams, and ponds of this area of the foothills are important for areas for amphibians. California toads and Pacific treefrogs were observed in this tract. The drainages in the upper canyons may also support small populations of the California red-legged frog, and mesic areas of the tract may support populations of slender salamanders.

Many if not all of the same reptile species occurring on the Tri-Centennial tract would also occur on the Bi-Centennial Tract. Yellow-backed spiny lizards, Great Basin fence lizards, California side-blotched lizards, Great Basin whiptails, desert night lizards, a red-tailed skink (*Eumeces gilberti rubricaudatus*) Great Basin Gophersnakes (*Pituophis catenifer deserticola*), and Northern Pacific rattlesnakes were all observed on this tract. Amphibian species occurring in creeks and springs would likely support snakes like the Sierra gartersnake (*Thamnophis couchii*). Based on previous studies for gartersnake specimens collected in the Cuddy Valley area, this part of the Tehachapi Mountain foothills would likely include hybrids of the aquatic gartersnake complex, and consist of hybrids and backcrosses between the Sierra gartersnake (*T. couchii*), giant gartersnake (*T. gigas*) (a federally listed species), and two-striped gartersnake (a State Species of Special Concern). Thus, this tract may also be important for evolutionary studies of gartersnakes. The same might be said for slender salamanders and ensatinas, as well.

Based on field observations of the fauna and habitats present, the Bi-Centennial tract should be ranked #3 in order of importance for acquisition.

Michener Ranch

The proposed Michner acquisition tract lies to the south of the Tehachapi Mountains. Elevations range from a low of approximately 3,800 feet NGVD in Bear Canyon to a high of approximately 4,900 feet NGVD near the summits of Lebec B-9 and Lebec D-9. Habitats of the tract include non-native and native perennial grassland, oak woodland (including *Quercus lobata* and *Q.wislizenii*), and patchy chaparral (*Arctostaphylos*, *Ceanothus*, and *Fremontodendron*). One spring appears to occur within this tract just east of Gorman. A small drainage facilitates flows downstream of this spring. Two canyons on Michener Ranch drain to Lake Castaic to the north, but the drainages in these canyons do not carry much water or support much riparian habitat, if any. Due to the lack of habitat diversity, the Michener Ranch is expected to support as few as 5 amphibian species and only 17 reptile species. No amphibian species and 2 reptile species were observed within this tract during two consecutive fall surveys (Table 2).

The paucity of amphibian species expected to occur on this site is directly related to the lack of mesic woodlands, springs, drainages, and associated riparian habitat. Yellow-blotched ensatinas

and black-bellied slender salamanders may occur in oak woodlands of the tract. California toads, Pacific treefrogs, and bullfrogs may all occur in and around the one spring observed on the site.

Only two reptile species, the San Joaquin fence lizard and the California side-blotched lizard, were observed on the tract. Other expected species are those occurring throughout the Tehachapi Mountains (and the Sierra Nevada Range further to the north), or those with a more southerly distribution, and whose range extends just north to the Tehachapi Mountains (such as the San Diego gophersnake [*Pituophis catenifer annectens*]).

The Michener Ranch is not a significant area for amphibian or reptile diversity. Slender salamanders of uncertain taxonomy may be present. This may be the most interesting taxon present on the ranch. Based on the fauna and habitats present, the Michner Ranch should be ranked #5 in order of importance for acquisition.

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APPENDIX A:
KNOWN TYPE LOCALITIES AND TYPE SPECIMENS OF VERTEBRATES ON TEJON RANCH

Amphibians

Salamanders--

Batrachoseps attenuatus (black-bellied slender salamander), Fort Tejon (John Xantus).

Plethodon croceater [=*Ensatina eschscholtzii croceater*] (yellow-blotched ensatina), Fort Tejon (John Xantus).

Frogs--

Rana longipes [=*Rana draytonii*] (California red-legged frog), El Paso Creek (Adolphus Lewis Heermann).

Rana nigricans [=*Rana draytonii*] (California red-legged frog), El Paso Creek (Adolphus Lewis Heermann).

Hyla nebulosa, [=*Hyla cadaverina*] (California treefrog), "Old" Tejon Pass (Adolphus Lewis Heermann).

Hyla scapularis hyprochondriaca, [=*Hyla cadaverina*] (California treefrog), "Old" Tejon Pass (Adolphus Lewis Heermann).

Reptiles

Lizards--

Xantusia vigilis vigilis (desert night lizard), Fort Tejon (John Xantus).

Sceloporus occidentalis biseriatus (San Joaquin fence lizard), Fort Tejon (Adolphus Lewis Heermann).

Snakes—

Thamnophis hammondii (two-striped gartersnake) was originally described from the vicinity of "Fort Tejon" and "San Diego." The type locality has been restricted to the latter location.

Birds

Strix occidentalis (California spotted owl), 16 March 1858, Fort Tejon (John Xantus).

Empidonax hammondii (Hammond's flycatcher), Oct. 1857, vicinity of Fort Tejon (John Xantus).

Empidonax difficilis (Pacific-slope flycatcher), probably 1857, Fort Tejon (John Xantus).

Vireo solitarius cassini (Cassin's vireo), August or September 1857 or 1858, Fort Tejon (John Xantus).

Carpodacus purpureus californicus (western purple finch), probably 1857, Fort. Tejon (John Xantus).

Pipilo maculates megalonyx (spurred towhee), probably autumn 1857, Fort Tejon (John Xantus).

Passerella iliaca megarhynchus (thick-billed fox sparrow), probably December 1857, Fort Tejon (John Xantus).

Melospiza melodia heermanni (Heermann's song sparrow), probably September or October, 1853, Tejon Valley(Adolphus Lewis Heermann).

Mammals

Bats--

Myotis yumanensis sociabilis (Tejon Yuma myotis), Old Fort Tejon, 3,200 feet elevation (???).

Myotis thysanodes thysanodes (California fringed myotis), Old Fort Tejon [3,200 feet elevation] (???).

Antrozous pallidus pacificus (Pacific pallid bat), Fort Tejon [3,200 feet elevation] (???).

Carnivores--

Ursus arctos tularensis (Tejon grizzly bear) [not taxonomically valid], Fort Tejon, Cañada de las Uvas (???).

Rodents--

Perognathus longimembris longimembris (Tejon little pocket mouse), Old Fort Tejon, Cañada de las Uvas (John Xantus).

Neotoma fuscipes simplex (Tejon dusky-footed wood rat), Fort Tejon (John Xantus).

Reptiles:

Lizards--

Xantusia vigilis vigilis (desert night lizard), Fort Tejon (John Xantus).

Sceloporus occidentalis biseriatus (San Joaquin fence lizard), Fort Tejon (Adolphus Lewis Heermann).

Snakes—

Thamnophis hammondii (two-striped gartersnake) was originally described from the vicinity of "Fort Tejon" and "San Diego." The type locality has been restricted to the latter location.

APPENDIX B:
AMPHIBIAN AND REPTILES OBSERVED
IN FIVE ACQUISITION AREAS OF THE
TEJON RANCH

Species	Location(s)*
Amphibians:	
Western spadefoot (*Spea hammondii*)	OH
California toad (*Bufo boreas halophilus*)	TC, BC
Pacific treefrog (*Hyla regilla*)	TC, BC, OH
Bullfrog (*Rana catesbeiana*)	OH
Reptiles:	
Blunt-nosed leopard lizard (*Gambelia sila*)	OH
Western zebra-tailed lizard (*Callisaurus draconoides rhodostictus*)	TC
San Diego horned lizard (*Phrynosoma coronatum blainvillii*)	TC
Yellow-backed spiny lizard (*Sceloporus magister uniformis*)	TC, BC
San Joaquin fence lizard (*Sceloporus occidentalis biseriatus*)	WW, M, OH
Great Basin fence lizard (*Sceloporus occidentalis longipes*)	TC, BC
California side-blotched lizard (*Uta stansburiana elegans*)	WW, M, TC, BC, OH
San Diego alligator lizard (*Elgaria multicarinata webbii*)	WW
Skilton's skink (*Eumeces skiltonianus skiltonianus*)	OH
Great Basin whiptail (*Aspidoscelis tigris tigris*)	TC, BC
Yucca night lizard (*Xantusia vigilis vigilis*)	TC, BC
Western yellow-bellied racer (*Coluber constrictor mormon*)	OH
California night snake (*Hypsiglena torquata nuchalata*)	WW
California kingsnake (*Lampropeltis getula californiae*)	WW
Red coachwhip (*Masticophis flagellum piceus*)	TC
Pacific gophersnake (*Pituophis catenifer catenifer*)	OH, WW
Great Basin gophersnake (*Pituophis catenifer deserticola*)	BC
Sierra gartersnake (*Thamnophis couchii*)	TC, OH
Two-striped gartersnake (*Thamnophis hammondii*)	TC?
Valley gartersnake (*Thamnophis sirtalis fitchi*)	OH
Northern Pacific rattlesnake (*Crotalus oreganus oreganus*)	WW, TC, BC, OH

*Codes for locations: WW (White Wolf), M (Michener), TC (Tri-Centennial), BC (Bi-Centennial), and OH (Old Headquarters).