

APPENDIX D
Habitat Suitability Criteria Methods

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APPENDIX D HABITAT SUITABILITY CRITERIA METHODS

1. SUITABLE HABITAT MODELING

This appendix describes the approach used to model suitable habitat for Covered Species in the TU MSHCP as well as the specific model input parameters used in the modeling. A wide array of literature was reviewed and used for the suitable habitat modeling process. Literature citations for the Covered Species discussed below are provided for each of the species in *Section 5* of the TU MSHCP.

1.1 COVERED SPECIES MODELED

Suitable habitat modeling was conducted for the Covered Species occurring or potentially occurring on Covered Lands. Table D-1 lists the Covered Species for which suitable habitat modeling was conducted and the Federal, state, and other status associated with these species. The valley elderberry longhorn beetle and ringtail are included in this Appendix for information only, as they were subsequently removed from the Covered Species per the letter from TRC dated November 14, 2012, and Dudek memorandum dated October 26, 2012 (see Appendix D2).

Table D-1. Modeled Covered Species List

Biological Resource	Common Name	Scientific Name	Federal Status	State Status	CRPR List
Amphibian	Tehachapi slender salamander	<i>Batrachoseps stebbinsi</i>	BLM, FS	ST	None
Amphibian	Western spadefoot	<i>Spea [Scaphiopus] hammondi</i>	BLM	CSC	None
Amphibian	Yellow-blotched salamander	<i>Ensatina eschscholtzii croceater</i>	BLM	CSC	None
Bird	American peregrine falcon	<i>Falco peregrinus anatum</i>	BCC, FS	SE, FP, CDF	None
Bird	Bald eagle	<i>Haliaeetus leucocephalus</i>	None	SE, FP, CDF	None
Bird	Burrowing owl	<i>Athene cunicularia</i>	BCC, BLM	CSC	None
Bird	California Condor	<i>Gymnogyps californianus</i>	FE	SE, CDF, FP	None
Bird	Golden eagle	<i>Aquila chrysaetos</i>	BCC, BLM	CDF, FP, WL	None
Bird	Least Bell's vireo	<i>Vireo bellii pusillus</i>	FE, BCC	SE	None
Bird	Little willow flycatcher	<i>Empidonax traillii brewsteri</i>	None	SE	None
Bird	Purple martin	<i>Progne subis</i>	None	CSC	None
Bird	Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE	SE	None
Bird	Tricolored blackbird	<i>Agelaius tricolor</i>	BCC, BLM	CSC	None

Table D-1. Modeled Covered Species List

Biological Resource	Common Name	Scientific Name	Federal Status	State Status	CRPR List
Bird	Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	BCC, FC, FS	SE	None
Bird	White-tailed kite	<i>Elanus leucurus</i>	None	FP	None
Bird	Yellow warbler	<i>Dendroica petechia brewsteri</i>	None	CSC	None
Insect	Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	FT	None	None
Mammal	Ringtail	<i>Bassariscus astutus</i>	None	FP	None
Mammal	Tehachapi pocket mouse	<i>Perognathus alticolus inexpectatus</i>	None	CSC	None
Reptile	Coast horned lizard (<i>frontale</i> and <i>blainvillei</i> populations)	<i>Phrynosoma coronatum</i>	FS	CSC	None
Reptile	Two-striped garter snake	<i>Thamnophis hammondi</i>	BLM, FS	CSC	None
Plant	Fort Tejon woolly sunflower	<i>Eriophyllum lanatum</i> var. <i>hallii</i>	None	None	1B.1
Plant	Kusche's sandwort	<i>Arenaria macradenia</i> var. <i>kuschei</i>	None	None	1B.1
Plant	Round-leaved filaree	<i>California macrophylla</i> [<i>Erodium macrophyllum</i>]	None	None	1B.1
Plant	Striped adobe lily	<i>Fritillaria striata</i>	None	ST	1B.1
Plant	Tehachapi buckwheat	<i>Eriogonum callistum</i>	None	None	1B.1
Plant	Tejon poppy	<i>Eschscholzia lemmonii</i> ssp. <i>kernensis</i>	None	None	1B.1

¹Federal Designations:

BCC U.S. Fish and Wildlife Service Birds of Conservation Concern
 BLM Bureau of Land Management sensitive
 FS U.S. Forest Service sensitive

²State Designations:

CSC California Special Concern species
 FP California Department of Fish and Game Fully Protected
 WL California Department of Fish and Game Watch List
 CDF California Department of Forestry & Fire Protection sensitive
 SE State listed as Endangered
 ST State listed as Threatened

³California Rare Plant Rank (CRPR) Designations:

1B Rare or endangered in California and elsewhere
 2 Rare, threatened, or endangered in California but more common elsewhere
 Threat Extension .1 Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
 Threat Extension .2 Fairly endangered in California (20% to 80% occurrences threatened).
 Threat Extension .3 Not very endangered in California

1.2 DATA

A comprehensive biological and physical database is available for Covered Lands and was used to generate the suitable habitat models for the Covered Species. This section describes the sources for, and limitations of, the various data layers used to develop the suitable habitat models for the plant and wildlife Covered Species listed in *Table D-1*.

1.2.1 COVERED SPECIES OCCURRENCE DATA

Covered Species occurrence data were reviewed and used to prepare various sections of the TU MSHCP that require an understanding of the general distribution and relative abundance of species covered in the TU MSHCP. Two primary sources of spatial (Geographic Information System (GIS)-based) data were used: (1) Covered Species occurrence data collected during various surveys in portions of the Covered Lands (Dudek 2007a; Dudek 2007b) and (2) California Natural Diversity Database (CNDDDB) occurrence data (CDFG 2007c). Survey methods for Covered Species are included as *Appendix D1* to the TU MSHCP.

Plant and wildlife Covered Species occurrence data collected during various surveys in portions of the Covered Lands were either recorded on field maps to be digitized or recorded using a Global Positioning System (GPS) unit. The majority of the survey data was collected on the 28,253 acres of land referred to in the TU MSHCP as TMV Planning Area. The remaining 110,000 acres of Covered Lands have not been surveyed as extensively as the 28,253-acre TMV Planning Area. In either case, however, these location data are considered to be highly precise. Accuracy and validity of the identifications are considered to be high.

CNDDDB occurrence data assign a location precision rating to each element datum or occurrence. There are 10 accuracy classes related to the precision of the mapping. Accuracy classes 1 and 2 are the most specific and “confidence-rich” of the features. Accuracy class 3, the non-specific bounded area, is less precise and depicts an area where the element is found “somewhere within the boundaries.” These data were reviewed during preparation of the TU MSHCP in the context of their mapping precision and are considered somewhat limited when imprecise occurrence data are provided. However, the data are continually updated and will be available to the Project Biologist during implementation of the TU MSHCP.

Two non-spatial (non-GIS-based) resources related to species occurrences were also used to determine general distribution patterns, including geographic and elevation ranges, of the species covered in the TU MSHCP:

- California Native Plant Society (CNPS) online inventory (CNPS 2007) was used to assist biologists in determining general distribution patterns of the plant species covered in the TU

MSCHP. This database contains detailed information on plant species, and was used in determining suitable habitat parameters; and

- CDFG’s *Life History Accounts and Range Maps—California Wildlife Habitat Relationships System* (CDFG 2007d), an online inventory of species life history accounts for California’s wildlife, was consulted. For white-tailed kite, GIS data for the geographic range of the species was also used.

Additional scientific literature specific to each of the five groups of wildlife taxa were also reviewed. These resources include both online and print resources for different taxa, including:

Fish

- Range maps and descriptions provided in *Fish Species of Special Concern in California* (Moyle et al. 1995).

Reptiles/Amphibians

- *An Illustrated Exploration of the Herpetofauna of California*, including reptile and amphibian range maps (CaliforniaHerps 2007e);
- *Amphibian and Reptile Species of Special Concern in California* (Jennings and Hayes 1994);
- *Amphibian Declines: The Conservation Status of United States Species* (Lannoo 2005); and
- *Field Guide to Western Reptiles and Amphibians* (Stebbins 2003).

Birds

- Range maps and descriptions provided in *California’s Wildlife*, Volume 2 (Zeiner et al. 1990b) and updated as available (CDFG 2007d);
- Descriptions of range and occurrences in *Birds of Southern California* (Garrett and Dunn 1981); and
- *Birds of North America* online references (Poole 2005).

Mammals

- *A Field Guide to the Mammals: North America, North of Mexico* (Burt and Grossenheider 1976);
- *Wild Mammals of North America: Biology, Management and Economics* (Chapman and Feldhamer 1982);

- *Mammals of the Pacific States: California, Oregon, and Washington* (Ingles 1965);
- *California Mammals* (Jameson and Peeters 1988); and
- *California's Wildlife*, Volume 3 (Zeiner et al. 1990c).

Additional occurrence data or range maps were reviewed for individual species and the citations are included in the species accounts in *Sections 4* and *5* of the TU MSHCP.

1.2.2 VEGETATION COMMUNITIES

The Covered Lands vegetation map is included as *Figure 5-1* of the TU MSHCP. This map was prepared by GIS staff at Tejon Ranchcorp (TRC) and its consulting biologists. Two primary data sources were combined to form this map: (1) the Tejon Ranch-wide vegetation composite map; and (2) the vegetation map created for the Tehachapi Mountain Uplands during site-specific studies in 2007.

The Tejon Ranch-Wide Vegetation Composite

The Tejon Ranch-wide vegetation composite data layer was based on several surveys conducted on the ranch between 1980 and 1994, and subsequently updated in fall 2007 to reflect changes in the extent of mining activity in the south-central portion of the Covered Lands. Additional vegetation mapping was conducted using a 1-meter-pixel-size aerial image flown in May 2000 to fill in gaps in vegetation mapping data. The Tejon Ranch-wide vegetation composite primarily reflects the classification system outlined in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). However, some vegetation communities mapped reflect more general mapping comparable to general habitat types (e.g., riparian forest and woodland) outlined in the *List of California Terrestrial Natural Communities* (CDFG 2003).

The Tejon Ranch-wide vegetation composite is limited by the timeframe within which the data were assembled, as well as the precision of the data. The Tejon Ranch-wide vegetation composite represents conditions at the time the data were assembled, in this case 1980 to 1994, 2000, and 2007.

Vegetation Mapping Conducted in 2007

The vegetation mapping conducted in 2007 in the Tehachapi Mountain Uplands used a 2006 1-foot-pixel-size orthorectified aerial image (AirPhotoUSA 2006). Vegetation mapping followed the classification scheme outlined in the *List of California Terrestrial Natural Communities* (CDFG 2003). Minimum mapping units were established at 2.2 acres (1 hectare) for communities not considered to be high priority for inventory in the *List of California Terrestrial Natural Communities* and 1 acre for communities that were considered high priority for inventory.

The vegetation mapping conducted in 2007 is spatially limited because it does not cover the entire extent of the Covered Lands (i.e., it only covers the Tehachapi Mountain Uplands), but TRC considers it to be more than adequate for analyzing landscape-level effects and impacts to species within the portion of the Covered Lands that is covered.

Vegetation Crosswalk

To prepare a comprehensive vegetation layer for the Covered Lands, a “crosswalk” was created between the vegetation communities used in the Tejon Ranch-wide vegetation composite and the 2007 vegetation mapping in the Tehachapi Mountain Uplands. The crosswalk was necessary because the two vegetation data layers used different classification systems and the habitat suitability analysis required a vegetation data layer consisting of a uniform classification system. The crosswalk was applied to the 2007 vegetation layer for the Tehachapi Mountain Uplands so that the vegetation classification in this area was consistent with the classification system used for the Tejon Ranch-wide vegetation composite.

Table D-2 shows the crosswalk from the Tehachapi Mountain Uplands vegetation to the Tejon Ranch-wide vegetation composite and MSHCP vegetation datasets.

Table D-2. Vegetation Crosswalk between Tehachapi Mountain Uplands and MSHCP

Tehachapi Mountain Uplands Vegetation				MSHCP Vegetation	
<i>General Physiognomic Type</i>	<i>General Habitat</i>	<i>Alliance</i>	<i>Vegetation Community</i>	<i>Generalized Vegetation</i>	<i>Specific Vegetation</i>
Non-Native Vegetation, Developed Areas or Unvegetated Habitat	Non-Native Vegetation	Ornamental	Ornamental	Non Vegetative	Developed
	Urban/ Developed	Developed/ Disturbed Habitat	Developed/ Disturbed Habitat	Non Vegetative	Developed
	Unvegetated Habitat	Unvegetated Areas	Unvegetated Areas	Wash	Wash
	General Agriculture	Orchard and Vineyards	Orchard and Vineyards	Agriculture	Agriculture
	Native Tree Planting	Oak Tree Planting	Oak Tree Planting	Non Vegetative	Developed

Table D-2. Vegetation Crosswalk between Tehachapi Mountain Uplands and MSHCP

Tehachapi Mountain Uplands Vegetation				MSHCP Vegetation	
<i>General Physiognomic Type</i>	<i>General Habitat</i>	<i>Alliance</i>	<i>Vegetation Community</i>	<i>Generalized Vegetation</i>	<i>Specific Vegetation</i>
Scrub and Chaparral	Coastal scrub	Coastal Scrub	Coastal Scrub	Scrub	Scrub
		California Buckwheat Scrub	California Buckwheat	Scrub	Saltbush/Buckwheat Scrub
		California Buckwheat Scrub	California Buckwheat Alluvial Fan	Scrub	Alluvial Scrub
		Scalebroom Scrub	Scalebroom Scrub	Scrub	Alluvial Scrub
	NA ¹	NA	NA	Scrub	Mojavean scrub
	Great Basin Scrub	Big Sagebrush Scrub	Big Sagebrush	Scrub	Scrub
		Rubber Rabbitbrush Scrub	Rubber Rabbitbrush Scrub	Scrub	Scrub
	Chaparral with Chamise with or without other codominant shrubs	Chamise Chaparral	Chamise – Scrub Oak Chaparral ¹	Chaparral	Chaparral
		Chamise – Bigberry Manzanita Chaparral	Chamise – Bigberry Manzanita	Chaparral	Chaparral
		Chamise – Bigberry Manzanita Chaparral	Chamise – Bigberry Manzanita – Cupleaf Ceanothus	Chaparral	Chaparral
		Chamise – Bigberry Manzanita Chaparral	Chamise – Bigberry Manzanita – Wedgeleaf Ceanothus	Chaparral	Chaparral
		Chamise – Wedgeleaf Ceanothus Chaparral	Chamise – Wedgeleaf Ceanothus	Chaparral	Chaparral
	Chaparral with Ceanothus ssp. as principal indicator	Wedgeleaf Ceanothus Chaparral	Wedgeleaf Ceanothus	Chaparral	Chaparral
	Chaparral with Manzanita as principal indicator	Chaparral with Manzanita as principal indicator	Chaparral with Manzanita as principal indicator	Chaparral	Chaparral
		Bigberry Manzanita Chaparral	Bigberry Manzanita	Chaparral	Chaparral
	Chaparral with Oak as principal indicator	Interior Live Oak – Canyon Live Oak Chaparral	Interior Live Oak – Canyon Live Oak	Chaparral	Chaparral

Table D-2. Vegetation Crosswalk between Tehachapi Mountain Uplands and MSHCP

Tehachapi Mountain Uplands Vegetation				MSHCP Vegetation		
<i>General Physiognomic Type</i>	<i>General Habitat</i>	<i>Alliance</i>	<i>Vegetation Community</i>	<i>Generalized Vegetation</i>	<i>Specific Vegetation</i>	
		Interior Live Oak – Scrub Oak Chaparral	Interior Live Oak – Scrub Oak Chaparral	Chaparral	Chaparral	
		Mixed Scrub Oak Chaparral	Scrub Oak – Bigberry Manzanita	Chaparral	Scrub Oak	
		Mixed Scrub Oak Chaparral	Scrub Oak – Wedgeleaf Ceanothus	Chaparral	Scrub Oak	
		Scrub Oak Chaparral	Scrub Oak/ California Buckeye	Chaparral	Scrub Oak	
		Scrub Oak Chaparral	Scrub Oak	Chaparral	Scrub Oak	
		Scrub Oak – Birchleaf Mountain-mahogany Chaparral	Scrub Oak – Birchleaf Mountain-Mahogany	Chaparral	Scrub Oak	
		Brewer Oak Chaparral	Brewer Oak Chaparral	Chaparral	Brewer's Oak Scrub	
		Canyon Live Oak Chaparral	Canyon Live Oak Shrub	Chaparral	Chaparral	
		Canyon Live Oak Chaparral	Canyon Live Oak – Holly-Leaf Redberry	Chaparral	Chaparral	
		Tucker Oak Scrub	Tucker Oak Scrub	Chaparral	Chaparral	
	Interior Live Oak Chaparral	Interior Live Oak Chaparral	Chaparral	Chaparral		
	Chaparral with Birchleaf Mountain-mahogany as principal indicator		Birchleaf Mountain-mahogany – California Buckwheat	Birchleaf Mountain-Mahogany – California Buckwheat	Chaparral	Chaparral
			Birchleaf Mountain-mahogany Woodland	Birchleaf Mountain-Mahogany	Chaparral	Chaparral
Grass and Herb – Dominated Communities	Native Grassland	Creeping Ryegrass Grassland	Creeping Ryegrass Grassland	Grassland	Native Grassland	
		Purple Needlegrass	Purple Needlegrass	Grassland	Native Grassland	
		One-sided Bluegrass	One-Sided Bluegrass	Grassland	Native Grassland	
		Giant Wild Rye Grassland	Giant Wild Rye	Grassland	Native Grassland	
		Big Squirreltail	Big Squirreltail	Grassland	Native Grassland	

Table D-2. Vegetation Crosswalk between Tehachapi Mountain Uplands and MSHCP

Tehachapi Mountain Uplands Vegetation				MSHCP Vegetation	
<i>General Physiognomic Type</i>	<i>General Habitat</i>	<i>Alliance</i>	<i>Vegetation Community</i>	<i>Generalized Vegetation</i>	<i>Specific Vegetation</i>
		Grassland			
	Non – native Grassland	Non – native Grassland	Non-Native Grassland ¹	Grassland	Disturbed/Non-Native Grassland
	NA	NA	NA	Grassland	Grassland
	Meadows and Seeps not dominated by grasses	Rush Riparian Grassland	Rush Riparian Grassland	Wetland	Wetland
		Freshwater Seep	Freshwater Seep	Wetland	Wetland
Bog and Marsh	Marsh	Bulrush – Cattail Wetland	Bulrush – Cattail	Wetland	Wetland
		Cattail Wetland	Broad-Leafed Cattail	Wetland	Wetland
		Common Three-square	Common Three-Square	Wetland	Wetland
		California Bulrush Wetland	California Bulrush Wetland	Wetland	Wetland
		Tule	Tule	Wetland	Wetland
		Perennial Pepperweed	Perennial Pepperweed	Wetland	Wetland
Riparian and Bottomland Habitat	Riparian Forest and Woodland	Fremont Cottonwood Riparian Forests and Woodlands	Southern Cottonwood – Willow Riparian	Riparian Woodland	Riparian Woodland
		Red Willow Riparian Forests	Red Willow	Riparian Scrub	Riparian Scrub
		Red Willow Riparian Forests	Red Willow/ Arroyo Willow	Riparian Scrub	Riparian Scrub
		Mixed Willow Riparian Forests and Woodlands	Mixed Willow Riparian Forests and Woodlands	Riparian Woodland	Riparian Woodland
		Black Willow Riparian Forests and Woodlands	Black Willow Riparian Forests and Woodlands	Riparian Woodland	Riparian Woodland
		Central California Sycamore Alluvial Woodland	Central California Sycamore Alluvial Woodland	Riparian Woodland	Riparian Woodland

Table D-2. Vegetation Crosswalk between Tehachapi Mountain Uplands and MSHCP

Tehachapi Mountain Uplands Vegetation				MSHCP Vegetation	
<i>General Physiognomic Type</i>	<i>General Habitat</i>	<i>Alliance</i>	<i>Vegetation Community</i>	<i>Generalized Vegetation</i>	<i>Specific Vegetation</i>
Broad Leafed Upland Tree Dominated	Oak Woodlands and Forests	Black Oak Forests and Woodland	Black Oak – Valley Oak	Woodland	Mixed Oak Woodland
		Black Oak Forests and Woodland	Canyon Live Oak – Black Oak	Woodland	Mixed Oak Woodland
		NA	NA	Savannah	Black Oak Savannah
		Black Oak Forests and Woodland	Black Oak Woodland	Woodland	Black Oak Woodland
		Black Oak Forests and Woodland	Black Oak Forest	Woodland	Black Oak Woodland
		Blue Oak Woodland ²	Blue Oak Grass	Savannah	Blue Oak Savannah
		Blue Oak Woodland ²	Blue Oak Grass	Woodland	Blue Oak Woodland
		Blue Oak Woodland ²	Blue Oak Grass	Woodland	Mixed Oak Woodland
		Blue Oak Woodland	Blue Oak/ Interior Live Oak	Woodland	Blue Oak Woodland
		Blue Oak Woodland	Blue Oak/ Interior Live Oak – Wedgeleaf Ceanothus	Woodland	Blue Oak Woodland
		Blue Oak Woodland	Blue Oak/ Tucker Oak	Woodland	Blue Oak Woodland
		Blue Oak Woodland	Blue Oak/ Wedgeleaf Ceanothus	Woodland	Blue Oak Woodland
		Valley Oak Forests and Woodlands	Blue Oak – Valley Oak/ Grass	Savannah	Oak Savannah
		Valley Oak Forests and Woodlands	Blue Oak – Valley Oak/ Grass	Woodland	Oak Woodland
		Valley Oak Forests and Woodlands	Valley Oak/ Grass ¹	Savannah	Oak Savannah
		Valley Oak Forests and Woodlands	Great Valley Valley Oak Riparian	Riparian Woodland	Oak Riparian
		NA	NA	Savannah	Canyon Oak Savannah
		Canyon Live Oak Forest and Woodland	Canyon Live Oak Woodland	Woodland	Canyon Oak Woodland
		Canyon Live Oak Forest and Woodland	Canyon Live Oak Forest	Woodland	Canyon Oak Woodland
		NA	NA	Savannah	Gray Pine Savannah
NA	NA	Woodland	Gray Pine Woodland		
NA	NA	Savannah	Interior Oak Savannah		
Interior Live Oak Woodland	Interior Live Oak Woodland	Woodland	Interior Oak Woodland		

Table D-2. Vegetation Crosswalk between Tehachapi Mountain Uplands and MSHCP

Tehachapi Mountain Uplands Vegetation				MSHCP Vegetation	
<i>General Physiognomic Type</i>	<i>General Habitat</i>	<i>Alliance</i>	<i>Vegetation Community</i>	<i>Generalized Vegetation</i>	<i>Specific Vegetation</i>
		Interior Live Oak Woodland	Interior Live Oak Forest	Woodland	Interior Oak Woodland
		NA	NA	Savannah	Mixed Oak Savannah
		Mixed Oak Woodland and Forest	Mixed Oak – California Buckeye	Woodland	Mixed Oak Woodland
		Mixed Oak Woodland and Forest	Mixed Oak/ Grass	Woodland	Mixed Oak Woodland
		NA	NA	Savannah	Undetermined Savannah
		NA	NA	Woodland	Undetermined Woodland
		NA	NA	Savannah	White Oak Savannah
		NA	NA	Woodland	White Oak Woodland
		California Buckeye Woodland	California Buckeye Woodland	California Buckeye Woodland	Woodland
Coniferous Upland Forest and Woodland	Pine Forests and Woodlands	Singleleaf Pinyon Woodland	Singleleaf Pinyon Woodland	Woodland	Pinyon Pine Woodland
		Coulter Pine – Canyon Live Oak Woodland	Coulter Pine – Canyon Live Oak Woodland	Conifer	Conifer/Mixed Oak
	Juniper Woodlands	California Juniper Woodland and Scrub	Juniper Oak Cismontane Woodland	Conifer	Conifer/Mixed Oak
		California Juniper Woodland and Scrub	Cismontane Juniper Woodland and Scrub	Conifer	Conifer/Mixed Oak
		NA	NA	Conifer	Incense Cedar Stand
		NA	NA	Conifer	Intermixed Conifer
		NA	NA	Conifer	White Fir Stand
		NA	NA	Conifer	White Fir/Mixed Oak

Legend

¹ NA – Not Applicable because this vegetation community was not mapped in the Tehachapi Mountain Uplands.

² The detailed vegetation mapping in the Tehachapi Mountain Uplands may include additional constituent species and cover estimate information to allow mapping to the association or sub-association levels for some communities that are not reflected in the more general categories in the table. For this reason, the Blue Oak Grass vegetation community, for example, is crosswalked to three different specific MSHCP vegetation communities.

1.2.3 CANOPY COVER

The habitat suitability models employ a canopy cover GIS layer resulting from a 1980 timber study that was conducted for the Tejon Ranch Forest Management Program and updated for conifer areas in 2001 (TRC 2001). This polygon layer was used in suitable habitat modeling for species that require open or conversely, dense habitats. The data are grouped into five categories: 0–10% canopy cover; 10%–40% canopy cover; 40%–70% canopy cover; 70%–100% canopy cover; and grass, not-a-part, and chaparral.

This data set covers approximately 80% of the Covered Lands. Portions of Covered Lands lacking canopy cover data are not included in suitable habitat acreages for the three species that include canopy cover as a component of the model: Tehachapi slender salamander, yellow-blotched salamander, and California condor. Because canopy cover data are available for the majority of Covered Lands, these species models are considered adequate for determining anticipated effects on Covered Species.

1.2.4 WATER FEATURES AND DRAINAGES

Tejon Ranch GIS staff digitized 1:24000 U.S. Geological Survey (USGS) blue line streams from USGS topographic maps (TRC 2002b). Using data from previous consultants' wetland studies and USGS quadrangle maps, TRC GIS staff further refined this data set to include "major streams" (TRC 2002a), which primarily correspond with perennial streams. Based upon wildlife surveys conducted in 2007 in the Tehachapi Mountain Uplands (Dudek 2007b), a composite perennial streams data set was created using the major streams (TRC 2002a) as a base but refined to include additional 1:24000 USGS blue line streams (TRC 2002b) that Dudek determined were perennial streams (Dudek 2007b). This data set, which generally delineates the location of perennial streams for purposes of modeling suitable habitat, is referred to in *Section 1.3* of this appendix as "perennial streams." In addition, Castac Lake, which is currently a perennial source of water, was mapped based upon the wetland delineation conducted on the Tehachapi Mountain Uplands (Impact Sciences 2008). In *Section 1.3*, this data set is referred to as "Castac Lake." The 1:24000 USGS blue line streams digitized from USGS topographic maps (TRC 2002b) is referred to in *Section 1.3* as "1:24000 USGS blue line streams."

TRC GIS staff created a seeps and springs GIS layer, which was developed by merging two data sets: (1) a detailed seeps and springs data layer created for the ranch (Advanced Geomatics 2004) and (2) the National Hydrography Dataset (USGS 2003) that provides information on surface water features, including springs and wells. The National Hydrography Dataset is based on 1:100,000-scale data and was used for portions of Covered Lands that are located outside of the ranch. In *Section 1.3* of this appendix, these data are referred to as "seeps and springs."

The California watershed map GIS data layer representing the standardized watershed boundaries for the State of California (Teale Data Center 2004) is also used to model suitable habitat for Covered Species. Only one watershed is used to model suitable habitat for Covered Species, the Antelope-Fremont Valley watershed. In *Section 1.3* of this appendix, these data are referred to as the “Antelope-Fremont Valley watershed.”

None of the water features and drainages GIS data are considered to be limited for the purposes of landscape-scale analysis.

1.2.5 TERRAIN

An important component of the physical database for the TU MSHCP is the digital terrain model developed by Intermap Technologies (Intermap Technologies 2005). The digital terrain model allows GIS analysts to develop elevation, slope, and aspect models that are used as components of the suitable habitat modeling for certain species covered in the TU MSHCP. Slope data were used to create breeding habitat models for species that require steep cliffs, defined as 50° slopes and greater (or 119% slopes and greater). Slope data were also used as a predictor for California condor foraging habitat and habitat for Tehachapi pocket mouse (see *Section 1.3* of this appendix). Aspect was a component of suitable habitat models for species that occur on north-facing (0° to 90° and 0° to 270°) slopes. Moreover, the digital terrain model provides a qualitative understanding of the Covered Lands because it allows for an analysis of topography and hillshade features as well.

Elevation is a component of suitable habitat models for species with known elevation ranges that are not fully encompassed in the elevation ranges in the Covered Lands. For example, if a species’ maximum known elevation range is 3,000 feet, the suitable habitat shown for the species only includes those areas in the Covered Lands below 3,000 feet that also meet the other model parameters (e.g., vegetation and slope). The elevation data used for the habitat suitability models are categorized into 100-foot increments, such as 1,900 feet to 2,000 feet and 2,000 feet to 2,100 feet. Known elevation ranges for species (*Section 1.3* of this appendix) were rounded to the upper 100-foot increment for the highest elevation range documented for the species and were rounded down to the lower 100-foot increment for the lowest elevation range documented for the species. This approach may result in an overestimate of suitable habitat.

TRC GIS staff created a GIS layer representing the location of ridgetops, which was used to model suitable habitat for California condor (TRC 2007c). In *Section 1.3* of this appendix, these areas are referred to as “ridgetops.”

The digital terrain model is not considered to be limited for the purposes of landscape-scale conservation planning and analysis as described in the TU MSHCP. It is consistent in level of detail with the other data sets used for the TU MSHCP such as generalized vegetation and soils data and

accurately represents the general topographic features within Covered Lands. During implementation of the TU MSHCP, it is possible that more precise topography and digital terrain model data will be available for certain portions of the Covered Lands. More precise topographic data may facilitate evaluation of specific Covered Activities and management and monitoring issues as they arise.

1.2.6 SOILS

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (formerly the Soil Conservation Service) soils mapping for the southeastern part of Kern County was used to understand the soils in the Covered Lands (USDA 1981). Mapping and analysis of the soils data utilized the Soil Survey Geographic (SSURGO) database, which was created by digitizing the 1981 soil survey map and is the most detailed level of soil geographic data developed by the National Cooperative Soil Survey (USDA 1999). Digital soils data enabled quantitative analysis of soils considered to be important for determining suitable habitat and the conservation of certain plant species. The digitized soils data layer is depicted in *Figure 5-2* of the TU MSHCP.

There are 66 different soil types mapped in the Covered Lands. Of those, the following soil types have a clay component (USDA 1981) and are included in the modeling for plants requiring clay substrate. In *Section 1.3* of this appendix, these soils are collectively referred to as “clay soils.”

- Anaheim Variant Very Fine Sandy Loam, 2% to 30% Slopes
- Anaverde Gravelly Loam, 30% to 50% Slopes and 50% to 75% Slopes
- Anaverde Loam, 15% to 30% Slopes
- Anaverde Rocky Loam, 30% to 50% Slopes
- Arujo Sandy Loam, 9% to 15% Slopes
- Arujo–Friant–Tunis Complex, 15% to 50% Slopes and 50% to 75% Slopes
- Ayar Clay Loam, 5% to 15% Slopes
- Chanac–Badland Complex, 30% to 50% Slopes
- Chino Loam
- Cibo Cobbly Clay, 30% to 75% Slopes
- Gorman Sandy Loam, 15% to 30% Slopes, Eroded and 30% to 50% Slopes, Eroded
- Oakdale Sandy Loam, 2% to 9% Slopes

- Pleito Sandy Clay Loam, 9% to 50% Slopes
- Pleito–Chanac Sandy Clay Loams, 15% to 30% Slopes
- Ramona Coarse Sandy Loam, 5% to 9% Slopes and 9% to 15% Slopes
- Ramona Sandy Loam, 9% to 30% Slopes, Eroded
- Rescue Variant Loam, 15% to 30% Slopes and 30% to 50% Slopes
- Tehachapi Cobbly Sandy Clay Loam, Warm, 2% to 9% Slopes
- Tunis–Walong Complex, 50% to 75% Slopes
- Vista Coarse Sandy Loam, 15% to 30% Slopes, Eroded and 30% to 50% Slopes, Eroded
- Walong Sandy Loam, 15% to 30% Slopes and 30% to 50% Slopes
- Walong–Arujo Sandy Loams, 30% to 50% Slopes and 50% to 75% Slopes
- Walong–Edmundston Association, Very Steep
- Xererts–Xerolls Complex, Steep
- Xerorthents, Very Steep
- Xerorthents–Rock Outcrop Complex, Very Steep.

The following soil types are derived from material weathered mainly from granitic rock (USDA 1981) and are included in the modeling for plants requiring granitic substrate. In *Section 1.3* of this appendix, these soils are collectively referred to as “granitic soils.”

- Amargosa Rocky Coarse Sandy Loam, 9% to 55% Slopes, Eroded
- Arujo Sandy Loam, 9% to 15% Slopes
- Arujo–Friant–Tunis Complex, 15% to 50% Slopes and 50% to 75% Slopes
- Arvin Sandy Loam, 5% to 9% Slopes
- Arvin Stony Sandy Loam, 5% to 9% Slopes
- Chino Loam

- Edmundston Gravelly Sandy Loam, 30% to 50% Slopes and 50% to 75% Slopes
- Edmundston–Godde–Tollhouse Complex, 50% to 75%
- Godde–tollhouse Gravelly Sandy Loams, 30% to 75% Slopes
- Gorman Sandy Loam, 15% to 30% Slopes, Eroded and 30% to 50% Slopes, Eroded
- Greenfield Sandy Loam, 2% to 9% Slopes and 9% to 15% Slopes, Eroded
- Hanford Coarse Sandy Loam, 2% to 9% Slopes
- Hanford Gravelly Sandy Loam, 2% to 9% Slopes
- Havala Sandy Loam, 5% to 9% Slopes and 9% to 15% Slopes
- Oak Glen Gravelly Sandy Loam, 2% to 9% Slopes
- Oak Glen Loam, 0% to 2% Slopes and 2% to 9% Slopes
- Oak Glen Sandy Loam, 2% to 9% Slopes
- Oakdale Sandy Loam, 2% to 9% Slopes
- Ramona Coarse Sandy Loam, 5% to 9% Slopes and 9% to 15% Slopes
- Ramona Sandy Loam, 9% to 30% Slopes, Eroded
- Sheridan Sandy Loam, 15% to 30% Slopes; 15% to 30% Slopes, Eroded; 30% to 50% Slopes; and 30% to 50% Slopes, Eroded
- Soboba Cobbly Loamy Sand, 2% to 5% Slopes
- Steuber Sandy Loam, 2% to 5% Slopes and 5% to 9% Slopes
- Steuber Stony Sandy Loam, 5% to 9% Slopes
- Tunis–Walong Complex, 50% to 75% Slopes
- Vista Coarse Sandy Loam, 15% to 30% Slopes, Eroded and 30% to 50% Slopes, Eroded
- Walong Sandy Loam, 15% to 30% Slopes and 30% to 50% Slopes
- Walong–Arujo Sandy Loams, 30% to 50% Slopes and 50% to 75% Slopes

- Walong–Edmundston Association, Very Steep
- Walong–Rock Outcrop Complex, 30% to 75% Slopes
- Xerorthents–Rock Outcrop Complex, Very Steep.

This data set covers approximately 90% of the Covered Lands. The soils mapping includes roughly the 90% of the Covered Lands. Models for Covered Species that include soils as a modeling parameter were analyzed as follows: (1) in the Covered Lands where soils data are present, suitable habitat was modeled using the parameters specified in *Section 1.3* of this appendix, including soils; (2) in the Covered Lands that lack soils data, suitable habitat was modeled using the parameters specified in *Section 1.3*, except soils. Acreages of suitable habitat depicted on suitable habitat maps in the TU MSHCP for soils-restricted plants include the sum of suitable habitat described above in (1) and (2), which represents an overestimate of suitable habitat acreages. The acreages of suitable habitat reported in the TU MSHCP for soils-restricted plants are described above in (1), which represents an underestimate of suitable habitat acreages.

1.2.7 IMAGERY

Two primary image data sources were used in developing the TU MSHCP: (1) geo-referenced USGS topographic quadrangle maps; and (2) full-color aerial images for a portion of the Covered Lands. Unlike aerial image data, geo-referenced USGS topographic quadrangle maps provide place names and other qualitative information useful in analyzing the conservation of the species covered in the TU MSHCP. The detail provided in these maps can be more useful for landscape-scale planning and mapping than aerial imagery.

For the Tehachapi Mountain Uplands area, full-color aerial photographs taken in June 2006 were obtained from AirPhotoUSA (2006) and used during various surveys conducted in this portion of the Covered Lands. Pixel size of this imagery is 1 foot and the aerial image is orthorectified, which provides greater accuracy in digitizing vector data (e.g., vegetation mapping and plant and wildlife occurrence data).

The imagery database is not considered to be limited for the purposes of landscape-scale conservation planning and analysis as described in the TU MSHCP. It is consistent in level of detail with the other data sets used for the TU MSHCP such as generalized vegetation and soils data. During implementation of the TU MSHCP, it is possible that more precise imagery data will be available for certain portions of the Covered Lands. More precise imagery data may facilitate evaluation of specific Covered Activities and management and monitoring issues as they arise.

1.2.8 HABITAT SUITABILITY ANALYSIS

The data described in this section were used to generate suitable habitat models for each of the species covered in the TU MSHCP. The data use and the model input parameters used for each Covered Species varied depending on the unique habitat requirements of each species. The database for generalist species without highly specialized habitat requirements or elevation limitation may include only vegetation, whereas specialist species with very precise habitat requirements may include some combination of vegetation, elevation, soil, slope, and/or the use of buffers around drainages, for example. Biologists familiar with these species reviewed the scientific literature (see *Sections 4* and *5* of the TU MSHCP for specific literature pertaining to each species) and determined the data type and model input parameters uniquely suited to each of the Covered Species. The biology working group peer-reviewed these initial model input parameters and revisions were made where improvements or adjustments were determined to be necessary. Once the data and input parameters were finalized, the habitat models were generated in ArcGIS using the digital data sources described above. The modeled suitable habitat acreages were then used for the conservation analysis for each Covered Species.

1.3 SPECIFIC MODEL PARAMETERS FOR COVERED SPECIES

This section provides a complete list of model input parameters used for the plant and wildlife suitable habitat modeling. The habitat functions of the modeled suitable habitat are also provided for wildlife species and are referred to as “habitat type.” Habitat types are defined as follows:

- **Suitable Habitat:** The habitat provides for all the life history needs of the species, including shelter, breeding, and foraging. If secondary suitable habitat (see definition below) is also analyzed for a species, suitable habitat is modified by the term “primary.” This modifier indicates that this species uses primary habitat more often and the habitat is adequate to support the species.
- **Secondary Suitable Habitat:** The habitat is less frequently used by the species. In the absence of primary suitable habitat, secondary suitable habitat alone may not be adequate to support the species.
- **Primary Breeding Habitat:** The habitat is used almost exclusively as breeding habitat; that is, supports breeding but not foraging.
- **Wintering:** The habitat provides for life history needs of the species during the winter non-breeding season. This category applies only to the bald eagle, which occurs infrequently during winter on Covered Lands, and is unlikely to breed on site even though suitable breeding habitat is present.

- **Breeding and Foraging:** The habitat provides for breeding and foraging, but does not provide all the life history needs of the species. Migratory birds that only breed and forage on site but winter elsewhere would be an example of a species that may occur in this habitat type but not for their entire life history. If secondary breeding and foraging habitat (see definition below) is also analyzed for a species, breeding and foraging is modified by the term primary. This modifier indicates that this species uses primary habitat more often and the habitat is adequate to support the species in terms of breeding and foraging.
- **Secondary Breeding and Foraging:** The habitat is less frequently used by the species. In the absence of primary breeding and foraging habitat, secondary breeding and foraging habitat alone may not be adequate to support the species.
- **Foraging Habitat:** Habitat used exclusively by the species for foraging and does not provide for other life history needs of the species; for example, shelter and breeding. For little willow flycatcher, the habitat type refers to foraging and stopover habitat. “Stopover habitat” refers to habitat used during migration stopovers.
- **Secondary Foraging Habitat:** Habitat used less frequently for foraging. In the absence of primary foraging habitat, secondary foraging habitat may not be adequate to support the species.

American peregrine falcon
Falco peregrinus anatum

Federal Status: BCC, FS
State Status: SE, FP, CDF

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

AGRICULTURE	AGRICULTURE	Foraging
GRASSLAND	ANNUAL GRASSLAND	Foraging
GRASSLAND	DISTURBED/NON-NATIVE GRASSLAND	Foraging
GRASSLAND	GRASSLAND	Foraging
GRASSLAND	NATIVE GRASSLAND	Foraging
LAKE	LAKE	Foraging
RIPARIAN SCRUB	RIPARIAN SCRUB	Foraging
RIPARIAN/WETLAND	RIPARIAN/WETLAND	Foraging
WASH	DESERT WASH/RIPARIAN/SEEPS	Foraging
WASH	WASH	Foraging
WETLAND	WETLAND	Foraging

Elevation: All

Other Parameters: A separate model was created for breeding habitat, in addition to the foraging habitat shown above. Breeding habitat included all steep cliff areas, defined as 50 degrees slopes or greater (or 119% slopes or greater).

Bald eagle
Haliaeetus leucocephalus

Federal Status: None
State Status: SE, FP, CDF

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

LAKE	LAKE	Foraging
RIPARIAN WOODLAND	OAK RIPARIAN	Wintering
RIPARIAN/WETLAND	RIPARIAN/WETLAND	Foraging
SAVANNA	BLACK OAK SAVANNA	Wintering
SAVANNA	BLUE OAK SAVANNA	Wintering
SAVANNA	CANYON OAK SAVANNA	Wintering
SAVANNA	INTERIOR OAK SAVANNA	Wintering
SAVANNA	MIXED OAK SAVANNA	Wintering
SAVANNA	OAK SAVANNA	Wintering
SAVANNA	UNDETERMINED SAVANNA	Wintering
SAVANNA	WHITE OAK SAVANNA	Wintering
WETLAND	WETLAND	Foraging
WOODLAND	BLACK OAK WOODLAND	Wintering
WOODLAND	BLUE OAK WOODLAND	Wintering
WOODLAND	CANYON OAK WOODLAND	Wintering
WOODLAND	INTERIOR OAK WOODLAND	Wintering
WOODLAND	MIXED OAK WOODLAND	Wintering
WOODLAND	OAK WOODLAND	Wintering
WOODLAND	UNDETERMINED WOODLAND	Wintering
WOODLAND	WHITE OAK WOODLAND	Wintering

Elevation: All

Other Parameters: Suitable habitat includes only those vegetation communities listed above that were within 1 mile of Castac Lake.

Burrowing owl
Athene cunicularia

Federal Status: BCC, BLM
State Status: CSC

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

AGRICULTURE	AGRICULTURE	Secondary Breeding and Foraging
GRASSLAND	ANNUAL GRASSLAND	Primary Breeding and Foraging
GRASSLAND	DISTURBED/NON-NATIVE GRASSLAND	Primary Breeding and Foraging
GRASSLAND	GRASSLAND	Primary Breeding and Foraging
GRASSLAND	NATIVE GRASSLAND	Primary Breeding and Foraging
SCRUB	ALLUVIAL SCRUB	Secondary Breeding and Foraging
SCRUB	MOJAVEAN SCRUB	Secondary Breeding and Foraging
SCRUB	SALTBUSH/BUCKWHEAT SCRUB	Secondary Breeding and Foraging
SCRUB	SCRUB	Secondary Breeding and Foraging

Elevation: All

Other Parameters: None

California condor
Gymnogyps californianus

Federal Status: FE
State Status: SE, CDF

Standard Vegetation Input Parameters for Foraging Habitat

Vegetation Types Included:

AGRICULTURE	ALLUVIAL SCRUB
ANNUAL GRASSLAND	BLACK OAK SAVANNAH
BLUE OAK SAVANNAH	BLUE OAK WOODLAND
CANYON OAK SAVANNAH	CANYON OAK WOODLAND
CONIFER MIXED OAK	DESERT WASH RIPARIAN SEEPS
DISTURBED NON-NATIVE GRASSLAND	
GRASSLAND	GRAY PINE SAVANNAH
GRAY PINE WOODLAND	INTERIOR OAK SAVANNAH
INTERIOR OAK WOODLAND	MIXED OAK SAVANNAH
MOJAVEAN SCRUB	NATIVE GRASSLAND
OAK SAVANNAH	OAK WOODLAND
PINYON PINE WOODLAND	RIPARIAN WOODLAND
RIPARIAN/WETLAND	SALTBUSH/BUCKWHEAT SCRUB
SCRUB	UNDETERMINED SAVANNAH
UNDETERMINED WOODLAND	WASH
WHITE FIR STAND	WHITE OAK SAVANNAH
WHITE OAK WOODLAND	

Vegetation Types Excluded:

BLACK OAK WOODLAND	BREWERS OAK SCRUB
CHAPARRAL	DEVELOPED
INCENSE CEDAR STAND	INTERMIXED CONIFER
LAKE	MIXED OAK WOODLAND
RIPARIAN SCRUB	UNDETERMINED CHAPARRAL
SCRUB OAK	WETLAND
WHITE FIR/MIXED OAK	

Elevation: All

Other Parameters: While most woodland communities (defined as having greater than 40% canopy cover) were excluded, those where the vegetative understory is sparse enough to allow condors access under the tree canopy were included. This determination was made by overlaying GIS layers with aerial imagery to evaluate the density, thickness and extent of vegetation understory, followed by groundtruthing by USFWS.

**Coast horned lizard (*frontale* and *blainvillii* populations)
*Phrynosoma coronatum***

Federal Status: FS

State Status: CSC

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

CONIFER	CONIFER/MIXED OAK	Primary Breeding/Foraging Habitat
CONIFER	INCENSE CEDAR STAND	Primary Breeding/Foraging Habitat
CONIFER	INTERMIXED CONIFER	Primary Breeding/Foraging Habitat
CONIFER	WHITE FIR STAND	Primary Breeding/Foraging Habitat
CONIFER	WHITE FIR/MIXED OAK	Primary Breeding/Foraging Habitat
GRASSLAND	DISTURBED/NON-NATIVE GRASSLAND	Primary Breeding/Foraging Habitat
GRASSLAND	GRASSLAND	Primary Breeding/Foraging Habitat
GRASSLAND	NATIVE GRASSLAND	Primary Breeding/Foraging Habitat
RIPARIAN SCRUB	RIPARIAN SCRUB	Secondary Breeding/Foraging habitat
RIPARIAN WOODLAND	OAK RIPARIAN	Secondary Breeding/Foraging habitat
RIPARIAN WOODLAND	RIPARIAN WOODLAND	Secondary Breeding/Foraging habitat
RIPARIAN/WETLAND	RIPARIAN/WETLAND	Secondary Breeding/Foraging habitat
SCRUB	ALLUVIAL SCRUB	Primary Breeding/Foraging Habitat
SCRUB	MOJAVEAN SCRUB	Primary Breeding/Foraging Habitat
SCRUB	SALTBUSH/BUCKWHEAT SCRUB	Primary Breeding/Foraging Habitat
SCRUB	SCRUB	Primary Breeding/Foraging Habitat
WASH	DESERT WASH/RIPARIAN/SEEPS	Primary Breeding/Foraging Habitat
WASH	WASH	Primary Breeding/Foraging Habitat
WOODLAND	BLACK OAK WOODLAND	Primary Breeding/Foraging Habitat
WOODLAND	BLUE OAK WOODLAND	Primary Breeding/Foraging Habitat
WOODLAND	CALIFORNIA BUCKEYE WOODLAND	Primary Breeding/Foraging Habitat
WOODLAND	CANYON OAK WOODLAND	Primary Breeding/Foraging Habitat
WOODLAND	GRAY PINE WOODLAND	Primary Breeding/Foraging Habitat
WOODLAND	INTERIOR OAK WOODLAND	Primary Breeding/Foraging Habitat
WOODLAND	MIXED OAK WOODLAND	Primary Breeding/Foraging Habitat
WOODLAND	OAK WOODLAND	Primary Breeding/Foraging Habitat
WOODLAND	PINYON PINE WOODLAND	Primary Breeding/Foraging Habitat
WOODLAND	UNDETERMINED WOODLAND	Primary Breeding/Foraging Habitat
WOODLAND	WHITE OAK WOODLAND	Primary Breeding/Foraging Habitat

Elevation: All

Other Parameters: 70% or less canopy cover for coast horned lizard suitable habitat, both primary and secondary.

Fort Tejon woolly sunflower
Eriophyllum lanatum var. hallii

Federal Status: None
State Status: None
CRPR: 1B.1

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

CHAPARRAL	BREWERS OAK SCRUB	Suitable Habitat
CHAPARRAL	CHAPARRAL	Suitable Habitat
CHAPARRAL	SCRUB OAK	Suitable Habitat
CHAPARRAL	UNDETERMINED CHAPARRAL	Suitable Habitat
CONIFER	CONIFER/MIXED OAK	Suitable Habitat
CONIFER	INCENSE CEDAR STAND	Suitable Habitat
CONIFER	INTERMIXED CONIFER	Suitable Habitat
CONIFER	WHITE FIR STAND	Suitable Habitat
CONIFER	WHITE FIR/MIXED OAK	Suitable Habitat
RIPARIAN WOODLAND	OAK RIPARIAN	Suitable Habitat
RIPARIAN WOODLAND	RIPARIAN WOODLAND	Suitable Habitat
SAVANNA	BLACK OAK SAVANNA	Suitable Habitat
SAVANNA	BLUE OAK SAVANNA	Suitable Habitat
SAVANNA	CANYON OAK SAVANNA	Suitable Habitat
SAVANNA	GRAY PINE SAVANNA	Suitable Habitat
SAVANNA	INTERIOR OAK SAVANNA	Suitable Habitat
SAVANNA	MIXED OAK SAVANNA	Suitable Habitat
SAVANNA	OAK SAVANNA	Suitable Habitat
SAVANNA	UNDETERMINED SAVANNA	Suitable Habitat
SAVANNA	WHITE OAK SAVANNA	Suitable Habitat
SCRUB	SCRUB	Suitable Habitat
WOODLAND	BLACK OAK WOODLAND	Suitable Habitat
WOODLAND	BLUE OAK WOODLAND	Suitable Habitat
WOODLAND	CALIFORNIA BUCKEYE WOODLAND	Suitable Habitat
WOODLAND	CANYON OAK WOODLAND	Suitable Habitat
WOODLAND	GRAY PINE WOODLAND	Suitable Habitat
WOODLAND	INTERIOR OAK WOODLAND	Suitable Habitat
WOODLAND	MIXED OAK WOODLAND	Suitable Habitat
WOODLAND	OAK WOODLAND	Suitable Habitat
WOODLAND	PINYON PINE WOODLAND	Suitable Habitat
WOODLAND	UNDETERMINED WOODLAND	Suitable Habitat
WOODLAND	WHITE OAK WOODLAND	Suitable Habitat

Elevation: 3,400–5,000 feet

Other Parameters: None

Golden eagle
Aquila chrysaetos

Federal Status: BCC, BLM
State Status: CDF, FP, WL

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

AGRICULTURE	AGRICULTURE	Foraging
GRASSLAND	ANNUAL GRASSLAND	Foraging
GRASSLAND	DISTURBED/NON-NATIVE GRASSLAND	Foraging
GRASSLAND	GRASSLAND	Foraging
GRASSLAND	NATIVE GRASSLAND	Foraging
RIPARIAN WOODLAND	OAK RIPARIAN	Primary Breeding
RIPARIAN/WETLAND	RIPARIAN/WETLAND	Foraging
SAVANNA	BLACK OAK SAVANNA	Breeding and Foraging
SAVANNA	BLUE OAK SAVANNA	Breeding and Foraging
SAVANNA	CANYON OAK SAVANNA	Breeding and Foraging
SAVANNA	INTERIOR OAK SAVANNA	Breeding and Foraging
SAVANNA	MIXED OAK SAVANNA	Breeding and Foraging
SAVANNA	OAK SAVANNA	Breeding and Foraging
SAVANNA	UNDETERMINED SAVANNA	Breeding and Foraging
SAVANNA	WHITE OAK SAVANNA	Breeding and Foraging
SCRUB	ALLUVIAL SCRUB	Foraging
SCRUB	MOJAVEAN SCRUB	Foraging
SCRUB	SALTBUSH/BUCKWHEAT SCRUB	Foraging
SCRUB	SCRUB	Foraging
WASH	DESERT WASH/RIPARIAN/SEEPS	Foraging
WASH	WASH	Foraging
WOODLAND	BLACK OAK WOODLAND	Primary Breeding
WOODLAND	BLUE OAK WOODLAND	Primary Breeding
WOODLAND	CANYON OAK WOODLAND	Primary Breeding
WOODLAND	INTERIOR OAK WOODLAND	Primary Breeding
WOODLAND	MIXED OAK WOODLAND	Primary Breeding
WOODLAND	OAK WOODLAND	Primary Breeding
WOODLAND	UNDETERMINED WOODLAND	Primary Breeding
WOODLAND	WHITE OAK WOODLAND	Primary Breeding

Elevation: All

Other Parameters: None

Kusche’s sandwort
Arenaria macradenia var. kuschei

Federal Status: None
State Status: None
CRPR: 1B.1

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

CHAPARRAL	BREWERS OAK SCRUB	Suitable Habitat
CHAPARRAL	CHAPARRAL	Suitable Habitat
CHAPARRAL	SCRUB OAK	Suitable Habitat
CHAPARRAL	UNDETERMINED CHAPARRAL	Suitable Habitat
RIPARIAN WOODLAND	OAK RIPARIAN	Suitable Habitat
SAVANNA	BLACK OAK SAVANNA	Suitable Habitat
SAVANNA	BLUE OAK SAVANNA	Suitable Habitat
SAVANNA	CANYON OAK SAVANNA	Suitable Habitat
SAVANNA	INTERIOR OAK SAVANNA	Suitable Habitat
SAVANNA	MIXED OAK SAVANNA	Suitable Habitat
SAVANNA	OAK SAVANNA	Suitable Habitat
SAVANNA	UNDETERMINED SAVANNA	Suitable Habitat
SAVANNA	WHITE OAK SAVANNA	Suitable Habitat
WOODLAND	BLACK OAK WOODLAND	Suitable Habitat
WOODLAND	BLUE OAK WOODLAND	Suitable Habitat
WOODLAND	CALIFORNIA BUCKEYE WOODLAND	Suitable Habitat
WOODLAND	CANYON OAK WOODLAND	Suitable Habitat
WOODLAND	INTERIOR OAK WOODLAND	Suitable Habitat
WOODLAND	MIXED OAK WOODLAND	Suitable Habitat
WOODLAND	OAK WOODLAND	Suitable Habitat
WOODLAND	UNDETERMINED WOODLAND	Suitable Habitat
WOODLAND	WHITE OAK WOODLAND	Suitable Habitat

Elevation: 3,800–5,600 feet

Other Parameters: Granitic soils

Least Bell's vireo
Vireo bellii pusillus

Federal Status: FE, BCC
State Status: SE

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

RIPARIAN SCRUB	RIPARIAN SCRUB	Breeding and Foraging
RIPARIAN WOODLAND	OAK RIPARIAN	Breeding and Foraging
RIPARIAN WOODLAND	RIPARIAN WOODLAND	Breeding and Foraging
RIPARIAN/WETLAND	RIPARIAN/WETLAND	Breeding and Foraging
WASH	DESERT WASH/RIPARIAN/SEEPS	Breeding and Foraging

Elevation: 1,900–4,100 feet

Other Parameters: None

Little willow flycatcher
Empidonax traillii brewsteri

Federal Status: None

State Status: SE

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

RIPARIAN SCRUB	RIPARIAN SCRUB	Foraging and Stopover
RIPARIAN WOODLAND	OAK RIPARIAN	Foraging and Stopover
RIPARIAN WOODLAND	RIPARIAN WOODLAND	Foraging and Stopover
RIPARIAN/WETLAND	RIPARIAN/WETLAND	Foraging and Stopover
WASH	DESERT WASH/RIPARIAN/SEEPS	Foraging and Stopover

Elevation: All

Other Parameters: None

Purple martin
Progne subis

Federal Status: None
State Status: CSC

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

CONIFER	CONIFER/MIXED OAK	Breeding and Foraging
CONIFER	INCENSE CEDAR STAND	Breeding and Foraging
CONIFER	INTERMIXED CONIFER	Breeding and Foraging
CONIFER	WHITE FIR STAND	Breeding and Foraging
CONIFER	WHITE FIR/MIXED OAK	Breeding and Foraging
RIPARIAN WOODLAND	OAK RIPARIAN	Breeding and Foraging
RIPARIAN WOODLAND	RIPARIAN WOODLAND	Breeding and Foraging
SAVANNA	BLACK OAK SAVANNA	Breeding and Foraging
SAVANNA	BLUE OAK SAVANNA	Breeding and Foraging
SAVANNA	CANYON OAK SAVANNA	Breeding and Foraging
SAVANNA	GRAY PINE SAVANNA	Breeding and Foraging
SAVANNA	INTERIOR OAK SAVANNA	Breeding and Foraging
SAVANNA	MIXED OAK SAVANNA	Breeding and Foraging
SAVANNA	OAK SAVANNA	Breeding and Foraging
SAVANNA	UNDETERMINED SAVANNA	Breeding and Foraging
SAVANNA	WHITE OAK SAVANNA	Breeding and Foraging
WOODLAND	BLACK OAK WOODLAND	Breeding and Foraging
WOODLAND	BLUE OAK WOODLAND	Breeding and Foraging
WOODLAND	CALIFORNIA BUCKEYE WOODLAND	Breeding and Foraging
WOODLAND	CANYON OAK WOODLAND	Breeding and Foraging
WOODLAND	GRAY PINE WOODLAND	Breeding and Foraging
WOODLAND	INTERIOR OAK WOODLAND	Breeding and Foraging
WOODLAND	MIXED OAK WOODLAND	Breeding and Foraging
WOODLAND	OAK WOODLAND	Breeding and Foraging
WOODLAND	PINYON PINE WOODLAND	Breeding and Foraging
WOODLAND	UNDETERMINED WOODLAND	Breeding and Foraging
WOODLAND	WHITE OAK WOODLAND	Breeding and Foraging

Elevation: All

Other Parameters: None

Ringtail
Bassariscus astutus

Federal Status: None
State Status: FP

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

LAKE	LAKE	Suitable Habitat
RIPARIAN SCRUB	RIPARIAN SCRUB	Suitable Habitat
RIPARIAN WOODLAND	RIPARIAN WOODLAND	Suitable Habitat
RIPARIAN/WETLAND	RIPARIAN/WETLAND	Suitable Habitat
WASH	DESERT WASH/RIPARIAN/SEEPS	Suitable Habitat
WETLAND	WETLAND	Suitable Habitat

Elevation: All

Other Parameters: Includes the vegetation communities listed above, seeps and springs, and perennial steams. These areas were buffered by 1 kilometer (3,281 feet) and suitable habitat includes all areas within that 1 kilometer-buffered area.

Round-leaved filaree
California macrophylla [Erodium macrophyllum]

Federal Status: None
State Status: None
CRPR: 1B.1

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

CHAPARRAL	SCRUB OAK	Suitable Habitat
CONIFER	CONIFER/MIXED OAK	Suitable Habitat
CONIFER	INCENSE CEDAR STAND	Suitable Habitat
CONIFER	INTERMIXED CONIFER	Suitable Habitat
CONIFER	WHITE FIR STAND	Suitable Habitat
CONIFER	WHITE FIR/MIXED OAK	Suitable Habitat
GRASSLAND	ANNUAL GRASSLAND	Suitable Habitat
GRASSLAND	DISTURBED/NON-NATIVE GRASSLAND	Suitable Habitat
GRASSLAND	GRASSLAND	Suitable Habitat
GRASSLAND	NATIVE GRASSLAND	Suitable Habitat
RIPARIAN WOODLAND	OAK RIPARIAN	Suitable Habitat
SAVANNA	BLACK OAK SAVANNA	Suitable Habitat
SAVANNA	BLUE OAK SAVANNA	Suitable Habitat
SAVANNA	CANYON OAK SAVANNA	Suitable Habitat
SAVANNA	GRAY PINE SAVANNA	Suitable Habitat
SAVANNA	INTERIOR OAK SAVANNA	Suitable Habitat
SAVANNA	MIXED OAK SAVANNA	Suitable Habitat
SAVANNA	OAK SAVANNA	Suitable Habitat
SAVANNA	UNDETERMINED SAVANNA	Suitable Habitat
SAVANNA	WHITE OAK SAVANNA	Suitable Habitat
SCRUB	SCRUB	Suitable Habitat
WOODLAND	BLACK OAK WOODLAND	Suitable Habitat
WOODLAND	BLUE OAK WOODLAND	Suitable Habitat
WOODLAND	CALIFORNIA BUCKEYE WOODLAND	Suitable Habitat
WOODLAND	CANYON OAK WOODLAND	Suitable Habitat
WOODLAND	GRAY PINE WOODLAND	Suitable Habitat
WOODLAND	INTERIOR OAK WOODLAND	Suitable Habitat
WOODLAND	MIXED OAK WOODLAND	Suitable Habitat
WOODLAND	OAK WOODLAND	Suitable Habitat
WOODLAND	PINYON PINE WOODLAND	Suitable Habitat
WOODLAND	UNDETERMINED WOODLAND	Suitable Habitat
WOODLAND	WHITE OAK WOODLAND	Suitable Habitat

Elevation: 1,900–4,600 feet

Other Parameters: Clay soils

Southwestern willow flycatcher
Empidonax traillii extimus

Federal Status: FE

State Status: SE

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

RIPARIAN SCRUB	RIPARIAN SCRUB	Breeding and Foraging
RIPARIAN WOODLAND	OAK RIPARIAN	Breeding and Foraging
RIPARIAN WOODLAND	RIPARIAN WOODLAND	Breeding and Foraging
RIPARIAN/WETLAND	RIPARIAN/WETLAND	Breeding and Foraging
WASH	DESERT WASH/RIPARIAN/SEEPS	Breeding and Foraging

Elevation: All

Other Parameters: None

Striped adobe-lily
Fritillaria striata

Federal Status: None
State Status: ST
CRPR: 1B.1

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

GRASSLAND	ANNUAL GRASSLAND	Suitable Habitat
GRASSLAND	DISTURBED/NON-NATIVE GRASSLAND	Suitable Habitat
GRASSLAND	GRASSLAND	Suitable Habitat
GRASSLAND	NATIVE GRASSLAND	Suitable Habitat
SAVANNA	BLACK OAK SAVANNA	Suitable Habitat
SAVANNA	BLUE OAK SAVANNA	Suitable Habitat
SAVANNA	CANYON OAK SAVANNA	Suitable Habitat
SAVANNA	INTERIOR OAK SAVANNA	Suitable Habitat
SAVANNA	MIXED OAK SAVANNA	Suitable Habitat
SAVANNA	OAK SAVANNA	Suitable Habitat
SAVANNA	UNDETERMINED SAVANNA	Suitable Habitat
SAVANNA	WHITE OAK SAVANNA	Suitable Habitat

Elevation: 1,900–4,800 feet

Other Parameters: Clay soils

Tehachapi buckwheat
Eriogonum callistum

Federal Status: None
State Status: None
CRPR: 1B.1

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

CHAPARRAL	BREWERS OAK SCRUB	Suitable Habitat
CHAPARRAL	CHAPARRAL	Suitable Habitat
CHAPARRAL	SCRUB OAK	Suitable Habitat
CHAPARRAL	UNDETERMINED CHAPARRAL	Suitable Habitat
WOODLAND	PINYON PINE WOODLAND	Suitable Habitat

Elevation: 4,400–5,500 feet

Other Parameters: Include vegetation communities listed above that were also within the following soil types, which are the soil types on which the species has been documented: Anaverde Gravelly Loam, 50% to 75% Slopes; or Xerorthents-Rock Outcrop Complex, Very Steep or Lebec Rocky Loam, 15% to 50% Percent Slopes.

Tehachapi pocket mouse
Perognathus alticolus inexpectatus

Federal Status: None

State Status: CSC

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

CONIFER	CONIFER/MIXED OAK	Suitable Habitat
CONIFER	INCENSE CEDAR STAND	Suitable Habitat
CONIFER	INTERMIXED CONIFER	Suitable Habitat
CONIFER	WHITE FIR STAND	Suitable Habitat
CONIFER	WHITE FIR/MIXED OAK	Suitable Habitat
SAVANNA	BLACK OAK SAVANNA	Suitable Habitat
SAVANNA	BLUE OAK SAVANNA	Suitable Habitat
SAVANNA	CANYON OAK SAVANNA	Suitable Habitat
SAVANNA	GRAY PINE SAVANNA	Suitable Habitat
SAVANNA	INTERIOR OAK SAVANNA	Suitable Habitat
SAVANNA	MIXED OAK SAVANNA	Suitable Habitat
SAVANNA	OAK SAVANNA	Suitable Habitat
SAVANNA	UNDETERMINED SAVANNA	Suitable Habitat
SAVANNA	WHITE OAK SAVANNA	Suitable Habitat
SCRUB	ALLUVIAL SCRUB	Suitable Habitat
SCRUB	MOJAVEAN SCRUB	Suitable Habitat
SCRUB	SALTBUSH/BUCKWHEAT SCRUB	Suitable Habitat
SCRUB	SCRUB	Suitable Habitat
WOODLAND	GRAY PINE WOODLAND	Suitable Habitat
WOODLAND	PINYON PINE WOODLAND	Suitable Habitat

Elevation: 3,500–6,000 feet

Other Parameters: Suitable habitat included vegetation communities that also meet both of the following criteria: (1) is located within the Antelope-Fremont Valley watershed and (2) is equal to or less than 9 degrees (or equal to or less than 15% slope).

Tehachapi slender salamander
Batrachoseps stebbinsi

Federal Status: BLM, FS
State Status: ST

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

CHAPARRAL	CHAPARRAL	Suitable Habitat
CHAPARRAL	SCRUB OAK	Suitable Habitat
CONIFER	CONIFER/MIXED OAK	Suitable Habitat
CONIFER	INTERMIXED CONIFER	Suitable Habitat
CONIFER	WHITE FIR/MIXED OAK	Suitable Habitat
CONIFER	INCENSE CEDAR STAND	Suitable Habitat
SAVANNA	BLACK OAK SAVANNA	Suitable Habitat
SAVANNA	BLUE OAK SAVANNA	Suitable Habitat
SAVANNA	CANYON OAK SAVANNA	Suitable Habitat
SAVANNA	INTERIOR OAK SAVANNA	Suitable Habitat
SAVANNA	MIXED OAK SAVANNA	Suitable Habitat
SAVANNA	OAK SAVANNA	Suitable Habitat
SAVANNA	UNDETERMINED SAVANNAH	Suitable Habitat
SCRUB	SCRUB	Suitable Habitat
SCRUB	SALTBUSH/BUCKWHEAT SCRUB	Suitable Habitat
SCRUB	ALLUVIAL SCRUB	Suitable Habitat
SCRUB	MOJAVEAN SCRUB	Suitable Habitat
RIPARIAN WOODLAND	OAK RIPARIAN	Suitable Habitat
RIPARIAN WOODLAND	RIPARIAN WOODLAND	Suitable Habitat
WOODLAND	BLACK OAK WOODLAND	Suitable Habitat
WOODLAND	CALIFORNIA BUCKEYE WOODLAND	Suitable Habitat
WOODLAND	CANYON OAK WOODLAND	Suitable Habitat
WOODLAND	MIXED OAK WOODLAND	Suitable Habitat
WOODLAND	OAK WOODLAND	Suitable Habitat
WOODLAND	UNDETERMINED WOODLAND	Suitable Habitat
WOODLAND	WHITE OAK WOODLAND	Suitable Habitat
WOODLAND	BLUE OAK WOODLAND	Suitable Habitat
WOODLAND	PINYON PINE WOODLAND	Suitable Habitat

Elevation: 1,900–5,000 feet

Other Parameters: Suitable habitat areas included the vegetation communities listed above (40% to 70% canopy cover; or 70% to 100% canopy cover) that are within 300 feet (150 feet each side) of 1:24000 USGS blue line streams and on north-facing slopes (0° to 90° and 0° to 270°).

Tejon poppy
Eschscholzia lemmonii ssp. *kernensis*

Federal Status: None
State Status: None
CRPR: 1B.1

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

GRASSLAND	ANNUAL GRASSLAND	Suitable Habitat
GRASSLAND	DISTURBED/NON-NATIVE GRASSLAND	Suitable Habitat
GRASSLAND	GRASSLAND	Suitable Habitat
GRASSLAND	NATIVE GRASSLAND	Suitable Habitat
SCRUB	ALLUVIAL SCRUB	Suitable Habitat
SCRUB	SALTBUSH/BUCKWHEAT SCRUB	Suitable Habitat
SCRUB	SCRUB	Suitable Habitat

Elevation: 1,900–3,300 feet

Other Parameters: None

Tricolored blackbird
Agelaius tricolor

Federal Status: BCC, BLM
State Status: CSC

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

AGRICULTURE	AGRICULTURE	Foraging
GRASSLAND	ANNUAL GRASSLAND	Foraging
GRASSLAND	DISTURBED/NON-NATIVE GRASSLAND	Foraging
GRASSLAND	GRASSLAND	Foraging
GRASSLAND	NATIVE GRASSLAND	Foraging
RIPARIAN SCRUB	RIPARIAN SCRUB	Foraging
RIPARIAN WOODLAND	OAK RIPARIAN	Foraging
RIPARIAN WOODLAND	RIPARIAN WOODLAND	Foraging
RIPARIAN/WETLAND	RIPARIAN/WETLAND	Breeding
WASH	DESERT WASH/RIPARIAN/SEEPS	Foraging
WETLAND	WETLAND	Breeding

Elevation: 1,900–4,000 feet

Other Parameters: None

Two-striped garter snake
Thamnophis hammondi

Federal Status: BLM, FS
State Status: CSC

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

RIPARIAN SCRUB	RIPARIAN SCRUB	Suitable Habitat
RIPARIAN WOODLAND	OAK RIPARIAN	Suitable Habitat
RIPARIAN WOODLAND	RIPARIAN WOODLAND	Suitable Habitat
RIPARIAN/WETLAND	RIPARIAN/WETLAND	Suitable Habitat
WASH	DESERT WASH/RIPARIAN/SEEPS	Suitable Habitat
WASH	WASH	Suitable Habitat
WETLAND	WETLAND	Suitable Habitat

Elevation: All

Other Parameters: Vegetation communities listed above, perennial streams (with a 200-foot buffer/100 feet per side), and seeps and springs (with a 200-foot buffer/100 feet per side) within the Western Transverse Range only.

Valley elderberry longhorn beetle
Desmocerus californicus dimorphus

Federal Status: FT

State Status: None

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

CONIFER	INTERMIXED CONIFER	Suitable Habitat
SAVANNA	BLUE OAK SAVANNA	Suitable Habitat
SAVANNA	CANYON OAK SAVANNA	Suitable Habitat
SAVANNA	INTERIOR OAK SAVANNA	Suitable Habitat
SAVANNA	MIXED OAK SAVANNA	Suitable Habitat
SAVANNA	OAK SAVANNA	Suitable Habitat
SAVANNA	UNDETERMINED SAVANNA	Suitable Habitat
SAVANNA	WHITE OAK SAVANNA	Suitable Habitat
WOODLAND	BLACK OAK WOODLAND	Suitable Habitat
WOODLAND	BLUE OAK WOODLAND	Suitable Habitat
WOODLAND	CALIFORNIA BUCKEYE WOODLAND	Suitable Habitat
WOODLAND	CANYON OAK WOODLAND	Suitable Habitat
WOODLAND	INTERIOR OAK WOODLAND	Suitable Habitat
WOODLAND	MIXED OAK WOODLAND	Suitable Habitat
WOODLAND	OAK WOODLAND	Suitable Habitat
WOODLAND	WHITE OAK WOODLAND	Suitable Habitat

Elevation: 1,900–3,000 feet

Other Parameters: Vegetation included in model only if listed above and if the vegetation lies within 300 feet (150 feet on either side) of a 1:24000 USGS blue line stream.

Western spadefoot
Spea [Scaphiopus] hammondi

Federal Status: BLM

State Status: CSC

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

RIPARIAN SCRUB	RIPARIAN SCRUB	Suitable Habitat
RIPARIAN WOODLAND	OAK RIPARIAN	Suitable Habitat
RIPARIAN WOODLAND	RIPARIAN WOODLAND	Suitable Habitat
RIPARIAN/WETLAND	RIPARIAN/WETLAND	Suitable Habitat
WASH	DESERT WASH/RIPARIAN/SEEPS	Suitable Habitat
WASH	WASH	Suitable Habitat
WETLAND	WETLAND	Suitable Habitat

Elevation: 1,900–4,500 feet

Other Parameters: Included all vegetation communities listed above and seeps and springs buffered by 5 feet on each side (10 feet total).

Western yellow-billed cuckoo
Coccyzus americanus occidentalis

Federal Status: BCC, FC,
 FS
 State Status: SE

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

RIPARIAN SCRUB	RIPARIAN SCRUB	Breeding and Foraging
RIPARIAN WOODLAND	OAK RIPARIAN	Breeding and Foraging
RIPARIAN WOODLAND	RIPARIAN WOODLAND	Breeding and Foraging
RIPARIAN/WETLAND	RIPARIAN/WETLAND	Breeding and Foraging
WASH	DESERT WASH/RIPARIAN/SEEPS	Breeding and Foraging

Elevation: All

Other Parameters: None

White-tailed kite
Elanus leucurus

Federal Status: None
State Status: FP

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

AGRICULTURE	AGRICULTURE	Foraging
GRASSLAND	ANNUAL GRASSLAND	Foraging
GRASSLAND	DISTURBED/NON-NATIVE GRASSLAND	Foraging
GRASSLAND	GRASSLAND	Foraging
GRASSLAND	NATIVE GRASSLAND	Foraging
WETLAND	WETLAND	Foraging

Elevation: Determined by the year-round range map for the species provided by California Wildlife Habitat Relationships System (CDFG 2007d), generally coastal and valley lowlands.

Other Parameters: Included all vegetation communities listed above within 1 kilometer (3,281 feet) on each side (2 kilometers (6,562 feet) total) of perennial streams and Castac Lake.

Yellow warbler
Dendroica petechia brewsteri

Federal Status: None
State Status: CSC

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

CONIFER	CONIFER/MIXED OAK	Secondary Foraging
CONIFER	INTERMIXED CONIFER	Secondary Foraging
CONIFER	WHITE FIR/MIXED OAK	Secondary Foraging
RIPARIAN SCRUB	RIPARIAN SCRUB	Breeding and Foraging
RIPARIAN WOODLAND	OAK RIPARIAN	Breeding and Foraging
RIPARIAN WOODLAND	RIPARIAN WOODLAND	Breeding and Foraging
RIPARIAN/WETLAND	RIPARIAN/WETLAND	Breeding and Foraging
WASH	DESERT WASH/RIPARIAN/SEEPS	Breeding and Foraging
WOODLAND	BLACK OAK WOODLAND	Secondary Foraging
WOODLAND	BLUE OAK WOODLAND	Secondary Foraging
WOODLAND	CANYON OAK WOODLAND	Secondary Foraging
WOODLAND	GRAY PINE WOODLAND	Secondary Foraging
WOODLAND	INTERIOR OAK WOODLAND	Secondary Foraging
WOODLAND	MIXED OAK WOODLAND	Secondary Foraging
WOODLAND	OAK WOODLAND	Secondary Foraging
WOODLAND	UNDETERMINED WOODLAND	Secondary Foraging
WOODLAND	WHITE OAK WOODLAND	Secondary Foraging

Elevation: All

Other Parameters: None

Yellow-blotched salamander
Ensatina eschscholtzi croceator

Federal Status: BLM
State Status: CSC

Standard Vegetation Input Parameters (including general and specific vegetation community) and Habitat Type

None selected for this species. See other parameters below.

Elevation: All

Other Parameters: Suitable habitat includes all vegetation communities on Covered Lands on north-facing slopes (0° to 90° and 0° to 270°) and with a canopy cover of 40% and greater (i.e., 40% to 70% canopy cover; or 70% to 100% canopy cover).

APPENDIX D1
Covered Species Survey Methods

APPENDIX D1, COVERED SPECIES SURVEY METHODS

1.0 WILDLIFE RESOURCES

Dudek conducted surveys for special-status wildlife species in accordance with official protocol methods or other accepted methods where protocol survey methods were not available. Special-status wildlife species include all species listed under the federal Endangered Species Act, the California Endangered Species Act, as well as (1) California Special Concern (CSC) species designated by the California Department of Fish and Game (CDFG); (2) mammals and birds that are fully protected (FP) species, as described in Fish and Game Code, Sections 4700 and 3511; and (3) Birds of Conservation Concern (BCC) designated by the U.S. Fish and Wildlife Service (USFWS). When appropriate, global positioning system (GPS) equipment was used to collect data using sub-meter accuracy Trimble GPS units, unless otherwise noted.

The wildlife surveys described herein were conducted within the 26,417 ac. Tejon Mountain Village (TMV) project site, but they also included the nearby off-site Castac Lake and portions of Grapevine Creek to provide context for the surveys (e.g., surveys for species that may primarily use the lake but also occur on the TMV project site). Suitable habitat modeling was conducted for the special-status species addressed in this document for the entire 138,000 ac. of Covered Lands. Because systematic wildlife surveys were not conducted in approximately 111,580 ac. (81%) of the Covered Lands, the habitat modeling had to rely on available vegetation community, soil, elevation, canopy cover, and topographic information, as described in detail in Appendix D. Because the habitat models used general landscape-level data and do not include all microhabitat features that may be necessary for predicting species occurrences and occupied habitat, the habitat models are not intended to be used to quantify impacts and conservation of occupied habitat or species populations.

1.1 LITERATURE REVIEW

Prior to conducting fieldwork, pertinent literature on the wildlife of the region was reviewed to determine potential presence of species on the site, accepted protocol survey methodologies, and habitat preference and life history characteristics. This information was used to develop survey methodologies for those species that do not have a current standardized survey protocol. The literature included reports from prior wildlife surveys and literature on special-status wildlife species that could potentially occur within the TMV Planning Area. Information regarding wildlife in the region also was obtained through consultation with biologists at Jones & Stokes (J&S) that had previously surveyed portions of the site, other Dudek biologists with experience in the region, and staff at the Tejon Ranch Company (TRC). The following list summarizes the principal references reviewed to conduct special-status wildlife surveys on the site:

- The CDFG California Natural Diversity Database (CNDDDB) *Special Animals List*, which was first reviewed in January 2007 and reviewed after publication of each subsequent edition through February 2008 (CDFG 2008a)

- The CDFG CNDDDB *Rarefind*, first reviewed for the TMV Planning Area and all areas within 10 mi. of the TMV Planning Area in January 2007 and reviewed again following subsequent editions through March 2008 (CDFG 2008b)
- *An Illustrated Exploration of the Herpetofauna of California*, including reptile and amphibian range maps (CaliforniaHerps 2008)
- *Amphibian and Reptile Species of Special Concern in California* (Jennings and Hayes 1994)
- *Amphibian Declines: The Conservation Status of United States Species* (Lannoo 2005)
- *A Field Guide to Western Reptiles and Amphibians* (Stebbins 2003).
- Range maps and descriptions provided in *California's Wildlife, Volume 2: Birds* (Zeiner et al. 1990a) and as updated by CDFG (2006a)
- Descriptions of range and occurrences within *Birds of Southern California: Status and Distribution* (Garrett and Dunn 1981)
- *The Birds of North America Online* references published by the Cornell Laboratory of Ornithology and the American Ornithologists' Union (Poole 2005)
- *A Field Guide to the Mammals: North America, North of Mexico* (Burt and Grossenheider 1976)
- *Wild Mammals of North America: Biology, Management, and Economics* (Chapman and Feldhamer 1982)
- *Mammals of the Pacific States: California, Oregon, and Washington* (Ingles 1965)
- *California Mammals* (Jameson and Peeters 1988)
- *California's Wildlife, Volume 3: Mammals* (Zeiner et al. 1990b)
- Maps and descriptions provided by *Butterflies and Moths of North America* online database (Opler et al. 2006)
- Range maps and descriptions provided in *Fish Species of Special Concern in California* (Moyle et al. 1995)
- *Jurisdictional Delineation Report for the Tejon Mountain Village Study Area* (Impact Sciences 2008)
- *Sensitive Butterfly Survey on Phase 1 Portion of Tejon Mountain Village Specific Plan, Kern County, California* (Bruyea Biological Consulting 2003)

- *Special-Status Amphibian, Reptile, and Bird Biological Evaluation for TMV* (Impact Sciences 2004)
- *Tejon Mountain Village Phase I Small Mammal Trapping Study* (Compliance Biology 2003)
- Unpublished draft *Tejon Mountain Village Biological Resources Technical Report* (J&S 2006).

1.2 NOMENCLATURE AND GENERAL SURVEY TECHNIQUES

Wildlife species detected during all field surveys by sight, calls, tracks, scat, or other sign were recorded. A list of all wildlife species observed within the TMV Specific Plan Area is included in Appendix B to Appendix I to Appendix E-1 to the Tejon Mountain Village EIR (Kern County 2009). Latin and common names of animals follow the *Complete List of Amphibian, Reptile, Bird, and Mammal Species in California* (CDFG 2006b) for reptiles, amphibians, birds, and mammals. For bird species, the 48th Supplement to the American Ornithologists' Union Check-list (Banks et al. 2007) was used to update the nomenclature used in CDFG (2006b). For insects, Emmel and Emmel (1973), Emmel (1998), Howe (1975), Scott (1986), and Hogue (1974) were used to update CDFG (2006b). Nelson et al. (2004) was used to update nomenclature for fish. Stebbins (2003) was used to update nomenclature for reptiles and amphibians. The CDFG Special Animals List (CDFG 2008a) was used for both the Latin and common names applied to special-status species, and to resolve nomenclature differences between the *Complete List of Amphibian, Reptile, Bird, and Mammal Species in California* (CDFG 2006b) and any of the updates listed above. Binoculars (10 × 50 mm; 8 × 32 mm power) and spotting scopes (Nikon 15×–60× and Bushnell 20×–60× magnification) were used to aid in the identification of observed wildlife.

1.3 RESERVED

1.4 SPECIAL-STATUS AMPHIBIAN AND REPTILE SPECIES

Focused on-site surveys for special-status amphibian and reptile species were conducted for the following species:

- Western spadefoot (*Spea [Scaphiopus] hammondi*), a CSC species
- Tehachapi slender salamander, a state-listed threatened species
- Yellow-blotched salamander (*Ensatina eschscholtzii croceater*), a CSC species.

1.4.1 WESTERN SPADEFOOT TOAD

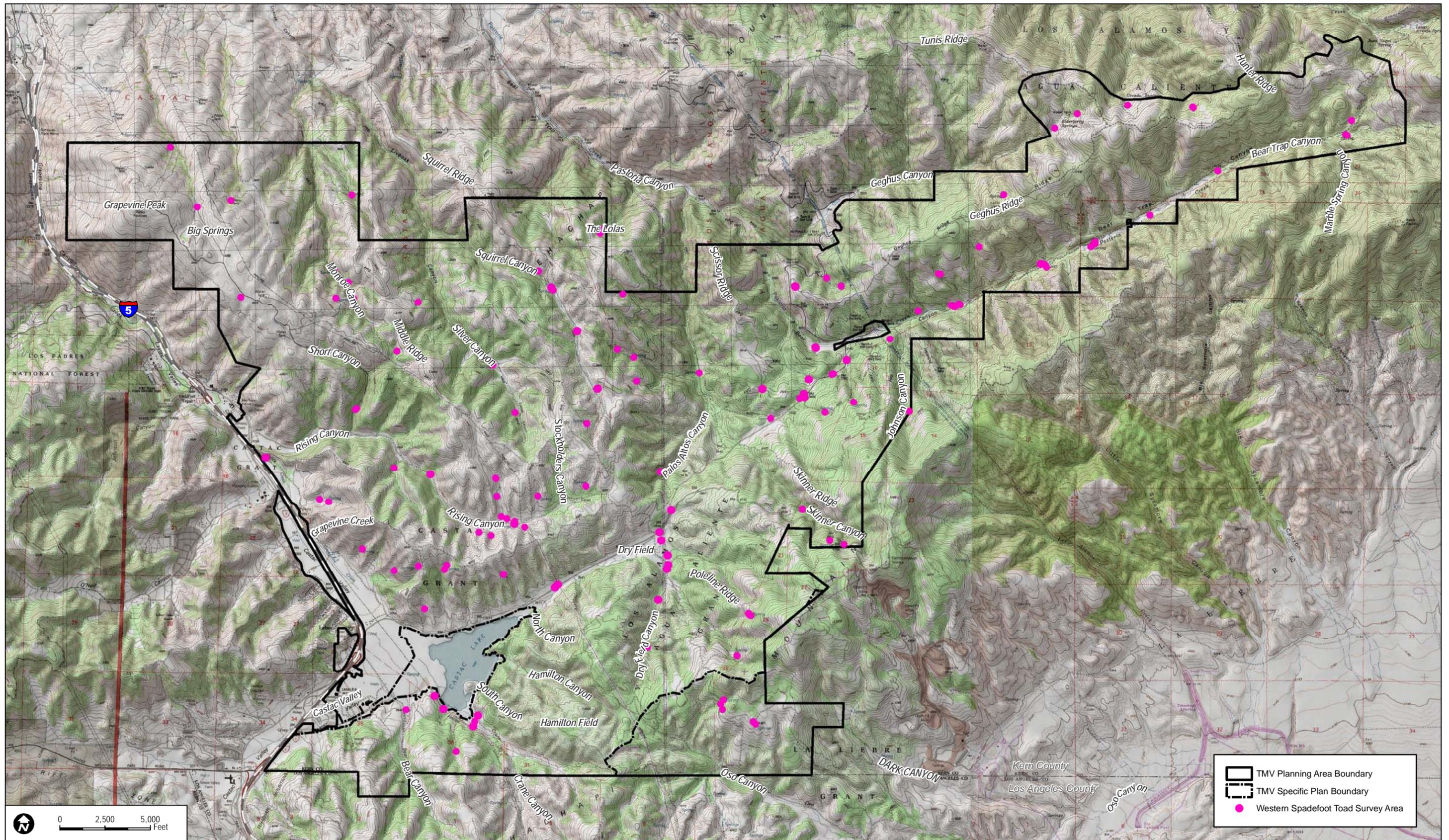
Dudek conducted focused surveys for western spadefoot toad larvae and/or adults and juveniles in appropriate areas of ponded water, seeps, and springs in the TMV Planning Area (see Figure

D.1-2). These surveys occurred on eight occasions in conjunction with USFWS protocol-level fairy shrimp surveys, with survey areas reviewed at least one additional time when conducting habitat assessments or focused surveys for California red-legged frog.

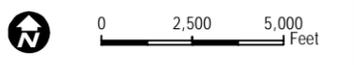
The initial habitat assessment for western spadefoot (in conjunction with fairy shrimp surveys) was conducted a few weeks following the first rain events of 2007 (January 27th and 28th) to determine the abundance of suitable basins on site. Initial screening criteria for determining potential basin areas included mapped vegetation communities, topography, and elevation. Areas considered potentially suitable for western spadefoot included native and non-native grasslands, barren habitat, and oak savannah, within relatively flat areas (0%–10% slope) at elevations less than 3,500 ft.

The field habitat assessment was completed on three days: February 12th, 20th, and 21st. Follow-up ground surveys were conducted within 2 weeks of the initial habitat assessments. All identified basin locations in the TMV project area were evaluated during each survey to investigate inundation levels. If new rains occurred during survey season, all suitable areas identified during the initial habitat assessment were reevaluated and sampling was performed where appropriate. The surveyed basins were distributed throughout the study area and were of three main types: (1) road ruts: depressions typically formed by vehicular traffic within or adjacent to roadways that lack aquatic vegetation; (2) fauna drinking pools: depressions within grasslands that retain sufficient water volume, are heavily utilized by fauna for drinking and cleansing, and are very muddy and lack vegetation due to heavy continuous fauna disturbance; and (3) ephemeral pools: depressions within grasslands that retain sufficient water level, have abundant aquatic vegetation, and lack evident heavy fauna disturbance.

Surveys conducted in conjunction with fairy shrimp surveys occurred monthly during March, April, and May (see Table D.1-2). Ground surveys only included visits to areas where inundation was recorded during the habitat assessments, not the entire study area. Therefore, not all sites depicted in Figure D.1-2 were visited throughout the survey period. During each visit, all basins were inspected for depth of inundation, surface area of water, air and water temperature, level of disturbance, and presence of aquatic wildlife. All information was recorded on a data sheet as provided in the Fairy Shrimp Survey Protocol with the most pertinent information (i.e., inundation species, species identification) recorded on a survey log. Each pool was visually inspected and or dip-netted for the presence of spadefoot toad larvae during the surveys. For every inundated basin that met USFWS protocol related to fairy shrimp, an aquarium net was passed through nearly all portions of the ponded water from the bottom to the surface and surveyors identified fairy shrimp and tadpoles where present. Where dip-netting was not conducted, surveys for tadpoles were visual. The additional surveys for western spadefoot conducted in conjunction with the red-legged frog surveys were conducted in June and August.



	TMV Planning Area Boundary
	TMV Specific Plan Boundary
	Western Spadefoot Toad Survey Area



SOURCE: TRC 2007
J&S 2006, 2008c

FIGURE D.1-2
Western Spadefoot Toad Survey Areas

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APPENDIX D1, COVERED SPECIES SURVEY METHODS

Table D.1-2. Western Spadefoot Toad Survey Schedule and Conditions

Date	Survey Type	Personnel	Time	Air Temp. (°F)	Avg. Water Temp. (°C)
02/12/07	Habitat assessment	TSL	NR	NR	NR
02/20/07	Habitat assessment	MSE, TSL	NR	NR	NR
02/21/07	Habitat assessment	MSE, TSL	NR	NR	NR
02/28/07	Focused survey	MSE	1256–1706	2	11
03/05/07	Focused survey	BAO	1300–1541	24	17
03/05/07	Focused survey	JTS, MLW	—	NR	NR
03/06/07	Focused survey	BAO	0915–1623	22	16
03/15/07	Focused survey	MSE	1000–1005	14	17
03/20/07	Focused survey	BAO	1455–1500	20	14
03/21/07	Focused survey	BAO	0655–1159	9	9
03/29/07	Focused survey	BAO	0920–1215	15	14
04/03/07	Focused survey	BAO	1249–1830	22	22
04/04/07	Focused survey	MSE	1200–1301	20	19
04/09/07	Focused survey	MLW, SMD	—	64	63
04/10/07	Focused survey	MLW, SMD, SMB	—	42–59	53–64
04/10/07	Focused survey	MLW, SMD	1100–1545	65	65–69
04/11/07	Focused survey	MLW, SMD	0915–NR	NR	NR
04/16/07	Focused survey	MLW, JTS	—	47–54	54
04/16/07	Focused survey	MLW, JTS	1430–1645	49–62	54–64
04/17/07	Basin sampling	VRJ	1056–1740	19	22
04/17/07	Focused survey	MLW, JTS	—	42–50	50–57
04/17/07	Focused survey	MLW, JTS	0945–1445	51–64	54–65
04/18/07	Basin sampling	VRJ	0805–1636	2	6
04/25/07	Focused survey	MLW, JSH	—	54–55	56
04/25/07	Focused survey	MLW	1000–NR	54–60	48–56

Table D.1-2. Western Spadefoot Toad Survey Schedule and Conditions

Date	Survey Type	Personnel	Time	Air Temp. (°F)	Avg. Water Temp. (°C)
04/26/07	Focused survey	MLW, JSH	—	NR	NR
05/01/07	Basin sampling	MSE	1241–1831	27	26
05/16/07	Basin sampling	VRJ	1400–1839	21	20
05/16/07	Focused survey	BAO	1300–1800	65	58
05/29/07	Basin sampling	TSL	1642–1648	23	28
06/10/07	Focused survey	BAO	—	64–70	63
06/10/07	Focused survey	BAO	1235–1910	70–75	63
08/22/07	Focused survey	BAO	2030–0010	70–75	67
08/23/07	Focused survey	BAO	1130–1530	85–90	67

Personnel key:

BAO: Brock Ortega; JDP: Jeff Priest; MLW: Manna Warburton; JTS: Travis Smith; JSH: Joanna Hsu; PML: Paul Lemons; SMB: Scott Boczkiewicz; SMD: Scott Duff, MSE: Megan Enright, TSL: Thomas Liddicoat; VRJ: Vipul Joshi.

NR = Not recorded.

1.4.2 TEHACHAPI SLENDER SALAMANDER

There are no accepted survey protocols for determining presence/absence of Tehachapi slender salamander or standardized methods to assess suitable habitat. Site-specific survey methods were based primarily on canopy cover percentage, canopy vegetation, substrate information obtained during initial reconnaissance-level surveys and a literature review of suitable habitat features, microhabitat requirements, and general biology of the Tehachapi slender salamander. Established protocols for other salamander species in California (e.g., Del Norte salamander (*Plethodon elongatus*), Siskiyou Mountain salamander (*Plethodon stormi*)) and the survey methodologies used by Pacific Wildlife Research for Oregon slender salamanders (*Batrachoseps wrighti*) were consulted to develop survey methods for Tehachapi slender salamander.

The surveys for Tehachapi slender salamander were conducted in four phases within the TMV Planning Area. The first phase occurred in April and June 2005 and consisted of initial reconnaissance-level surveys for Tehachapi slender salamander to: (1) assess potential on-site suitable habitat; and (2) determine if the species could be detected during April through June (see Table D.1-3). Reconnaissance-level habitat assessments included drainage information regarding the percentage of canopy cover and dominant species present; the percentage of terrestrial cover (or understory) and type of understory cover; aquatic substrate; bank slope; stream aspect;

disturbance; species presence/absence and location, if applicable; and terrestrial cover type. These field-collected data were combined with GIS drainage data to create a map of potentially suitable Tehachapi slender salamander habitat within the TMV Planning Area. Drainages that were identified as having the following attributes were considered to be potentially suitable for Tehachapi slender salamander: a moderate to high canopy cover (equal to or greater than 50%) of certain tree species (canyon live oak (*Quercus chrysolepis*), valley oak (*Quercus lobata*), California buckeye (*Aesculus californica*), and other riparian-associated species); a low percentage of cover of annual grasses in the drainage (typically less than 30% cover); and the presence of leaf litter, woody debris, and rock/talus.

Tehachapi slender salamanders were detected in the TMV Planning Area in Monroe Canyon during the first phase of the survey, and the identification was confirmed by Dr. Wake, Professor of the Graduate School, Department of Integrative Biology, and Curator of Herpetology in the Museum of Vertebrate Zoology at the University of California, Berkeley. The reconnaissance-level survey also developed a general understanding of the on-site habitat features most suitable for the Tehachapi slender salamander based on existing, publicly available information on the salamander and the habitat features present in the observed areas of occupancy in Monroe Canyon and in two locations in Bear Trap Canyon previously reported in the CNDDDB.

The second phase of surveys was conducted on March 26 and March 27, 2007, and included additional drainages that were not surveyed in 2005 and 2006 to assess the suitability of additional habitat for Tehachapi slender salamander within the TMV Planning Area using the criteria previously described. Based on the reconnaissance surveys conducted in phases one and two, 75 drainages were identified as supporting suitable habitat for Tehachapi slender salamander. The drainages that were selected for conducting focused surveys typically included all or most of the habitat attributes listed previously.

The third phase entailed focused surveys of the 75 drainages identified during phases one and two to determine if these locations were occupied by the species.

Focused surveys of these drainages were conducted between May 7 and May 25, 2007, and concentrated on the areas located 20 ft on either side of the streambed within the drainages where areas generally remain moist for the longest period during the summer. Within these drainages and associated slopes, the biologists carefully overturned logs and rocks and sifted through leaf litter. To reduce any potential impact of the surveys on these species, the biologists focused on identification of salamanders that were active on the surface rather than those underground. Additionally, the surveys were only conducted in drainages that had flowing water or were moist. Those drainages that appeared to provide suitable habitat but were dry were not surveyed because salamanders are typically underground if moist surface conditions are not present. To

avoid impacts to these species, no digging or excavating occurred during the survey, and all logs and rocks that were moved were returned as closely as possible to their original location.

Information recorded during the focused surveys included the survey date; the surveyors' names; the drainage number; beginning and end times of the survey; the air temperature (taken 1 cm above the ground surface), soil temperature, and soil moisture; cloud cover; precipitation; documentation that freezing did not occur within 24 hours of the survey; habitat conditions of the drainage; drainage aspect; drainage slope; ground cover; canopy cover; and common and scientific names of the species observed. Photographs were taken of all drainages surveyed and the locations of the surveyed areas were documented using a GPS unit (Garmin eTrex GPS unit, generally accurate to approximately 3 m). All Tehachapi slender salamanders observed were photographed and their locations documented using the GPS unit.

A fourth phase habitat assessment was conducted in July, August, and September 2007 and consisted of supplementary field assessments in several additional drainages. A jurisdictional wetland delineation prepared for the TMV project (Impact Sciences 2008) was used to create an updated, comprehensive drainage map of the TMV Planning Area (see Figure D.1-3). Additional habitat assessments were conducted in previously unsurveyed drainages identified in the delineation to evaluate habitat quality for the species. The habitat assessments focused on areas in and within 20 ft of the streambed. The biologists walked the drainages and recorded the extent of areas considered suitable for the salamander, including canopy cover, dominant canopy species, and ground cover on a map and on field data forms.

Table D.1-3 summarizes the Tehachapi slender salamander survey schedule and includes the date, drainage number surveyed, personnel, survey type, time, and other survey conditions.

Table D.1-3. Tehachapi Slender Salamander Survey Schedule and Conditions

Survey Date	Drainage Number	Survey Type	Personnel	Time	Air Temp. (°F)	Percent Cloud Cover
04/01/2005	Not Recorded	Reconnaissance Survey	WHK	Not Recorded	Not Recorded	Not Recorded
06/16/2005	32-1	Reconnaissance Survey	WHK	11:00–12:00	74	50
06/17/2005	32-1; 57-1; 57-2; 67-1; 69-2; 69-2; 80-1; 81-1; 81-2; 91-1; 95-1; 102-1; 106B	Reconnaissance Survey	WHK	7:30–2:00	59–76	100
03/26/2007	33-1; 33-2; 34-1; 35-1; 107-1; 108-1	Habitat Assessment	WHK, SRA	8:00–2:00	Not Recorded	Not Recorded
05/07/2007	14-1; 32-1; 15-1; 15-2; 6-1; 12-1; 33A-1; 33A-2; 33A-3	Focused Survey	WHK, KAM	8:30–5:41	41–70	0

APPENDIX D1, COVERED SPECIES SURVEY METHODS

Table D.1-3. Tehachapi Slender Salamander Survey Schedule and Conditions

Survey Date	Drainage Number	Survey Type	Personnel	Time	Air Temp. (°F)	Percent Cloud Cover
05/08/2007	34-1; 34-2; 35-1; 35-2; 36-1; 36-2; 36-3; 37-1; 42A-1; 42A-2; 42A-3	Focused Survey	WHK, KAM	7:35–4:00	45–77	0
05/09/2007	42A-4; 42A-4; 38-1	Focused Survey	WHK, KAM	8:05–4:30	49–77	0
05/10/2007	23-1; 25-1; 25-2; 25-3; 31-1; 30-1	Focused Survey	WHK, KAM	9:15–3:46	55–76	0
05/14/2007	140; 124; 129; 131A-1; 131A-2; 132-1; 133-1; 132-2; 131A-3; 131A-4; 135-1; 135-1; 135-1; 136-2; 136-3	Focused Survey	KAM, KTM	8:25–2:40	47–74	0
05/15/2007	27-1; 26-1; 26-2; 26-3; 45A	Focused Survey	KAM, KTM	8:00–2:50	51–73	0
05/16/2007	44; 43; 46-1; 58A-2; 48- 1; 47; 58A-3; 49-1; 58A-1	Focused Survey	KAM, KTM	8:00–4:06	54–76	0
05/17/2007	106A-2 to 4; 50-1; 51-1; 57A-1; 57A-2; 57A-3; 56; 80-1; 79; 106A-1	Focused Survey	KAM, KTM	7:20–3:48	50–73	0
05/22/2007	63; 62-1; 62-2; 64; 65-1; 65-2; 66; 78-1; 78-2; 77; 76; 75; 74; 73; 72; 71; 69-1; 70; 69-2	Focused Survey	HS, KAM	8:58–5:00	50–68	50
05/23/2007	67-1; 67-2; 68; 106A-W; 107A-1; 107A-2; 108-1; 109-1; 109-2; 109-3; 41)	Focused Survey	HS, KAM	7:58–4:30	50–78	0
05/24/2007	118; 114; 113A-1; 113A- 2; 111-1; 111-2; 110-1; 110-2; 108-2; 121; 55; 55-2; 55-3; 54; 53-1; 52- 1; 53/5-1; 53/5-2)	Focused Survey	HS, KAM	7:15–6:10	54–79	0
05/25/2007	53-2; 53-3; 52-5-1; 52-2; 52-3; 52-5-3	Focused Survey	HS, KAM	7:17–10:12	53–70	1
07/23/2007	1; 2; 3; 4; 5; 7; 8; 9	Habitat Assessment	WHK, JLC	1:45–5:16	82–85	Not Recorded
07/24/2007	10; 11; 13; 33B; 125; 127;	Habitat Assessment	WHK, JLC	8:10–2:40	78–92	Not Recorded
07/25/2007	16; 17; 18; 19; 20; 21; 22; 23; 28; 29	Habitat Assessment	WHK, JLC	7:50–2:55	80–92	Not Recorded
07/26/2007	40; 42B; 45B; 57B; 58B	Habitat Assessment	WHK, JLC	7:50–10:45	74–84	Not Recorded
08/08/2007	91; 92; 93	Habitat Assessment	WHK, JLC	12:42–2:48	75–79	Not Recorded
08/09/2007	94; 95; 96; 97; 98; 99; 100; 101; 102; 103; 104	Habitat Assessment	WHK, JLC	7:52–4:58	65–85	Not Recorded
08/10/2007	106B	Habitat Assessment	WHK, JLC	10:40– 11:00	79	Not Recorded

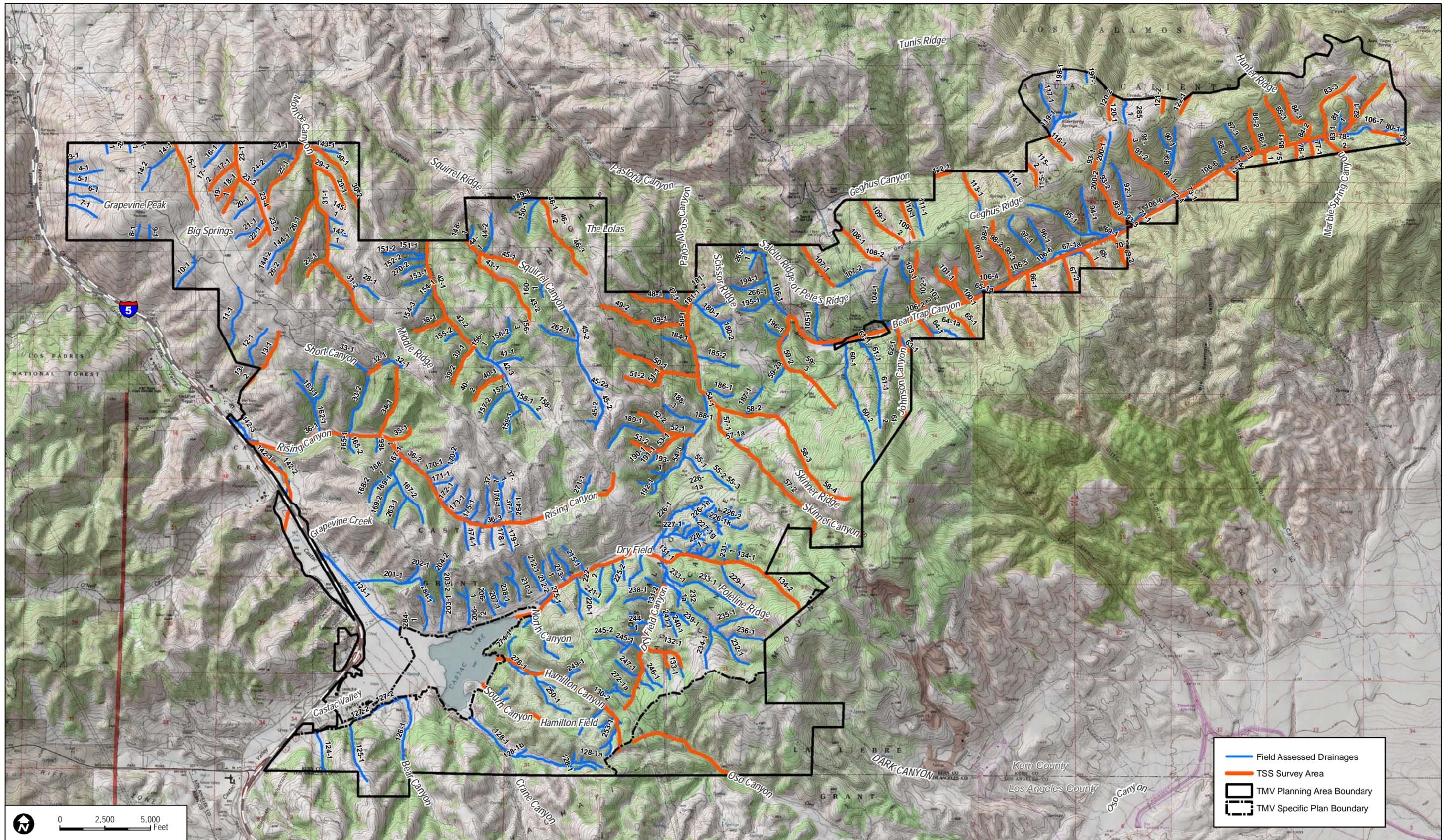
APPENDIX D1, COVERED SPECIES SURVEY METHODS

Table D.1-3. Tehachapi Slender Salamander Survey Schedule and Conditions

Survey Date	Drainage Number	Survey Type	Personnel	Time	Air Temp. (°F)	Percent Cloud Cover
09/12/2007	161; 162; 163; 164; 165; 166; 167; 168; 169; 170; 171; 172; 173; 174; 175; 263;	Habitat Assessment	KAM, EKH	8:10–3:18	64–90	0
09/13/2007	143; 144; 145; 146; 147; 176; 177; 178; 179; 202; 203; 204	Habitat Assessment	KAM, EKH	9:35–5:00	53–73	98
09/14/2007	151; 152; 153; 154; 155; 156; 157; 158; 159; 201; 205; 206; 270	Habitat Assessment	KAM, EKH	8:00–1:30	50–67	5
09/23/2007	207; 208; 209; 210; 211; 212; 213; 214; 215; 216; 248; 249; 250; 251	Habitat Assessment	KAM, EKH	10:25–5:12	58-67	5
09/24/2007	228; 229; 230; 231; 232; 233; 234; 235; 236; 237; 238; 239; 241; 242; 243; 244; 246; 247; 252; 253; 254; 255; 256; 257; 258; 259; 260; 261; 267; 268; 269	Habitat Assessment	KAM, EKH	7:05–5:40	49–83	3
09/25/2007	180; 181; 182; 183; 184; 185; 186; 187; 188; 189; 190; 191; 192; 193; 217; 218; 219; 220; 221; 222; 223; 224; 225; 226; 227; 245	Habitat Assessment	KAM, EKH	7:10–5:50	54–79	5
09/26/2007	148; 149; 150; 160; 194; 195; 196; 197; 198; 199; 200; 262; 263; 264; 265; 266	Habitat Assessment	KAM, EKH	6:45–2:10	53–87	5

Personnel key:

WHK: Will Kohn; SRA: Steve Avery; KAM: Kara Martinusen; KTM: Kailash Mazumder; HS: Holly Shepley; JLC: Julia Camp; EKH: Erin Hitchcock.



SOURCE: TRC 2007
J&S 2008b

FIGURE D.1-3
Drainages Included in Special-status Salamander Field Surveys

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Habitat Modeling and Data Quality Assurance

On July 19, 2008, Dudek and J&S biologists met with Tehachapi slender salamander experts Dr. David Wake, Professor of the Graduate School at the University of California, Berkeley, and Mr. Robert Hansen, Editor of Herpetological Review, to review the suitable habitat analysis and location of Tehachapi slender salamanders on the site and to confirm species identification. Based on input from Dr. Wake and Mr. Hansen, the key habitat features for Tehachapi slender salamander were determined to include vegetation communities with canyon live oak as a dominant species, north-facing slopes, talus, and moderate to high percent canopy cover. In addition, based on existing observation, the species was determined to not occur above 5,000 ft in elevation. Following the meeting, Dudek prepared a habitat suitability model, which is discussed further in Appendix D of the TU MSHCP.

1.4.3 YELLOW-BLOTCHED SALAMANDER

There is one CNDDDB record documenting the detection of yellow-blotched salamander within the TMV Planning Area. A yellow-blotched salamander was also observed during a June 2005 reconnaissance survey. Surveys for yellow-blotched salamander were conducted concurrently with surveys for Tehachapi slender salamander using the same field methods described in Section 1.4.2. Although the two salamander species can and do co-occur, the yellow-blotched salamander has a broader geographical, elevational, and ecological distribution than Tehachapi slender salamander. Because the primary focus of the salamander surveys was on Tehachapi slender salamander, it is expected that yellow-blotched salamander could also occur in habitat areas that were not surveyed. Locations of yellow-blotched salamanders observed during the Tehachapi slender salamander surveys were recorded with a GPS unit (Garmin eTrex GPS unit, generally accurate to approximately 3 m) and habitat requirements for the species were discussed during the July 19, 2008, meeting with Dr. Wake and Mr. Hansen, as described previously. While a separate habitat model was not developed for the yellow-blotched salamander for the purposes of directing field surveys, a habitat model for yellow-blotched salamander was subsequently developed for the conservation analysis and is discussed in more detail in Appendix D of the TU MSHCP. As noted previously, the yellow-blotched salamander has broader habitat associations than Tehachapi slender salamander, which are reflected in the habitat model in Appendix D.

1.4.4 OTHER REPTILE SPECIES PRESUMED TO OCCUPY THE SITE

Based on the literature review and site reconnaissance, the following two reptile species were determined or assumed to be present on the site and appropriate habitat was modeled for each species:

- Coast horned lizard (*blainvillii* and *frontale* populations)
- Two-striped garter snake.

1.5 SPECIAL-STATUS BIRDS

This section discusses the wintering and breeding focused bird surveys conducted within the TMV Planning Area.

Breeding bird focused surveys included the following: (1) species-specific surveys for species with official USFWS survey protocols (i.e., generally species that are federally listed, state-listed, and/or fully protected); (2) species-specific surveys for which there are no official USFWS protocols but have generally accepted, scientific- or resource-agency-supported survey guidelines or methods; and (3) surveys for groups of special-status bird species that have similar habitat preferences, specifically riparian birds, general raptors, and aquatic/marsh/meadow birds.

The following subsections describe the focused bird surveys that were conducted in 2006 and 2007 in the TMV Planning Area. However, bird surveys were also conducted prior to the 2006–2007 surveys in 2004 by Impact Sciences, Inc., (2004) and 2005 by J&S (2006). This survey information was incorporated into the species database analyzed for the TU MSHCP and EIS. The focus of the Impact Sciences, Inc., 2004 bird surveys was to identify special-status species of birds expected to nest in the TMV Planning Area. These surveys were conducted from January 26 to 30, March 1 to 5, and July 12 to 15. The January surveys were conducted to identify any wintering special-status bird species that may use the site, particularly Castac Lake. Surveys for special-status birds were also conducted concurrently with plant surveys from April 26 to May 1 and June 14 to 20, 2004. Birds observed during the course of the surveys were identified to species and, if special-status, locations were mapped. The J&S bird surveys were conducted from March 28 to June 21, 2005, and included raptor nesting surveys on five separate days from March 28 to April 1. Other nesting bird surveys were conducted on four separate days from April 25 to April 28: a purple martin (*Progne subis*) and northern goshawk (*Accipiter gentilis*) survey on May 27; an evening California spotted owl (*Strix occidentalis*) survey on May 27; a willow flycatcher (*Empidonax traillii*) and purple martin at Bear Trap on June 8; a willow flycatcher, purple martin, and northern goshawk survey at Castac Lake on June 9; a golden eagle (*Aquila chrysaetos*) nest check on June 17 and June 20; and a willow flycatcher and purple martin survey at Castac Lake on June 21.

1.5.1 FEDERALLY LISTED AND STATE-LISTED BIRDS

Focused surveys for the following federally and state-listed birds were conducted by Dudek in accordance with established USFWS or CDFG survey protocols:

- Least Bell's vireo (*Vireo bellii pusillus*)
- Southwestern willow flycatcher (*Empidonax extimus traillii*)

- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*).

The following species do not have established USFWS survey protocols but are subject to generally accepted survey methods based on current scientific understanding of the species' habitat preferences and life history:

- American peregrine falcon (*Falco peregrinus anatum*)
- Bald eagle (*Haliaeetus leucocephalus*)
- California condor (*Gymnogyps californianus*).

Listed Riparian Birds

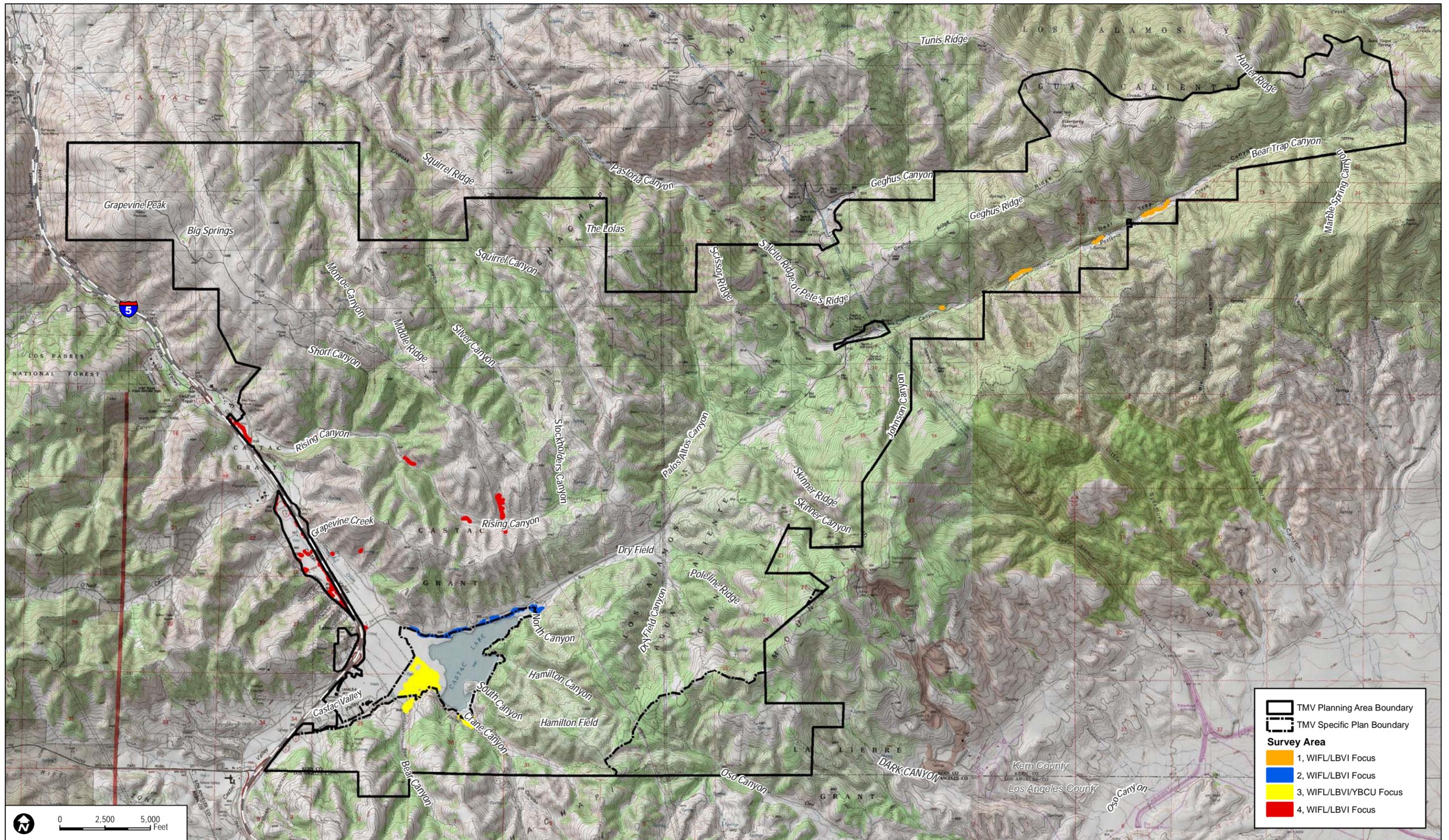
Focused surveys were conducted for least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo.

General Survey Methods

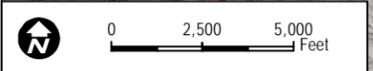
Focused riparian bird surveys were divided into four survey areas (Areas 1–4) due to the size and the distribution of suitable habitat on the site. These survey areas generally included riparian habitat adjacent to Castac Lake and suitable habitat patches located within Bear Trap Canyon and Rising Canyon. Approximately 87 ac. of suitable riparian forest habitat on or adjacent to the TMV Planning Area were surveyed to ensure that the survey was as comprehensive as possible (see Figure D.1-4).

Surveyors included biologists Brock A. Ortega (TE813545-6), Jeff D. Priest (TE840619-2), Anita M. Hayworth, PhD (TE781084-7), John Konecny (TE837308-4), Paul M. Lemons (TE051248-2), Thomas Liddicoat, and Scott M. Duff (Table D.1-4). Only biologists holding permits to conduct surveys for southwestern willow flycatcher, including Brock Ortega, Jeff Priest, Anita Hayworth, and John Konecny, conducted surveys for southwestern willow flycatcher. Biologist John Konecny conducted all western yellow-billed cuckoo surveys concurrently with southwestern willow flycatcher and least Bell's vireo surveys. Biologists Thomas Liddicoat, Scott Duff, and Paul Lemons conducted least Bell's vireo surveys only. The entire area of suitable habitat was surveyed for southwestern willow flycatcher and least Bell's vireo a total of 35 times.

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	TMV Planning Area Boundary
	TMV Specific Plan Boundary
Survey Area	
	1, WIFL/LBVI Focus
	2, WIFL/LBVI Focus
	3, WIFL/LBVI/YBCU Focus
	4, WIFL/LBVI Focus



SOURCE: TRC 2007
J&S 2008d

FIGURE D.1-4
Special-status Riparian Bird Survey Areas

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Southwestern Willow Flycatcher Specific Survey Methods

A recovery permit pursuant to Section 10(a)(1)(A) of FESA is required to conduct presence/absence surveys for the southwestern willow flycatcher. The surveys followed the current protocol (Sogge et al. 1997; USFWS 2000), which states that a minimum of five survey visits are necessary to evaluate TMV project effects on flycatchers (USFWS 2000). In accordance with the protocol, one survey was conducted in each of the four survey areas during the period from May 15 to 31, one survey was conducted in each of the four survey areas between June 1 and 21, and three surveys were conducted in each of the four survey areas between June 22 and July 17 at a minimum of 5-day intervals. All four survey areas were surveyed a total of five times for the presence of southwestern willow flycatcher during the three survey time periods (see Table D.1-4).

Table D.1-4. Least Bell's Vireo, Southwestern Willow Flycatcher, and Western Yellow-Billed Cuckoo Survey Schedule and Conditions

Date	Personnel	Focal Species	Time	Temp. (°F)	Wind (mph)	Cloud Cover (%)
Area 1 – Bear Trap Canyon						
04/23/07	TSL	LBVI ¹	0730–1130	36	2–9	100
05/03/07	PML	LBVI	0700–1130	48–54	3–6	100
05/16/07	BAO	LBVI/WIFL ²	0500–1115	50–65	0–3	0
05/30/07	AMH	LBVI	0600–1100	55–75	1–3	0
06/11/07	BAO	LBVI/WIFL	0510–1100	54–77	1–5	0–10
06/22/07	BAO	LBVI/WIFL	0630–1100	58–70	0–5	30
07/02/07	AMH	LBVI/WIFL	0540–1030	60–78	1–7	10–0
07/16/07	JDP	LBVI/WIFL	0515–1045	58–83	0–3	0
07/30/07	TSL	LBVI	0600–1000	55–88	0–2	0
Area 2 – Shoreline of Castac Lake (North Side)						
04/23/07	SMD	LBVI	0700–1230	40–60	0–3	100–80
05/03/07	SMD	LBVI	0700–1230	45–69	0–3	99–20
05/23/07	JK	LBVI/WIFL	0540–0950	63–71	1–3	0
06/02/07	JK	LBVI/WIFL	0540–0935	61–74	3–5	50
06/23/07	JK	LBVI/WIFL	0530–0925	61–78	1–3	0
07/07/07	JK	LBVI/WIFL	0535–0955	61–89	3–10	0
07/17/07	JK	LBVI/WIFL	0530–0945	61–89	3–10	0
07/31/07	TAC	LBVI	0600–1000	65–75	0–1	0
Area 3 – Cuddy Creek (South Side)						
04/24/07	TSL	LBVI	0700–1100	48	0–4	0
05/04/07	PML	LBVI	0730–1130	55–66	2–4	0
05/24/07	JK	LBVI/WIFL	0545–0955	64–70	1–3	0

Table D.1-4. Least Bell's Vireo, Southwestern Willow Flycatcher, and Western Yellow-Billed Cuckoo Survey Schedule and Conditions

Date	Personnel	Focal Species	Time	Temp. (°F)	Wind (mph)	Cloud Cover (%)
06/03/07	JK	LBVI/WIFL	0530–1000	63–78	1–5	30
06/24/07	JK	LBVI/WIFL/YBCU ³	0535–1010	61–76	1–3	0
07/8/07	JK	LBVI/WIFL/YBCU	0540–1000	53–83	3–6	0
07/18/07	JK	LBVI/WIFL/YBCU	0545–1010	53–83	3–6	0
07/26/07	TAC	LBVI	0600–1030	65–70	0–1	0
08/17/07	JK	YBCU	0550–1020	65–93	3–9	0
Area 4 – Rising Canyon and Grapevine Creek						
04/24/07	SMD	LB VI	0700–1230	45–60	0–5	0
05/04/07	SMD	LBVI	0830–1300	48–64	0–6	100–80
05/17/07	BAO	LBVI/WIFL	0500–1110	53–75	0–1	0
05/29/07	AMH	LBVI	0600–1100	56–84	1–3	0
06/12/07	BAO	LBVI/WIFL	0530–1030	57–70	1–4	0
06/23/07	BAO	LBVI/WIFL	0610–1015	60–78	1–5	50–20
07/03/07	AMH	LBVI/WIFL	0545–1045	61–76	3–6	0
07/17/07	JDP	LBVI/WIFL	0500–1045	55–76	0–1	0
07/31/07	TSL	LBVI	0615–1020	59–91	0–2	0

Personnel key:

TSL: Thomas Liddicoat; PML: Paul Lemons; BAO: Brock Ortega; AMH: Anita Hayworth; JDP: Jeff Priest; SMD: Scott Duff; JK: John Konecny; TAC: Traci Caddy.

¹WIFL = southwestern willow flycatcher.

²LBVI = least Bell's vireo.

³YBCU = yellow-billed cuckoo.

Three visits were conducted during the final survey period in order to determine whether any flycatchers observed during the first two survey periods were resident. Various subspecies of this species are not easily differentiated visually or by call or song in the field, and any resident willow flycatchers observed in the final survey period were assumed to be the “southwestern” subspecies. Non-resident willow flycatchers were assumed to be migrant willow flycatchers.

The surveys began as soon as it was light enough to walk safely until approximately 11:00 a.m. A tape of recorded southwestern willow flycatcher vocalizations was played approximately every 50 to 100 ft within suitable habitat to induce willow flycatcher responses. A “Willow Flycatcher Survey and Detection Form” was filled out for each survey visit.

Least Bell's Vireo Specific Survey Methods

A Section 10(a)(1)(A) permit is not required to conduct focused surveys for least Bell's vireo. The surveys for least Bell's vireo followed the current protocol (USFWS 2001), which requires a minimum of eight survey visits to all riparian areas and any other potential vireo habitats during the

period of April 10 to July 31. A minimum of 10-day intervals separated each visit in accordance with the protocol. Surveys were conducted between dawn and 11:00 a.m. by a qualified biologist familiar with least Bell's vireo songs, calls, and plumage. All four survey areas were surveyed at least eight times for the presence of least Bell's vireo in accordance with the USFWS protocol for this species. Survey areas 1 and 4 received one additional survey, for a total of nine least Bell's vireo surveys.

Western Yellow-Billed Cuckoo Specific Survey Methods

A recovery permit pursuant to Section 10(a)(1)(A) is not required to conduct surveys for the western yellow-billed cuckoo. Surveys for the cuckoo were conducted by John Konecny (Biological Resource Consultants). Mr. Konecny holds a memorandum of understanding (MOU) from CDFG that allows for the use of tape playbacks. The survey method for determining presence or absence of the western yellow-billed cuckoo followed the Halterman and Johnson (2003) draft protocol. A total of four survey visits were made to the suitable habitat during the breeding season between June 15 and August 17, at approximate 10- to 14-day intervals. The survey method included visiting the site between 6:30 a.m. and 12:00 p.m. Survey transects were spaced no more than 300 ft apart and a recorded call was played every 600 ft in accordance with the protocol. A maximum of 2.5 linear mi. of suitable habitat was surveyed per day.

Listed Raptors

American Peregrine Falcon Survey Methods

There is no official protocol survey method for determining the presence or absence of the American peregrine falcon.

Peregrine falcons nest almost exclusively on protected ledges of high cliffs (CDFG 1980; USFWS 1982). All large rock outcrops and cliffs located within the TMV Planning Area were surveyed for peregrine falcon activity, including large rock outcrops in Rising Canyon, Skinner Canyon, Grapevine Peak, Pastoria Canyon, and Salcito Ridge (see Figure D.1-5).

Two focused surveys were conducted by Dudek biologists during the time period when peregrines would be present and breeding. An initial survey was conducted on May 1, 2007, by Dudek biologists Anita M. Hayworth, PhD, and Brianna M. Wood. A second focused survey was conducted by Dudek biologist Rebekah M. Krebs on July 7, 2007 (see Table D.1-5). Surveys were conducted on days with suitable weather conditions (i.e., moderate temperatures, no rain, and moderate or no wind). The biologists conducting the surveys were familiar with peregrine behavior, habitat use, and appearance. Binoculars (10 × 50 mm; 8 × 32 mm power) and spotting scopes (Nikon 15–60× and Bushnell 20–60× magnification) were used for viewing. A survey map at a suitable scale (1 in. = 400 ft) was prepared and observations of observed (if any) peregrines were mapped. Large rock outcrops and cliff faces were surveyed for whitewash, nests,

and raptor activity. When signs of raptor activity were confirmed, these areas were observed for a long enough period of time to identify the species of raptor utilizing the area. Rock outcrops adjacent to known raptor nests were observed to determine if the usage of the nest site was by peregrine falcon.

Table D.1-5. American Peregrine Falcon Survey Schedule and Conditions

Date	Personnel	Time	Temp. (°F)	Wind (mph)	Cloud Cover (%)
05/01/07	AMH,BTW	0800–1000	68–76	0–5	50
07/07/07	RMK	0815–1400	78–93	5–10	0

Personnel key:

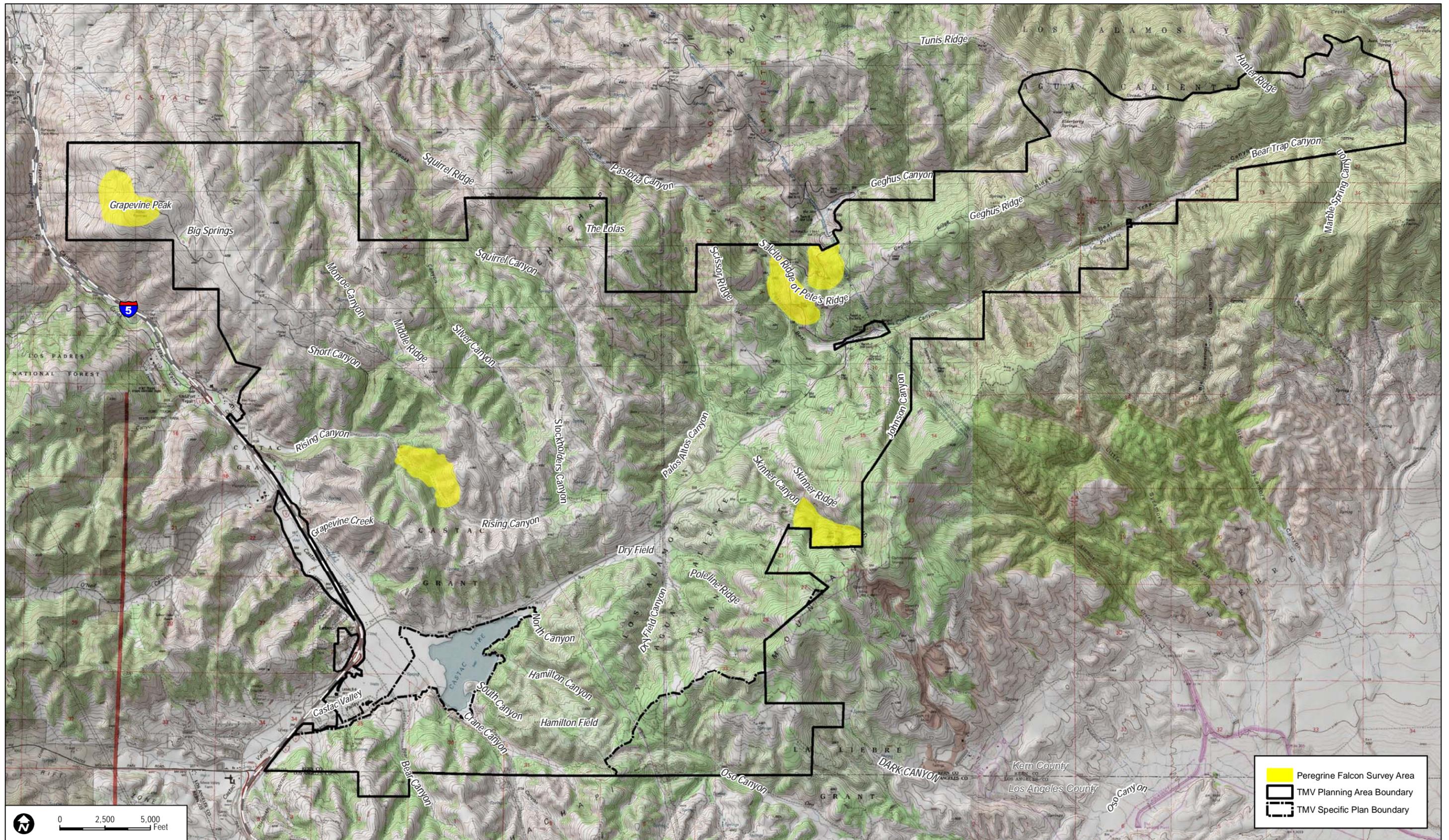
AMH: Anita Hayworth, PhD; BTW: Brianna Wood; RMK: Rebekah Krebs.

Other surveys were conducted on site that would have detected peregrine usage, including general raptor surveys, aquatic and marsh bird surveys, and bald eagle surveys (as discussed below). Raptor surveys focused on searching trees, fence lines, rock outcrops, and the ground for direct observation or evidence of raptor nesting. The aquatic and marsh bird surveys and bald eagle surveys included an inventory of all wildlife utilizing aquatic resources in and around Castac Lake.

Bald Eagle (Wintering and Nesting) Survey Methods

There is currently no established USFWS protocol to survey for the bald eagle. A survey protocol has been prepared by Pacific Gas & Electric (PG&E) for the USFWS (PG&E 2004) that provides a detailed description of methods to conduct surveys for wintering and nesting bald eagles. The PG&E protocol was used to conduct focused surveys within suitable habitat within the TMV Planning Area.

Suitable habitat for the bald eagle consists of a variety of natural structures, including ledges on cliffs, trees protruding from cliffs, and deciduous or coniferous trees found along or near major water bodies. The survey method recommends surveying applicable water bodies as well as a buffer area of 1 mi. Approximately 4,290 ac. within the TMV Planning Area were surveyed in accordance with these criteria (see Figure D.1-6). Observation of other piscivorous (fish-eating) birds, such as cormorants and osprey, was recorded to evaluate whether Castac Lake could support the bald eagle.



Peregrine Falcon Survey Area
 TMV Planning Area Boundary
 TMV Specific Plan Boundary

0 2,500 5,000
 Feet

SOURCE: TRC 2007
 J&S 2008e

FIGURE D.1-5
Peregrine Falcon Survey Areas

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The survey for wintering eagles included three site visits conducted at monthly intervals and with no less than a 2-week interval between surveys (see Table D.1-6). Wintering bald eagle surveys were conducted by Dudek biologist Anita Hayworth, PhD, on December 29, 2006; January 30, 2007; and February 22, 2007. Each survey was conducted over an approximately 6.5- to 10-hour period and the lake and surrounding areas were scanned for bald eagles from several stationary locations. Suitable perching areas were observed using a road survey to look for eagles up to 1 mi. from the lake. The biologist conducting the survey was familiar with bald eagle behavior, habitat use, and appearance. Binoculars (10 × 50 mm; 8 × 32 mm power) and spotting scopes (Nikon 15×–60× and Bushnell 20×–60× magnification) were used. A survey map at a suitable scale (generally 1 in. = 400 to 1 in. = 800 ft) was prepared and observations of bald eagles were mapped.

The survey for nesting bald eagle was conducted when eagles were most likely to be found at the nest site and as early in the breeding season as possible. A total of three breeding surveys are recommended in the PG&E survey protocol (PG&E 2004). In accordance with the protocol, Dudek biologist Traci Caddy conducted breeding bald eagle surveys on March 19, May 29, and June 18, 2007 (see Table D.1-6). Surveys were conducted on foot and by vehicle and included searching for bald eagles and bulky nest structures along the lake and within a 1 mi. buffer around the lake. Each survey was conducted over an approximately 8- to 9-hour period. The biologist conducting the survey was familiar with bald eagle behavior, habitat use, and appearance. Binoculars (10 × 50 mm; 8 × 32 mm power) and spotting scopes (Nikon 15×–60× and Bushnell 20×–60× magnification) were used. A 1 in. = 600 ft survey map was used to map any observed bald eagle or nest locations.

Table D.1-6. Wintering and Breeding Bald Eagle Survey Schedule and Conditions

Date	Personnel	Time	Temp. (°F)	Wind (mph)	Cloud Cover (%)
12/29/06	AMH	0800–1430	30–41	1–8	0
01/30/07	AMH	0630–1530	36–46	1–5	100
02/22/07	AMH	0625–1615	33–48	5–10	90
03/19/07	TAC	0730–1530	45–50	Not Recorded	0
05/29/07	TAC	0800–1700	65–70	0–5	0
06/18/07	TAC	0730–1630	65–75	Not Recorded	0

Personnel key:
AMH: Anita Hayworth; TAC: Traci Caddy.

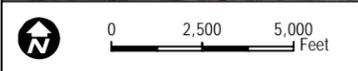
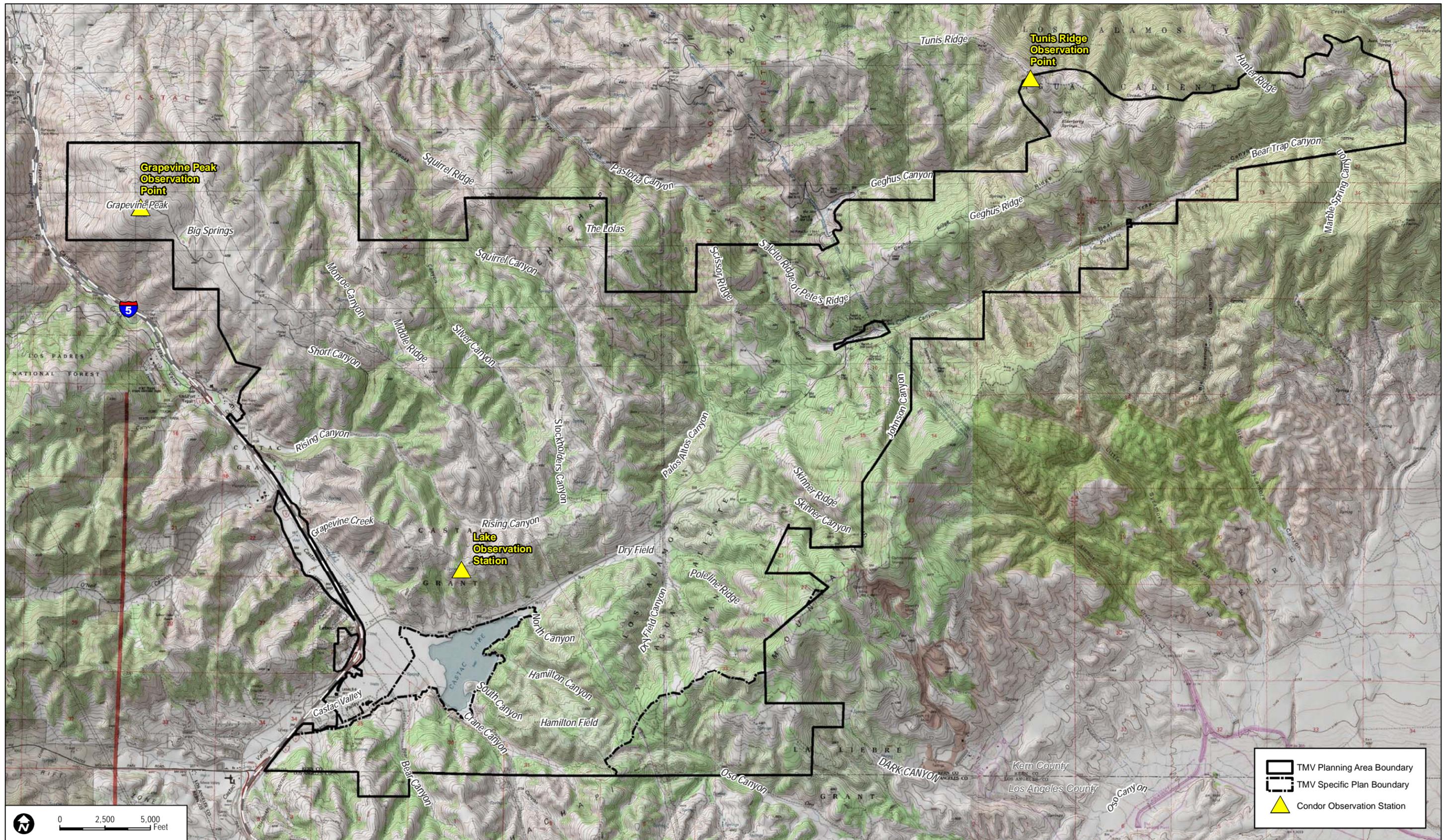
California Condor

Analyses regarding historical and current condor use of Tejon Ranch, including the TMV Planning Area, are based primarily on an evaluation of GPS data provided by the USFWS. In particular, a team of condor scientists (Condor Panel) retained for the TMV project and biologists from Dudek

compiled and reviewed these data, which recorded condor location information within the southern California range of the species, including Tejon Ranch. The review included all GPS data recorded by the USFWS from 2002 (when the first condors carrying GPS transmitters were released) to August 2009. The data were incorporated into a GIS program where it could then be overlain onto various project and habitat maps. The evaluation of the GPS data is discussed in more detail in the *Tejon Ranch California Condor Conservation and Management Plan*, which included data from 2002 to 2008, attached as Appendix C to the TU MSHCP, as well as in the Addendum to Appendix C, *California Condor Occurrence Data in Southern California*, which included data from 2002 through August 2009, attached to the Final TU MSHCP.

Field assessments of the site were also conducted by the Condor Panel and Dudek biologists on several occasions in 2007. Specifically, Bloom Biological, Inc. (Bloom Biological), assisted by Dudek, conducted surveys for California condor during the late summer and fall of 2007. Three monitoring stations (observation points) were established within the TMV Planning Area in late July 2007 to search for and, if observed, identify numbers of California condors flying or foraging over the site (see Figure D.1-7). Each observation point was attended by a single field monitor from Bloom Biological or Dudek. Field monitors were experienced in or otherwise qualified for identifying condors and other raptor species. Monitoring began on August 13 and was completed on November 17, 2007. Each observation point was staffed 8 hours per day, 5 days per week (Monday through Friday), for the duration of the monitoring effort.

Most of the condors in the wild were bred in captivity and outfitted with radio transmitters prior to release. All field monitors periodically scanned for radio signals (each wild condor has a unique assigned radio frequency) using three-element Yagi antennas and attached radio transceivers (Communications Specialists, Inc., Model R-1000, with a range of approximately 60 mi.). Data collected for condors detected by radio signal and/or visual observation included date and time of detection, the frequency identification code and, if on site, the approximate location of the detection or observation of the condor. Other data that was collected included weather conditions, USFWS patagial wing identification number (if visible), length of observation, behavior (e.g., foraging, perching), and estimated altitude. The location of each on-site detection or observation was noted on a USGS topographic map. Observations of other raptors were also documented. Visual and radio monitoring of condors (primarily of those wearing VHF transmitters) on Tejon Ranch, primarily within the TMV Planning Area, has continued on a daily basis (weather permitting) since August 2008.



SOURCE: TRC 2007
Bloom Biological 2008

FIGURE D.1-7
Condor Survey Observation Stations

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1.5.2 OTHER SPECIES-SPECIFIC BIRD SURVEYS

Surveys were conducted within the TMV Planning Area for other special-status bird species that are not federally or state-listed. In general, these special-status species are either CSC- or BCC-designated birds, or fully protected species. Surveys for these birds are described below and include the following: riparian birds; marsh-nesting birds; burrowing owl (*Athene cunicularia*); California spotted owl; northern goshawk; fully protected raptors, including golden eagle and white-tailed kite (*Elanus leucurus*); and purple martin. In addition, a winter bird survey was conducted that included golden eagle.

Riparian Birds

During focused surveys for federally and/or state-listed riparian birds (see Section 1.5.1), biologists also surveyed for other special-status birds that could occur within riparian habitat, including the yellow warbler (*Dendroica petechia*).

Aquatic and Marsh-Nesting Birds

A focused survey for these species, including tricolored blackbird (*Agelaius tricolor*), was conducted on the margins of Castac Lake and Grapevine Creek to determine if aquatic and marsh-dwelling special-status birds breed on site or in areas directly adjacent to the TMV Planning Area. No official method has been established for conducting surveys for aquatic and marsh-dwelling bird species.

The surveys were conducted throughout the breeding season in May and June of 2007 and included approximately 560 ac. of suitable meadow and marsh habitat within the TMV Planning Area, including areas around Castac Lake (see Figure D.1-8).

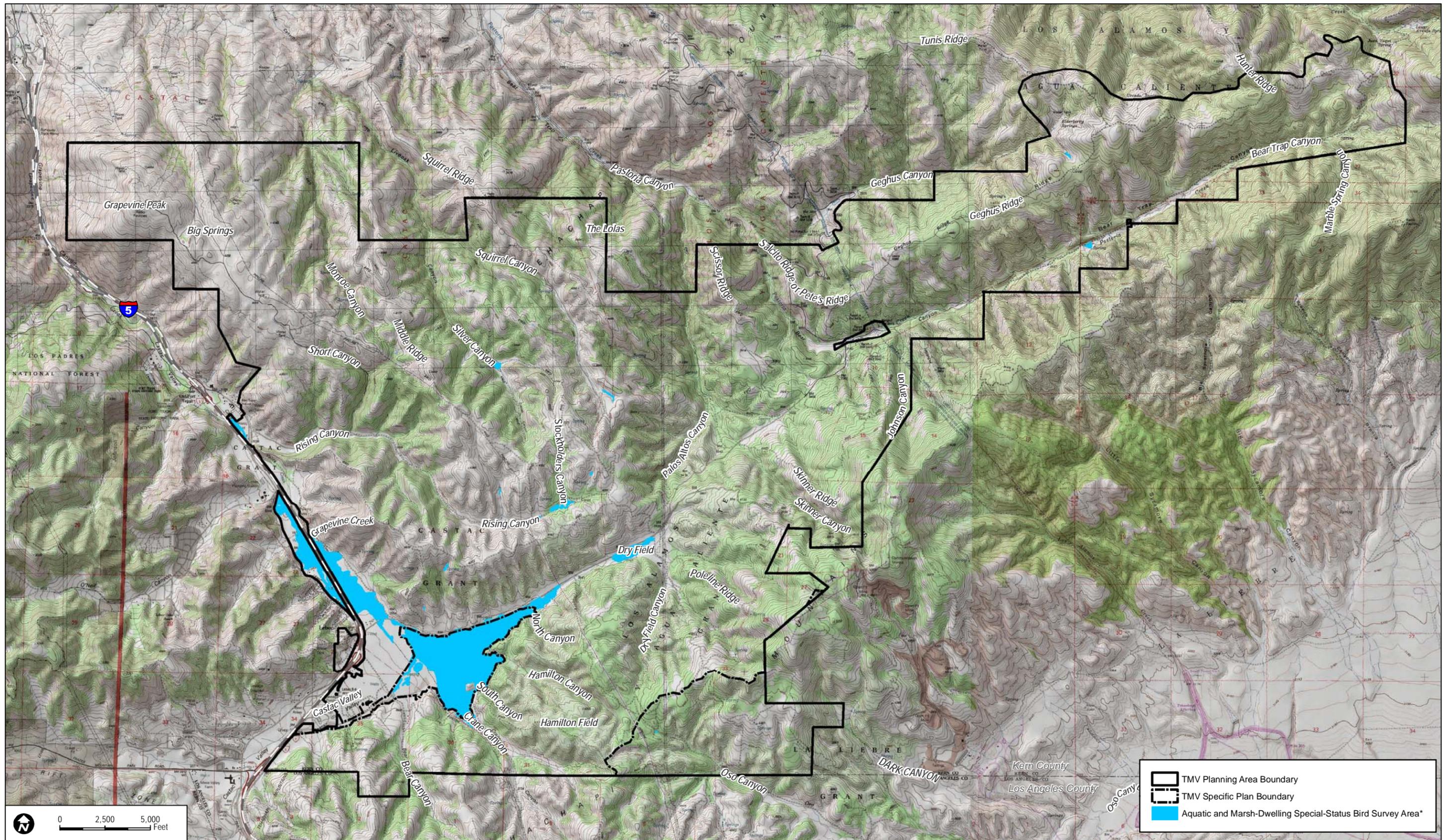
The survey area was observed from several vantage points with binoculars (10 × 50 mm and 8 × 32 mm power) and spotting scopes (Nikon 15×–60× and Bushnell 20×–60× magnification). Observers spent approximately 20 minutes at each location to scan for target birds. Biologists also walked through or adjacent to suitable habitat searching for the species during periods of non-inclement weather. Standard survey information was recorded, including survey conditions, survey routes, and results (see Table D.1-7). All observed special-status bird species were recorded and mapped on 1 in. = 400 ft aerial photographs of the site, and notes were recorded regarding observed breeding status.

**Table D.1-7. Aquatic and Marsh-Dwelling Special-Status Bird
Survey Schedule and Condition**

Date	Personnel	Time	Air Temp. (°F)	Wind Speed (mph)	Cloud Cover (%)
Round 1					
05/22/07	SMD	1130–2030	69–85	0–3	5
05/23/07	SMD	0630–2030	68–90	0–5	0
05/24/07	SMD	0900–1930	76–86	0–3	0
Round 2					
06/11/07	SMD	0730–2030	71–78	0–6	2–3
06/12/07	SMD	0800–1830	72–91	0–10	0–3
06/19/07	TAC	0915–1800	65–75	5–15	0
06/20/07	TAC	0900–1800	65–75	0	0

Personnel key:

SMD: Scott Duff; TAC: Traci Caddy.



SOURCE: TRC 2007
Dudek 2007

FIGURE D.1-8
Aquatic and Marsh-Dwelling Special-Status Bird Survey Areas

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Burrowing Owl

Surveys for the burrowing owl conformed to the protocols described in the *Staff Report on Burrowing Owl Mitigation* (CDFG 1995). See Table D.1-8. Surveys were conducted within suitable habitat composed primarily of non-native and native grasslands within the site (see Figure D.1-9). Biologists walked approximate 100 ft transects throughout suitable habitat and assessed whether each potential burrow that was observed exhibited evidence of burrowing owl (i.e., feathers, whitewash, pellets, insect remains, tracks). The locations of potential burrows were recorded on a map with survey results, including evidence of occupation (e.g., feathers, pellets, tracks, and prey remains), the presence of ground squirrels (e.g., active latrines, recent digging), or evidence of lack of use (e.g., entrance full of debris, soil, or the presence of spider webs). Burrows with evidence of potential burrowing owl use were surveyed again at the time of day recommended in the CDFG protocols. Owls observed during these additional surveys, if any, were recorded and mapped.

Table D.1-8. Burrowing Owl Survey Schedule and Conditions

Date	Personnel	Time	Temp. (°F)	Wind (mph)	Cloud Cover (%)
04/23/07	SMD, TSL	1800–2000	43–53	0–6	0
05/01/07	RMK	1130–1750	74–79	5–10	10
05/02/07	RMK	0815–1600	72–78	15–25	40
05/08/07	SMD	1500–2030	90	0–5	0
05/09/07	SMD	0830–1430	90	0–3	0
05/09/07	SMD	1600–2030	95	5–10	0
05/10/07	RMK	1800–1940	70–75	10–20	0
05/11/07	RMK	1000–1830	63–76	10–15	0
05/12/07	RMK	0830–1300	64–77	8–17	5
05/16/07	SMD	1030–2000	85	0–5	0
05/16/07	RMK	1045–1700	75–85	5–15	0
06/13/07	RMK	1420–1620	82	5–15	0
06/19/07	RMK	1700–1900	78–84	5–10	0
06/20/07	RMK	0900–1735	77–82	2–8	0
06/21/07	RMK	0925–1630	78–83	5–20	0
06/22/07	RMK	0900–1250	78–82	2–5	2
06/26/07	RMK	0910–1130	77–82	3–5	0
06/26/07	RMK	1250–1800	77–82	3–5	0
06/27/07	RMK, TSL	0830–1430	77–81	2–10	0

Personnel key: SMD: Scott Duff; RMK: Rebekah Krebs; TSL: Thomas Liddicoat.

California Spotted Owl

Surveys for the California spotted owl were conducted by BioResource Consultants (2008) in accordance with the survey protocol developed by the United States Forest Service (USFS) (USFS 1993) within approximately 2,240 ac. of suitable California spotted owl habitat on site.

Initial site visits were conducted on March 29 and April 9, 2007. During the March 29 visit, suitable habitat patches and likely locations for calling stations were recorded on USGS topographic maps and with a handheld GPS unit (Magellan eXplorist 210, generally accurate to approximately 3 m). The visit on April 9 included follow-up visits to the selected calling stations, and trial nighttime calling surveys were conducted. A total of 40 transects and/or calling points were established to adequately cover all suitable spotted owl habitat within the area. Calling stations were spaced approximately .25 to .5 mi. apart depending on perceived sound attenuation due to topography and ambient noise.

Based on the initial results, surveys were conducted at night from sunset to sunrise during May, June, July, and August 2007 and included calling from each of the 40 calling stations. Calling was conducted either by imitating spotted owl vocalizations or by playing a tape of owl calls. Each calling station was visited a total of six times. Calls were played for three to seven calls and played again after a pause of 1 to 2 minutes. A surveyor remained at each calling station for 10 minutes. During each nighttime survey, 6 to 15 of the calling stations were visited depending on the distance between the stations. For each survey visit, recorded information included general survey conditions, the survey route, start and stop times, and the survey results. Surveys were not conducted during periods of inclement weather. Visits were spaced at least 5 days apart and at least four of the visits were conducted before June 30.

A daytime follow-up reproductive survey was conducted to verify whether spotted owls detected at night were nesting and/or fledging young. This phase of the survey was accomplished by locating a detected owl, offering the owl mice, and following the owl to determine whether the owl consumed the mouse, delivered the mouse to a nest, or fed the mouse to a fledgling. Reproductive surveys were conducted as soon as possible, generally 2 to 8 days following a positive night response detection. The reproductive surveys were performed a minimum of four times at each location with a positive owl response or until reproductive status of the owl could be confirmed.

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APPENDIX D1, COVERED SPECIES SURVEY METHODS

Table D.1-9 lists the dates and times of the spotted owl surveys, and the survey area is shown in Figure D.1-10.

Table D.1-9. California Spotted Owl Survey Schedule and Conditions

Date	Type of Survey	Visit number	Personnel	Time	Temp . (°F)	Wind (mph)	Weather	Moon Phase
04/17/07	Presence/absence	1	VAP, SMW	1940–1238	60	0–8	No precipitation	—
04/19/07 to 04/20/07	Presence/absence	1	VAP, SMW	1943–0151	40–50	0–3	No precipitation	—
04/24/07 to 04/25/07	Presence/absence	1	VAP, SMW	1954–0105	50–55	1–3	No precipitation	—
04/25/07	Presence/absence	1	VAP, SMW	1940–1103	55	10	No precipitation	—
05/08/07 to 05/09/07	Presence/absence	2	VAP, SMW	1945–0141	60–65	0–2	No precipitation	Half moon - 2 days
05/9/07	Presence/absence	2	VAP, SMW	2035–2357	60–65	2–5	No precipitation	Half moon - 1 day
05/10/07 to 05/11/07	Presence/absence	2	VAP, SMW	1951–0119	45–70	1–2	No precipitation	Half moon
05/17/07	Reproductive survey	1	VAP, SMW	0453–0505	65	0	No precipitation	New moon + 1 day
05/22/07 to 05/23/07	Presence/absence	3	VAP, SMW	2008–0044	55–90	1–10	No precipitation	Half moon - 1 day
05/23/07	Presence/absence	3	VAP, SMW	2018–2254	50–70	1–5	No precipitation	Half moon
05/24/07	Reproductive survey	1	VAP, SMW	0450–0520	65	0	No precipitation	Half moon + 1 day
05/24/07 to 05/25/07	Presence/absence	3	VAP, SMW	2001–0046	55–70	0–8	No precipitation	Half moon + 1 day
06/13/07	Presence/absence	4	VAP, SMW	2012–2348	60–65	0–5	No precipitation	New moon - 2 days
06/14/07	Presence/absence	4	VAP, SMW	2120–2216	60–70	0–3	No precipitation	—
06/14/07	Reproductive survey	1	VAP, SMW	1949–2341	65–70	0–3	No precipitation	New moon - 1 day
06/18/07 to 06/19/07	Presence/absence	4	VAP, SMW	2007–0007	65	0–5	No precipitation	New moon + 3 days
06/19/07	Presence/absence	4	VAP, SMW	2142–2323	65	0–1	No precipitation	Half moon - 3 days

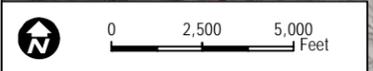
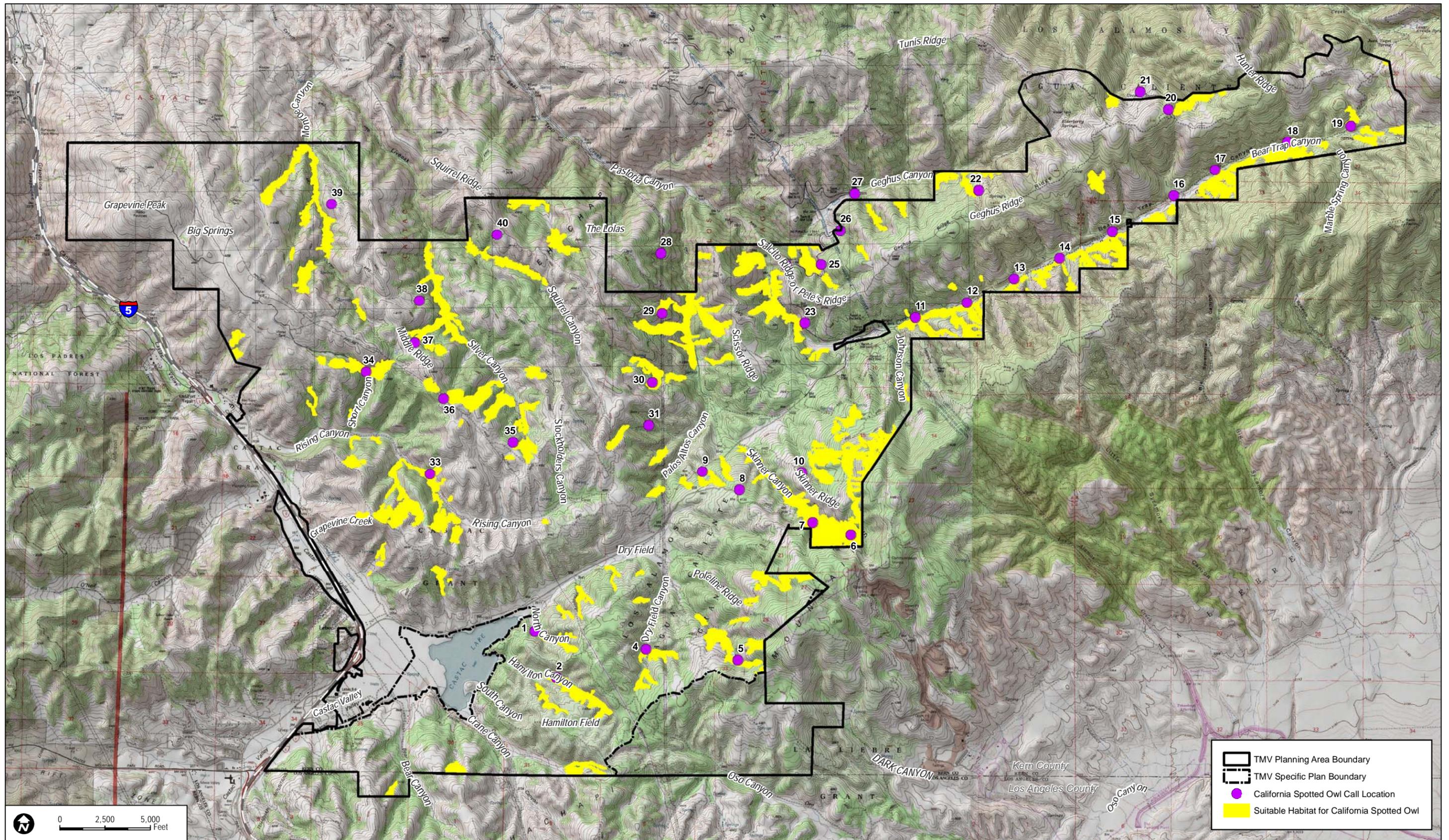
APPENDIX D1, COVERED SPECIES SURVEY METHODS

Table D.1-9. California Spotted Owl Survey Schedule and Conditions

Date	Type of Survey	Visit number	Personnel	Time	Temp . (°F)	Wind (mph)	Weather	Moon Phase
06/20/07	Reproductive survey	2	VAP, SMW	0620–0600	65	0	No precipitation	Half moon - 2 days
07/11/07 to 07/12/07	Presence/absence	5	VAP, SMW	2028–0030	60–65	0–8	No precipitation	—
07/12/07 to 07/13/07	Presence/absence	5	VAP, SMW	2038–0309	60–65	0–10	No precipitation	—
07/19–07/20/07	Reproductive survey	2	VAP, SMW	—	65	0	No precipitation	New moon + 4 days
07/19–07/20/07	Reproductive survey	2	VAP, SMW	2015–2130	65	5	No precipitation	New moon + 4 days
07/24/07	Presence/absence	6	VAP, SMW	2042–2345	60–70	0–3	No precipitation	—
07/31/07	Presence/absence	6	VAP, SMW	2010–2243	65	0–3	No precipitation	—
08/1/07	Presence/absence	6	VAP, SMW	2004–1214	65–70	0–3	No precipitation	—
08/06–08/08/07	Reproductive survey	3	VAP, SMW	—	65	0	No precipitation	Half moon
08/06–08/08/07	Reproductive survey	3	VAP, SMW	—	65	0	No precipitation	Half moon + 2 days
08/13–08/15/07	Reproductive survey	4	VAP, SMW	—	65	0	No precipitation	New moon + 2 days
08/13–08/15/07	Reproductive survey	4	VAP, SMW	1915–2126	75	0	No precipitation	New moon + 2 days
08/13–08/15/07	Reproductive survey	4	VAP, SMW	1951–2055	70	0	No precipitation	New moon

Personnel key:

SMW: Scott M. Werner; VAP: Veronica A. Pedro.



SOURCE: TRC 2007
Dudek 2007]

FIGURE D.1-10
California Spotted Owl Survey Areas

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Nesting Golden Eagle/White-Tailed Kite

Surveys for nesting golden eagles and white-tailed kites within the TMV Planning Area were conducted in conjunction with general nesting raptor surveys. The surveys used methods described by Fuller and Mosher (1987), including (1) early season driving and road surveys to identify nest locations and (2) follow-up driving, road, or pedestrian surveys to identify additional locations and provide nesting success information.

The surveys focused on oak woodland habitats (see Figure D.1-11). Observations were also recorded during other surveys (i.e., riparian bird, marsh bird, and burrowing owl surveys described above). Chaparral habitats were surveyed by road to supplement the oak woodland surveys.

The first survey was conducted early in the nesting period (see Table D.1-10). Surveys were conducted from March 6 through March 30, 2007. Surveys were conducted by Dudek biologists Anita Hayworth, Brock Ortega, Brianna Wood, F. Marcus Obregon, Keith Babcock, Paul Lemons, Rebekah Krebs, Stuart Fraser, Scott Boczkiewicz, Scott Duff, Traci Caddy, and Thomas Liddicoat. In general, most deciduous trees had not leafed out so nests, including golden eagle nests, were very visible during this period. A second set of surveys were conducted during June 4 through July 6, 2007 (see Table D.1-10).

Table D.1-10. Golden Eagle/White-Tailed Kite Survey Schedule and Conditions

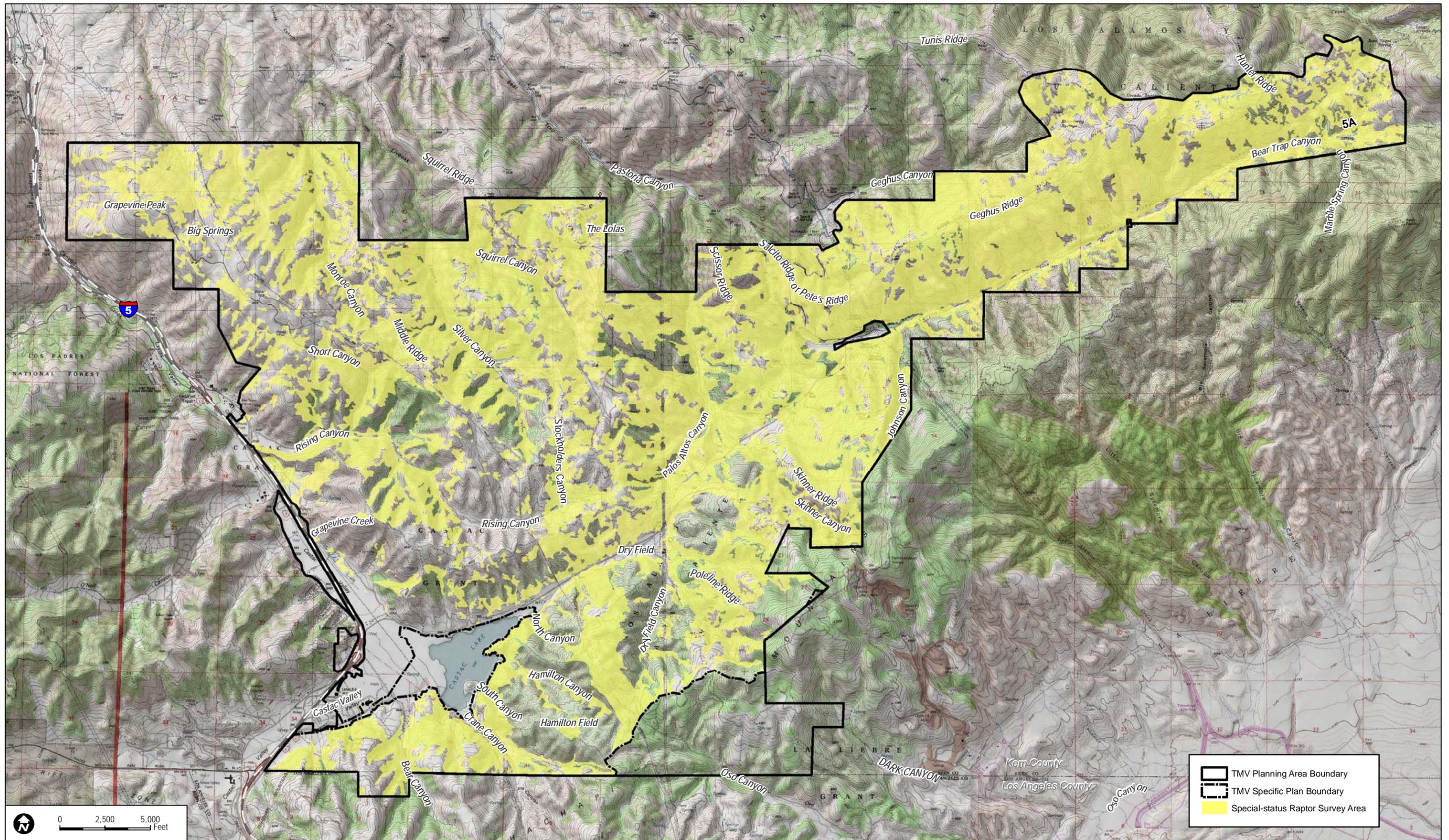
Date	Personnel	Time	Temp. (°F)	Wind (mph)	Cloud Cover (%)
Spring Survey					
03/06/07	SMB, SFF	0845–1700	48	0–3	0
03/07/07	SFF, SMB	0730–1815	46	Not recorded	0
03/08/07	SMB, SFF	0645–1800	58–60	3–5	0
03/12/07	TAC, RMK	0830–1800	58–72	0–4	0
03/13/07	AMH, BMW	0700–1720	42–65	0–3	0
03/13/07	TAC, RMK	0805–1800	55	0–3	0
03/14/07	RMK, TAC	0940–1745	55–63	0–4	0
03/15/07	RMK, TAC	0930–1600	55–62	1–3	0
03/16/07	RMK, TAC	0845–2245	56–58	5–15	0
03/19/07	BAO, RMK	0930–1730	55–65	0–3	0
03/19/07	KWB, KJM	0945–1815	50–60	10–15	0
03/22/07	RMK, TAC	1000–1700	45–68	0–3	0
03/23/07	RMK, TAC	1010–1300	48–70	0–3	0
03/26/07	TAC, RMK	0930–1515	48–68	0–5	0
03/28/07	RMK, TAC	1530–1800	40	5–20	50
03/29/07	SMD, PML	0800–1630	69	1–4	0
03/29/07	TAC, RMK	1430–1710	45–50	Not recorded	0
03/30/07	PML, SMD	0745–1230	48–65	0–5	0
Summer Survey					
06/04/07	TAC	0830–1715	5–80	Not recorded	0
06/05/07	TAC	0930–1700	65–70	5–15	0
06/06/07	TAC	0700–1700	55–65	5–15	0
06/06/07	RMK	0910–1700	65–72	5–20	95
06/07/07	TAC	0700–1700	70–75	1–3	0
06/07/07	RMK	0830–1630	73–78	2–8	0

Table D.1-10. Golden Eagle/White-Tailed Kite Survey Schedule and Conditions

Date	Personnel	Time	Temp. (°F)	Wind (mph)	Cloud Cover (%)
06/12/07	RMK	1200–1925	76–85	3–5	0
06/13/07	RMK	1420–1620	82	5–15	0
06/14/07	RMK	0855–1750	73–84	2–10	0
06/15/07	RMK	0900–1200	75–85	0–5	0
06/21/07	RMK	0925–1630	78–83	5–20	0
06/26/07	RMK	0910–1130	77–82	3–5	0
06/27/07	RMK, TSL	0830–1430	77–81	2–10	0
06/28/07	RMK, TSL	0840–2045	70–78	3–25	0
06/29/07	RMK, TSL	0820–1120	74	3–5	0
07/05/07	RMK	0900–1900	79–85	2–5	0
07/06/07	RMK, FMO	0825–1915	78–93	0–20	0

Personnel key:

AMH: Anita Hayworth; BAO: Brock Ortega; BMW: Brianna Wood; FMO: F. Marcus Obregon; KJM: Kam Muri; KWB: Keith Babcock; PML: Paul Lemons; RMK: Rebekah Krebs; SFF: Stuart Fraser; SMB: Scott Boczkiewicz; SMD: Scott Duff; TAC: Traci Caddy; TSL: Thomas Liddicoat.



SOURCE: TRC 2007
Dudek 2007f

FIGURE D.1-11
Special-status Raptor Survey Areas

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Teams of two biologists conducted the spring surveys, and single observers conducted the summer surveys. Stops were made at intervals ranging between 1,000 and 1,500 ft to scan the landscape for raptors or nest locations. Each stop lasted approximately 5 minutes and binoculars (10 × 50 mm and 8 × 32 mm power) and spotting scopes (Nikon 15×–60× and Bushnell 20×–60× magnification) were used. The interval between stops varied with the size of the applicable habitat patch and the ability to scan the patch based on topography. All areas of woodland vegetation were visited or visually scanned with binoculars. Trees, fence lines, rock outcrops, and ground sites were searched for direct observation or evidence of raptor nesting, including direct observation of a nest or whitewash, feathers, and prey debris. The surveys were conducted during periods without persistent precipitation or fog and when wind speeds were less than 15 mph.

Northern Goshawk

The current survey protocol for the northern goshawk was developed by the USFS (2000). There is no USFWS survey protocol for this species. Although the TMV project site is not within the breeding range of this species, it was recorded for the site and the breeding range is located nearby (Squires and Reynolds 1997). Focused surveys for northern goshawk were conducted by Dudek biologists within suitable habitat on site, including canyon live oak forest typically characterized as montane riparian deciduous forest and mixed hardwood forest. There is very little conifer forest located on site. A total of 2,240 ac. of suitable northern goshawk habitat on site was surveyed (see Figure D.1-12).

Dawn acoustic surveys based on detection of courtship vocalizations and flight displays of goshawks at nest sites were conducted to survey for the species. Listening stations in close proximity to patches of suitable habitat were established, and 1.5-hour listening periods were conducted at dawn or within early morning hours during the early part of the breeding season. The USFS protocol indicates that two surveys are required and a third is recommended if the results of the first two surveys are negative. The surveyor arrived at each listening station 45 minutes before sunrise and remained for a total of 1.5 hours. Dudek biologists conducted the surveys from March through April 2007 in accordance with the USFS protocol (see Table 4.1-11).

Table 4.1-11. Northern Goshawk Survey Schedule and Conditions

Date	Personnel	Time	Temp. (°F)	Wind (mph)	Cloud Cover (%)
03/14/07	TAC, RMK	0715–0940	55–63	0–4	0
03/15/07	TAC, RMK	0815–0930	55–62	1–3	0
03/16/07	TAC, RMK	0800–0842	56–58	5–15	0
03/19/07	BAO, RMK	0800–0930	55–65	0–3	0
03/20/07	BAO, RMK	0751–0940	41–55	NR	100
03/22/07	TAC, RMK	0745–1000	45–68	0–3	0
03/23/07	TAC, RMK	0850–1010	48–70	0–5	0
03/26/07	TAC, RMK	0850–0929	48–68	0–5	0
03/27/07	TAC, RMK	0910–0920	35	NR	0
03/28/07	TAC, RMK	0826–0946	40	10–15	0
04/04/07	RMK, TSL	0742–1100	60	0–1	100
04/11/07	TAC	0745–0940	55–60	0–5	0
04/13/07	TAC	0750–0904	55–60	NR	0
04/17/07	TAC	0818–0907	50–55	NR	0
04/18/07	TAC	0900–0950	30–35	5–15	100
04/19/07	TAC	0819–1000	50–55	NR	0

Personnel key:

BAO: Brock Ortega; TAC: Traci Caddy; RMK: Rebekah Krebs; TSL: Thomas Liddicoat.

NR = Not recorded

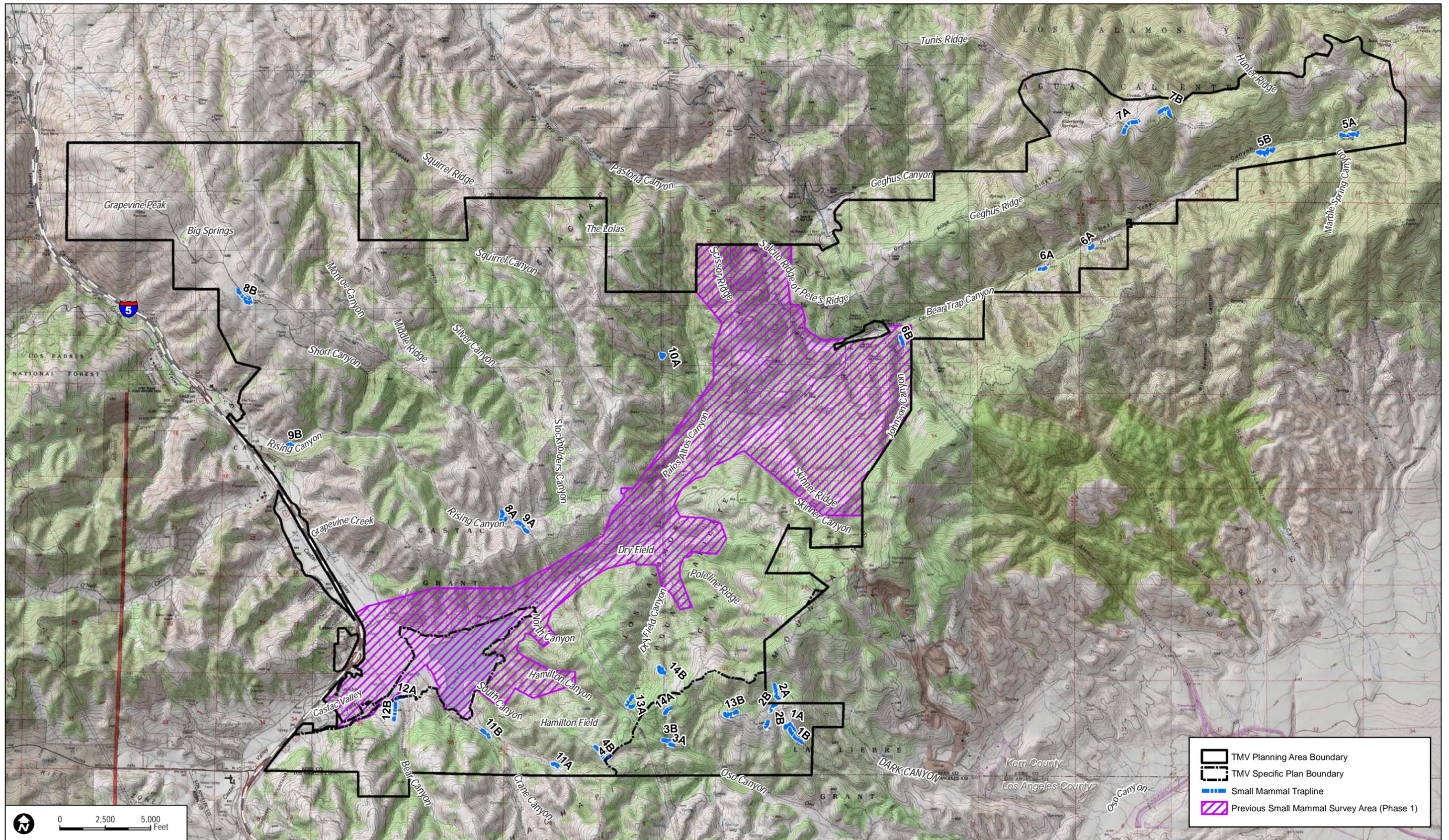
Purple Martin

There is no established protocol survey methodology for purple martin. Surveys for purple martin were primarily conducted in conjunction with surveys for golden eagle, white-tailed kite, and northern goshawk, as described above, because purple martins nest in similar habitats and would be observed during the period the nesting raptors surveys were conducted. Purple martins may also use riparian habitat, and the focused surveys conducted for riparian bird species described above also would have resulted in detections of purple martin if this species were nesting in on-site riparian habitats. Biologists were attentive to birds in flight and bird calls and surveys were on foot, so overall habitat coverage was very good. In addition, with the raptor surveys, the biologists were searching oak trees for nesting raptors, so nesting activity of other bird species was also noted. Purple martins also tend to nest in colonies or clusters, so several adults entering and emerging from nesting areas (e.g., snags, broken tree tops) are easily detected.

Wintering Birds

Suitable habitat and winter arrival information for wintering bird species was determined by reviewing published literature (Zeiner et al. 1990a; Garrett and Dunn 1981; Poole 2005). The areas determined to be suitable habitat for special-status wintering birds are identified in Figure D.1-13. Note that wintering bald eagle surveys are addressed separately above.

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	TMV Planning Area Boundary
	TMV Specific Plan Boundary
	Small Mammal Trapline
	Previous Small Mammal Survey Area (Phase 1)

SOURCE: TRC 2007
J&S 2006, 2008a

FIGURE D.1-13
Special-status Small Mammal Survey Locations

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Wintering bird surveys were conducted during November 14 to 16, 2006. Teams of two surveyors conducted road/driving surveys according to accepted methods (Ethier n.d.). All roads that pass through or near the suitable habitat for these species were traversed at approximately 10 mph and no faster than 25 mph. The route traveled was recorded, and at intervals of approximately 1,000 to 1,500 ft, the surveyors stopped to search for special-status species. The stops generally lasted for approximately 5 minutes, and binoculars (10 × 50 mm and 8 × 32 mm power) and spotting scopes (Nikon 15×–60× and Bushnell 20×–60× magnification) were used. The survey schedule and conditions are summarized in Table D.1-12.

Table D.1-12. Wintering Bird Survey Schedule

Date	Personnel	Time	Air Temp. (°F)	Wind (mph)	Cloud Cover (%)
11/14/06	RMK, JDP	1000–1517	57–59	2–5	0
11/14/06	KJM, PML	1000–1700	51–55	5–10	10–100
11/14/06	BAO, SLT	1015–1700	51–55	3–5	100
11/15/06	BAO, SLT	0730–1300	50–65	0–1	0
11/15/06	RMK, JDP	0730–1700	57–59	1–5	2–5
11/15/06	KJM, SFF	0745–1700	57–58	2–5	0
11/15/06	TSL, PML	0800–1715	58–62	5–10	2
11/16/06	TSL, PML	0745–1200	58–73	0–2	5
11/16/06	RMK, JDP	0815–1710	53–58	3–4	0
11/16/06	KJM, SFF	0830–1200	58–73	1–3	0–5

Personnel key:

RMK: Rebekah Krebs; JDP: Jeff Priest; KJM: Kam Muri; PML: Paul Lemons; BAO: Brock Ortega; SLT: Sara Townsend; SFF: Stuart Fraser; TSL: Thomas Liddicoat.

1.6 SPECIAL-STATUS MAMMALS

1.6.1 RESERVED

1.6.2 SPECIAL-STATUS SMALL MAMMALS

Focused small mammal trapping was conducted by Compliance Biology in 2003 over an approximately 4,500 ac. portion of the TMV Planning Area (Compliance Biology 2003) and at additional locations in 2007 (J&S 2008a). The surveys were conducted within suitable habitats for the species (e.g., chaparral and sagebrush habitats at lower elevations and open pine forests at higher elevations for Tehachapi pocket mouse).

Survey Methods

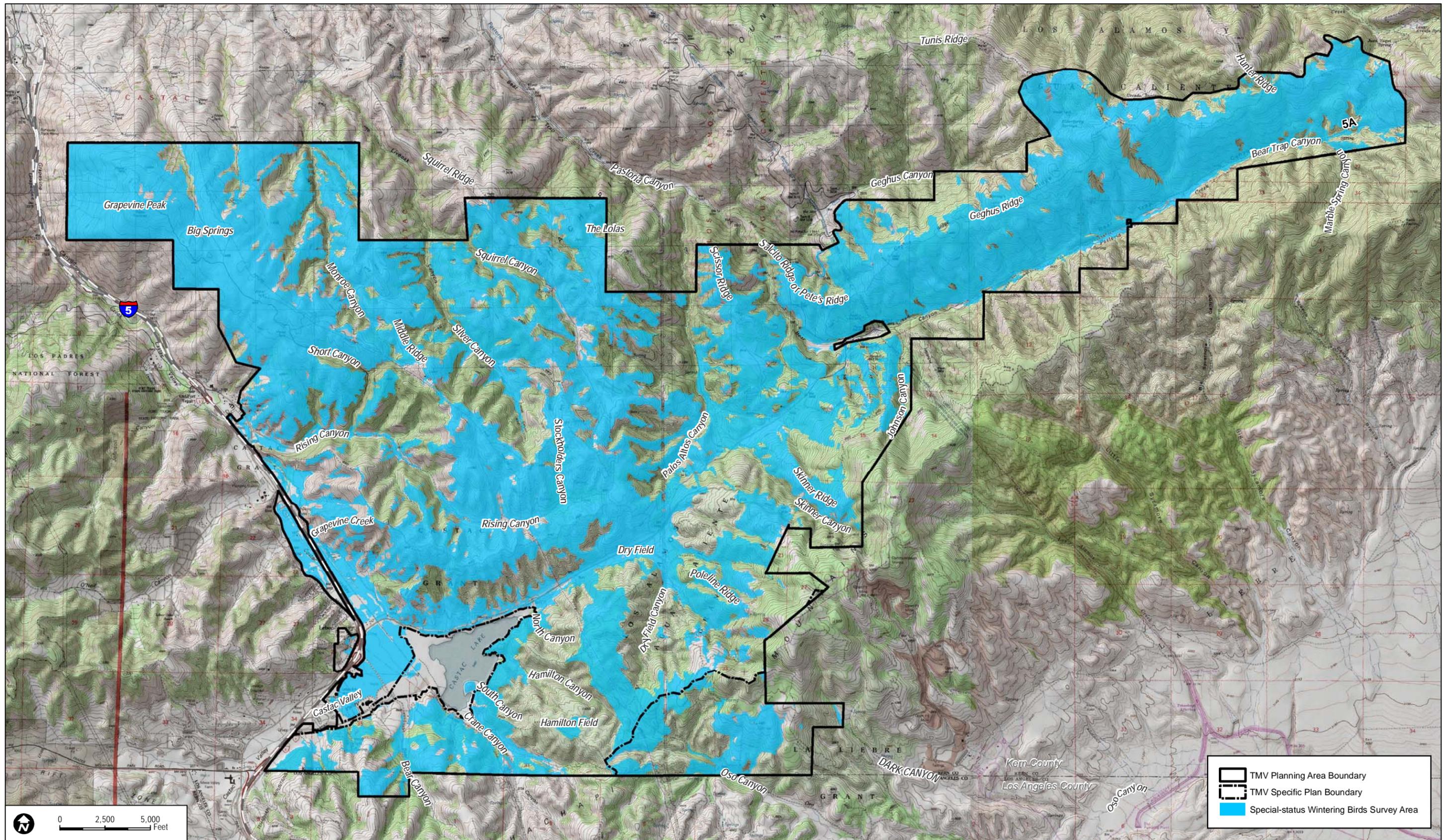
Prior to conducting field studies, relevant literature resources were reviewed, including the results of prior small mammal surveys conducted within the TMV Planning Area.

Following the literature reviews, a reconnaissance-level survey to select trapline transects was completed on May 16 and May 17, 2007. Trapline locations were selected to sample the

representative vegetation communities in the survey area. The target species generally inhabit more xeric habitats and a majority of the traplines were located in the drier southern portion of the study area where such habitats occur (see Figure D.1-15).

Small Mammal Survey Methodology

Table D.1-14 summarizes the dates and conditions when small mammal surveys were conducted during July and August 2007. Figure D.1-15 shows special-status small mammal survey locations. Fifty 9 in. long aluminum folding Sherman traps were placed along each trapline at approximately 10 to 15 m intervals. The traps were set and placed where small rodent captures were judged to be most probable on the basis of burrows, droppings, trails, and other signs of occupancy. Where rodent sign was not apparent, traps were placed near the base of shrubs or near downed woody material. The location of each trap was recorded using a Garmin Etrex handheld GPS unit (accurate to approximately 3 m). The GPS data were downloaded and imported into GIS. A mixture of birdseed and dried ferret food was used as bait. A small handful of the bait was placed inside the trap with a few seeds trailing out from the mouth of the trap, usually toward a game trail, burrow, or open area. All traps were modified with the addition of a binder clip on the lip of the trap body to prevent the doors from closing on the animals' tails. Each trapline was run for 4 consecutive nights. The traps were set and baited in late afternoon, left open all night, and checked and closed at dawn. The time and weather conditions were noted at the beginning and end of each trapline check. The sex and reproductive condition of each animal was recorded (i.e., testes scrotal or not scrotal, female reproductive or non-reproductive). Representative digital photos were taken of all species captured on each trapline. Once the data were recorded onto data sheets, each animal was released where it had been captured. Released animals were observed until they moved to the safety of a burrow or clump of vegetation. Table D.1-15 lists small mammal survey biologists.



SOURCE: TRC 2007
Dudek 2006

FIGURE D.1-15
Special-status Wintering Bird Survey Areas

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Table D.1-14. Locations, Survey Date and Time, and Weather Conditions for Small Mammal Surveys

Trap Line	Date and Time	Weather Conditions
7A	06/12/07, 0415–0441	53°F, winds 2–7 mph, clear skies
7B	06/12/07, 0450–0528	53°F, calm, clear skies
5A	06/12/07, 0553–0631	62°F, winds 1–2 mph, clear skies
5B	06/12/07, 0645–0658	55°F, winds 0–2 mph, clear skies
7A	06/13/07, 0415–0436	60°F, winds 4–7mph, clear skies
7B	06/13/07, 0452–0513	60°F, winds 1–4 mph, clear skies
5A	06/13/07, 0538–0610	58.5°F, winds 1–2 mph, clear skies
5B	06/13/07, 0623–0640	58°F, winds 1–3 mph, clear skies
7A	06/14/07, 0410–0440	63°F, winds 4–10 mph, clear skies
7B	06/14/07, 0445–0515	66°F, winds 1–4 mph, clear skies
5A	06/14/07, 0538–0606	57°F, winds 0–2 mph, clear skies
5B	06/14/07, 0622–0635	58°F, calm, clear skies
7A	06/15/07, 0410–0450	66°F, winds 5–10 mph, clear skies
7B	06/15/07, 0505–0540	65°F, winds 1–5 mph, clear skies
5A	06/15/07, 0604–0643	60.5°F, calm, clear skies
5B	06/15/07, 0659–0722	62°F, calm, clear skies
1A	6/26/07	63 F, winds 10-14 mph, clear skies
1B	6/26/07	63 F, winds 10-14 mph, clear skies
2A	6/26/07	62.5 F, winds 5-9 mph, clear skies
2B	6/26/07	63 F, winds 3-12 mph, clear skies
1A	6/27/07	61 F, winds 7-14 mph, clear skies
1B	6/27/07	61 F, winds 5-14 mph, clear skies
2A	6/27/07	64 F, winds 1-8 mph, clear skies
2B	6/27/07	61 F, winds 5-14 mph, clear skies
1A	6/28/07	57 F, winds 10-25 mph, clear skies
1B	6/28/07	57 F, winds 15-25 mph, clear skies
2A	6/28/07	60 F, winds 5-15 mph, clear skies
2B	6/28/07	58 F, winds 10-20 mph, clear skies
1A	6/29/07	56 F, winds 10-25 mph, clear skies
1B	6/29/07	56 F, winds 8-15 mph, clear skies
2A	6/29/07	59 F, winds 8-12 mph, clear skies
2B	6/29/07	55 F, winds 5-17 mph, clear skies
10A	07/10/07, 0400–0438	71°F, winds 1 mph, cloudy
6A	07/10/07, 0515–0540	62°F, calm, partly cloudy
6B	07/10/07, 0550–0615	67°F, calm, partly cloudy
10A	07/11/07, 0352–0428	67°F, winds 1 mph, clear skies
6A	07/11/07, 0510–0538	58°F, winds 2 mph, clear skies
6B	07/11/07, 0548–0620	63°F, calm, clear skies
10A	07/12/07, 0341–0418	66°F, winds 1.5 mph, clear skies
6A	07/12/07, 0452–0522	54°F, winds 2 mph, clear skies
6B	07/12/07, 0533–0558	51°F, winds 1.5 mph, clear skies

Table D.1-14. Locations, Survey Date and Time, and Weather Conditions for Small Mammal Surveys

Trap Line	Date and Time	Weather Conditions
10A	07/13/07, 0350–0449	60°F, winds 1.5 mph, clear skies
6A	07/13/07, 0521–0612	54°F, winds 1 mph, clear skies
6B	07/13/07, 0622–0702	55°F, winds 2 mph, clear skies
3A	07/17/07	58 F, WINDS 6-7 MPH, CLEAR SKIES
3B	07/17/07	59 F, winds 6 mph, clear skies
4A	07/17/07, 0543–0607	59°F, winds 1 mph, clear skies
4B	07/17/07, 0608–0630	61°F, winds 0.5 mph, clear skies
3A	07/18/07	60 F, WINDS 5-8 MPH, CLEAR SKIES
3B	07/18/07	60 F, winds 3-5 mph, clear skies
4A	07/18/07, 0529–0547	53°F, winds 1.5 mph, clear skies
4B	07/18/07, 0550–0615	57°F, winds 0.5 mph, clear skies
3A	07/19/07	58 F, WINDS 5 MPH, CLOUDY
3B	07/19/07	58.5 F, winds 5 mph, cloudy
4A	07/19/07, 0540–0600	54°F, winds 1.5 mph, cloudy
4B	07/19/07, 0516–0540	55°F, winds 1.5 mph, cloudy
3A	07/20/07	61 F, WINDS 2-5 MPH, CLEAR SKIES
3B	07/20/07	57 F, winds 2-5 mph, clear skies
4A	07/20/07, 0634–0702	56.5°F, winds 0.5 mph, clear skies
4B	07/20/07, 0550–0630	54°F, winds 3–6 mph, clear skies
11A	07/24/07, 0328–0352	67°F, winds 2.5 mph, clear skies
11B	07/24/07, 0400–0418	67°F, winds 2 mph, clear skies
12A	07/24/07, 0427–0508	66°F, winds 0.5 mph, clear skies
12B	07/24/07, 0513–0539	66°F, winds 0.5 mph, clear skies
11A	07/25/07, 0345–0359	71°F, winds 1 mph, clear skies
11B	07/25/07, 0404–0425	64°F, calm, clear skies
12A	07/25/07, 0434–0511	60°F, winds 1 mph, clear skies
12B	07/25/07, 0512–0534	60°F, winds 0.5 mph, clear skies
11A	07/26/07, 0340–0359	59°F, calm, clear skies
11B	07/26/07, 0411–0437	55°F, winds 0.8 mph, clear skies
12A	07/26/07, 0448–0549	54°F, winds 0.3 mph, clear skies
12B	07/26/07, 0550–0615	54°F, calm, clear skies
11A	07/27/07, 0346–0416	61.5°F, winds 1–2.8 mph, clear skies
11B	07/27/07, 0432–0508	58°F, calm, clear skies
12A	07/27/07, 0521–0612	61°F, calm, clear skies
12B	07/27/07, 0615–0656	61°F, calm, clear skies
8A	07/31/07, 0413–0443	66°F, winds 1.5 mph, clear skies
8B	07/31/07, 0502–0537	67°F, winds 0.6 mph, clear skies
9A	07/31/07, 0338–0401	66°F, winds 0.8 mph, clear skies
9B	07/31/07, 0600–0630	64°F, winds 0.8 mph, clear skies
8A	08/01/07, 0420–0450	58°F, winds 3–4 mph, clear skies
8B	08/01/07, 0509–0530	66°F, winds 2–3 mph, clear skies
9A	08/01/07, 0340–0405	59°F, winds 0.9 mph, clear skies

Table D.1-14. Locations, Survey Date and Time, and Weather Conditions for Small Mammal Surveys

Trap Line	Date and Time	Weather Conditions
9B	08/01/07, 0546–0632	63°F, wind 0.9–1.6 mph, clear skies
8A	08/02/07, 0420–0450	58°F, winds 1–4 mph, clear skies
8B	08/02/07, 0512–0527	61.3°F, winds 0–1 mph, clear skies
9A	08/02/07, 0343–0415	59.7°F, winds 0–1 mph, clear skies
9B	08/02/07, 0544–0618	65°F, calm, clear skies
8A	08/03/07, 0440–0518	59°F, winds 1–3 mph, clear skies
8B	08/03/07, 0540–0558	64°F, winds 0–1 mph, clear skies
9A	08/03/07, 0344–0430	63°F, winds 1–3 mph, clear skies
9B	08/03/07, 0612–0718	67°F, winds 1–2 mph, clear skies
13A	08/07/07, 0639–0707	52°F, winds 0–2 mph, clear skies
13B	08/07/07	52.5 F, winds 5-15 mph, clear skies
14A	08/07/07	51.7 F, WINDS 4-8 MPH, CLEAR SKIES
14B	08/07/07, 0600–0613	52°F, winds 1–3 mph, clear skies
13A	08/08/07, 0710–0727	55.8°F, winds 1–3 mph, clear skies
13B	08/08/07	55 F, winds 9-16 mph, clear skies
14A	08/08/07	53.8 F, WINDS 6-10 MPH, CLEAR SKIES
14B	08/08/07, 0624–0701	55.9°F, winds 1–2 mph, clear skies
13A	08/09/07, 0655–0714	59.5°F, winds 0–1 mph, clear skies
13B	08/09/07	59.5 F, winds 1-5 mph, clear skies
14A	08/09/07	57.5 F, WINDS 3-5 MPH, CLEAR SKIES
14B	08/09/07, 0609–0648	57.2°F, winds 0–2 mph, clear skies
13A	08/10/07, 0647–0707	60°F, calm, clear skies
13B	08/10/07	63.7 F, winds 9-12 mph, clear skies
14A	08/10/07	62 F, WINDS 5-7 MPH, CLEAR SKIES
14B	08/10/07, 0548–0636	63°F, winds 1–3 mph, clear skies

Table D.1-15. Small Mammal Survey Biologists

Biologist
Will Kohn,
Phil Richards
Erin Hitchcock
Kara Martinusen

1.7 SURVEY ANALYSIS FACTORS

Diurnal and Nocturnal Survey Factors. The majority of the surveys were conducted during the daytime to maximize the detection of most animals. Birds represent the largest component of the vertebrate fauna, and, because most birds are active in the daytime, diurnal surveys maximize the number of observations of this portion of the fauna. Daytime surveys may result in fewer observations of animals that are more active at night. To address this potential factor, nocturnal

focused surveys were conducted for nocturnally active special-status species that potentially occur on site, including ringtail and Tehachapi pocket mouse.

Reptiles and Amphibian Survey Factors. Reptiles and amphibians are secretive in their habits and are difficult to observe using standard meandering transects. Trapping was not considered to be effective for the Covered Species reptiles or amphibians. To account for survey difficulties, the Covered Species reptiles that could occur, based on pertinent distribution and habitat preference literature and recorded observations, are assumed to be present on the Covered Lands within modeled suitable habitat.

Roadway Access and Special-Status Breeding Raptor Survey Factors. Due to weather-related dirt roadway access limitations, the special-status breeding raptor surveys did not begin until March. Some of the target species may have begun nesting at an earlier time. Most trees in survey areas had not leafed out when raptor surveys began, and raptor nests were very visible to the surveyors. The second combined road and walking survey focused on areas that could not be covered thoroughly during the first pass, did not have roads within adequate detection distance, or for which an observation was made but no nest was found. The two surveys collectively provide an adequate assessment of special-status breeding raptors within the TMV Planning Area.

2.0 SPECIAL-STATUS PLANTS

Special-status plant surveys were conducted to determine the presence or absence of plant species that are considered endangered, rare, or threatened under California Environmental Quality Act (CEQA) Guideline 15380 (14 CCR 15000 et seq.). Endangered and threatened plant species are recognized in the context of CESA and FESA. Endangered, rare, or threatened plants, as defined in CEQA Guideline 15380(b) (14 CCR 15000 et seq.), are referred to as “special-status plant species” in this report. Special-status plants, in the context of CEQA (California Public Resources Code, Section 21000 et seq.), are defined and described in terms of local, state, and federal plans, regulations, or policies.

CDFG recognizes that plants on Lists 1A, 1B, and 2, as well as some on List 3, of the *California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants in California* (CNPS 2008), may meet the criteria for listing as threatened or endangered and should be considered as special-status plants under CEQA (CDFG 2008c).

The primary goal of the special-status plant surveys was to determine the presence or absence of federally or state-listed species and CNPS Lists 1A, 1B, 2, and 3 species. The presence of all CNPS List 4 species was documented even if the species were not considered locally rare. A previously undescribed species, Tehachapi buckwheat (*Eriogonum callistum*), was included during the focused special-status plant surveys because this species is known only from a few scattered locations in the Tehachapi Mountains in Kern County (Reveal 2006).

The following sections describe the methods used to survey for special-status plant species within the TMV Planning Area.

2.1 PREVIOUS ON-SITE BOTANICAL SURVEYS

Vollmar Consulting conducted floristic surveys in 2003 and 2004. The surveys covered approximately 4,500 ac. within the TMV Planning Area. J&S conducted floristic surveys in 2005 and 2006 that included the previously surveyed areas and additional portions of the TMV Planning Area. Data collected prior to 2007 were used to prepare a target list of special-status plant species that could potentially occur within the TMV Planning Area for comprehensive, sitewide surveys conducted in 2007. The data collected from these earlier surveys were also mapped on field maps used during the 2007 survey, as described below.

2.2 LITERATURE REVIEW

Dudek identified special-status botanical resources present or potentially present within the TMV Planning Area through a literature review using print and digital sources and through consultation with botanists at J&S, Dudek, and staff at TRC.

Dudek botanists also reviewed the species lists compiled by J&S and Vollmar Consulting (Vollmar Consulting 2004; J&S 2006) during a 4-year period from 2003 to 2006 to develop the project-specific list of special-status plants to address during surveys and evaluate in this technical report. Dudek also mapped and evaluated special-status plant species from the CNDDDB (CDFG 2008b) and their potential to occur on the TMV Planning Area.

Dudek reviewed the online version of the *CNPS Inventory of Rare and Endangered Plants* (CNPS 2008) and conducted a CNPS nine-quad search. Dudek conducted the search for the six USGS 7.5-minute quadrangle (quad) maps in which TMV is located: Lebec, Pastoria Creek, Frazier Mountain, Grapevine, Winters Ridge, and La Liebre Ranch. Each of these quads was used to run the CNPS nine-quad search and results were combined into one comprehensive list. The nine-quad search provides special-status plant species, as defined by CNPS, which are known to occur in the focus quad and the eight quads surrounding the focus quad. Only CNPS List 1, 2, and 3 plant species are included in this nine-quad search. Dudek then conducted a search for CNPS List 4 species listed for Kern County that may occur within the TMV Planning Area, based on habitat, soil, and elevation preferences.

Dudek also reviewed *Vascular Flora of the Liebre Mountains, Western Transverse Ranges, California* (Boyd 1999), which lists special-status species occurring in the Liebre Mountains, located approximately 25 mi. south of the TMV Planning Area. The plant species listed in this flora (Boyd 1999) were addressed during surveys and are evaluated in this technical report. Dudek determined the species' potential to occur within the TMV Planning Area, based on their known distribution, habitat preference, and/or elevation range.

This research resulted in a project-specific list of special-status plants that could occur within the TMV Planning Area. The list was used to conduct the special-status plant surveys. All field biologists had a copy of the potential occurrence list of target species during surveys in 2007. Three additional species were added to the CNPS inventory after surveys began.

Dudek determined the potential for an individual species to occur within the TMV Planning Area based on a review of habitat, soils, and elevation preferences, as well as geographic distribution of the species. The *Soil Survey of Kern County, California, Southeastern Part* (Valverde and Hill 1981) was reviewed to determine the location of soils that indicate potential habitat for some special-status plant species, particularly those that are edaphically restricted. Elevation ranges within the TMV Planning Area were calculated from the DTM created in 2006 (Intermap Technologies 2005) and were compared to known elevation ranges for the potentially occurring special-status plant species.

A species was not expected to occur when there was a convergence of the aforementioned factors indicating that the species would not occur on site. For example, if a plant occurs at elevations significantly below 2,600 ft above mean sea level (amsl) or significantly above 5,400

ft amsl, which is the elevation range of the TMV Planning Area, and suitable habitat for the species is not present within the TMV Planning Area, the species was considered unlikely to occur on the site. Also, species were not expected to occur when the known distribution is clearly outside the TMV Planning Area's geographic range, such as Mexican flannelbush (*Fremontodendron mexicanum*), which is restricted to a few sites in San Diego County and Baja California.

2.3 SURVEY PREPARATION

Because the special-status plant surveys involved a concerted effort on the part of a large team of botanists over the course of several months, Dudek created detailed documentation on the survey protocol for staff to use during surveys. Information in the protocol packet included:

- Special-status species information (e.g., photos, Jepson pages)
- Survey protocols (e.g., GPS procedures, population sampling methods)
- Species lists from prior surveys
- Maps showing soils, geology, slopes, roads, fire history, and potential suitable habitat for potentially occurring plant species to provide botanists with appropriate environmental information that could affect species abundance and distribution (see below).

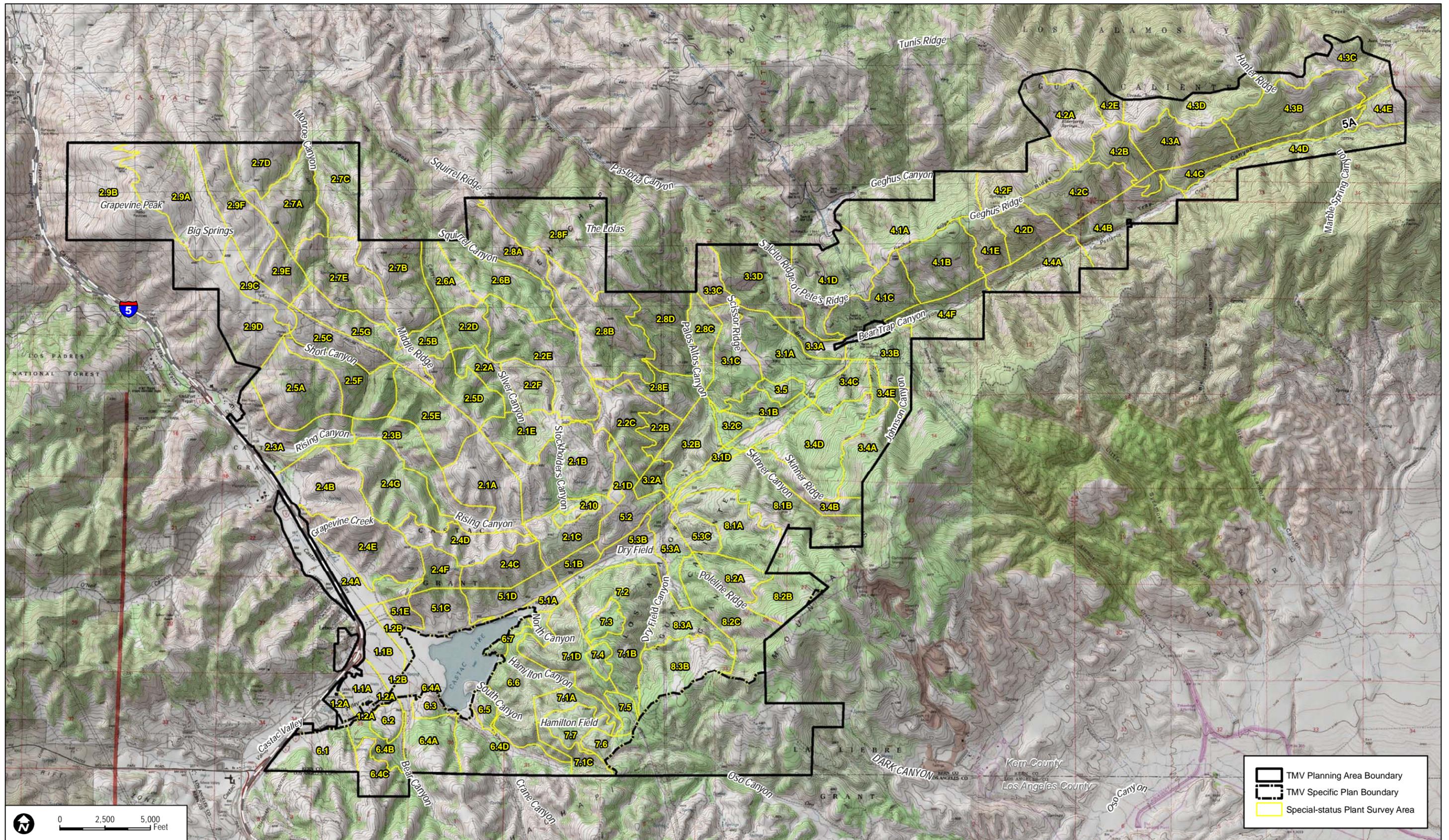
To ensure consistency among surveying botanists, Dudek organized and conducted an orientation meeting for botanists conducting special-status plant surveys. Botanists from J&S, Harmsworth and Associates, FLx, the University of California Riverside Herbarium, and Dudek formed the botanical team. Generally, teams were divided into groups of two, with one lead botanist and one support botanist working together.

Each group was assigned survey areas to cover. Survey areas were based on the phasing plan boundaries developed for the TMV project in early 2007. Some of these phasing plan boundaries were more than 1,000 ac. To provide a manageable tracking system and ensure adequate coverage for all areas within the TMV Planning Area, larger phasing areas were further divided, generating survey areas of between 5 and 530 ac. in size; the majority of the survey areas were between 100 and 200 ac. A total of 132 survey areas were created to efficiently manage botanists and data. Figure D.1-16 shows the survey areas used for the special-status plant surveys in 2007.

Dudek reviewed Twisselmann (1967), Boyd (1999), Hickman (1996), CDFG (2008b), CNPS (2008), and relevant scientific articles about the special-status plant species potentially occurring in the TMV Planning Area to better understand their vegetation, soil, microhabitat (e.g., slope and aspect), and elevation range requirements. Dudek used this information to determine which

species were expected to occur on site and to map the location of the most suitable habitat for species that were expected to occur on site and that are CNPS List 1 or 2 species.

Field biologists used these data during surveys in much the same way as aerial photos or other map products to determine where there is the highest probability of encountering these CNPS List 1 and 2 special-status plants. Comprehensive special-status plant surveys were conducted across the entire TMV Planning Area and were not limited by the habitat suitability maps to ensure that the potential occurrence of CNPS List 3 and 4 species was adequately covered during surveys.



SOURCE: TRC 2007
Dudek 2007k

Final Tehachapi Uplands MSHCP - Appendix D

FIGURE D.1-16
Special-status Plant Survey Areas

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2.4 REFERENCE POPULATION CHECKS

Plant species bloom at slightly different times each year depending on temperature, rainfall patterns, elevation, and other environmental factors. Reference population checks involve locating known populations of special-status plant species during a time frame when they are known to be blooming or exhibit other phenological characteristics that allow for species identification. Observations of reference populations during peak phenology provide assurance that these species would be identifiable if they were within the TMV Planning Area.

In early April 2006, Dudek staff conducted reference population checks for all potential federally or state-listed species and many of the CNPS List 1B species that could occur on the site and that were at peak phenology. Reference populations for other species were also noted during this analysis. Data gathered from the reference population checks were used to determine the appropriate time to begin field surveys.

2.5 FIELD SURVEY SCHEDULE

The botanical team conducted two passes of field surveys on the TMV Planning Area, plus a focused species survey in July and September for San Bernardino aster (*Symphotrichum defoliatum*) and Greata’s aster (*S. [Aster] greatae*), which are late-blooming species in the aster family (*Asteraceae*). The target plant species were grouped based on their blooming period to determine which groups of plants could be observed at the same time. This analysis concluded that all target species could be surveyed from mid-April through May (Pass 1) and in June (Pass 2). The asters bloom from July to November; therefore, Dudek surveyed for these species in mid-July and mid-September within the suitable habitat for San Bernardino aster and Greata’s aster. Table D.1-16 lists survey dates, personnel, times, and weather conditions. The botanical survey team spent a total of 748 person-days (approximately 7,476 hours) conducting focused surveys for special-status plants.

Table D.1-16. Special-Status Plant Survey Schedule

Date	Personnel	Specific Task	Hours	Weather
04/09/07	Dudek: MSE, MLB, MNM	Reference population checks	0830–1800	Sunny, strong winds. 10% cloud cover.
04/10/07	Dudek: MSE, MLB	Reference population checks	0815–1615	Sunny, 60°F to 65°F. Light winds.
04/16/07	Dudek: MSE, MNM	Reference population checks	0745–1200	Sunny, clear skies, 60°F–75°F. 0–3 mph winds.

Table D.1-16. Special-Status Plant Survey Schedule

Date	Personnel	Specific Task	Hours	Weather
04/16/07	Dudek: MSE, MLB, MNM, PCS, CJF, JSH, DWS Subs: KAB, RAR, MJW, KWD, BDS, CJS, NDG, AKP, JPG, MML	Reference population checks, Pass 1	0745–1800	Sunny, clear skies, 60°F–75°F. 0–3 mph winds.
04/17/07	Dudek: MLB, DWS, JSH, PCS, CJF Subs: KAB, RAR, MJW, KWD, BDS, CJS, NDG, AKP, JPG, MML, BDH	Pass 1	0730–1800	Sunny, 60°F–70°F. Winds 10–15 mph.
04/18/07	Dudek: MLB, DWS, JSH, PCS, CJF Subs: KAB, RAR, MJW, KWD, BDS, CJS, NDG, AKP, DLK, JGD	Pass 1	0730–1630	Cold, 20°F–40°F. Windy, 10–40 mph.
04/19/07	Dudek: DWS, JSH, MLB Subs: KAB, RAR, MJW, KWD, BDS, CJS, NDG, AKP	Pass 1	0930–1700	Cool, mostly sunny. 50°F to 70°F. Overcast and windy at end of day.
04/22/07	Subs: BDH, FEC	Pass 1	1015–1600	Rainy, cold. Medium visibility.
04/23/07	Dudek: SMB, MLB, DWS, JRJ Subs: NDG, AKP, FEC, BDH	Pass 1	0830–1830	Slightly rainy and foggy in the morning, 50°F. Variable cloud cover throughout the day.
04/24/07	Dudek: SMB, DWS, JRJ, MLB Subs: BAP, REP, JLC, KMK, CJS, NDG, AKP, FEC, BDH	Pass 1	0800–1725	Sunny and clear, 58°F–70°F. Light breeze.
04/25/07	Dudek: SMB, DWS, JRJ, MLB Subs: BAP, REP, JLC, KMK, KWD, CJS, NDG, AKP, FEC, BDH	Pass 1	0815–1900	Clear, sunny, 60°F–75°F. Light breeze.
04/26/07	Dudek: SMB, DWS, JRJ Subs: BAP, REP, JLC, KMK, KWD, CJS, NDG, AKP, RBH, JGD, FEC, MML	Pass 1	0800–1830	Clear, sunny, cool, 55°F–70°F. Light winds.
04/27/07	Subs: BAP, REP, JLC, KMK, KWD, CJS, NDG, AKP, RBH, JGD, FEC, MML	Pass 1	0730–1945	Clear, sunny, calm. 55°F–75°F.
04/28/07	Subs: NDG, AKP	Pass 1	0830–1630	Clear, sunny, calm. 65°F–75°F.
04/30/07	Dudek: JSH, MLB, DWS, ELL, TBS	Pass 1	0800–2000	Mostly sunny, 70°F–77°F. Slight wind.
04/30/07	Subs: LAD, MJW, RAR, BDS, NDG, AKP, FEC, MML	Pass 1	0800–1700	Mostly sunny, 70°F–77°F. Slight wind.
05/01/07	Dudek: JSH, DWS, ELL, TBS, MLB Subs: LAD, MJW, RAR, BDS, NDG, AKP, RBH, JGD, FEC, MML	Pass 1	0730–1845	Sunny, 50°F–70°F. Gusty winds, 10–20 mph.
05/02/07	Dudek: JSH, DWS, ELL, TBS, MLB Subs: LAD, MJW, RAR, BDS, NDG, AKP, RBH, JGD, DLK, FEC, MML	Pass 1	0700–1930	Sunny, becoming cloudy at end of day, 50°F–65°F. Windy, 10–30 mph.
05/03/07	Dudek: JSH, DWS, ELL, TBS, MLB Subs: LAD, MJW, RAR, BDS, NDG, AKP, FEC, MML, ACS, MCP	Pass 1	0745–1830	Variable cloud cover, 35°F–50°F. Windy, 20–40 mph.

Table D.1-16. Special-Status Plant Survey Schedule

Date	Personnel	Specific Task	Hours	Weather
05/04/07	Dudek: ACS, MCP, ELL Subs: LAD, MJW, RAR, BDS, NDG, AKP, FEC, MML	Pass 1	0730–1730	Cloudy, windy, cold.
05/05/07	Subs: NDG, AKP	Pass 1	0830–1630	Cloudy, windy, cold.
05/07/07	Dudek: JRJ, SMB, DWS, ELL, TBS, MLB Subs: CJS, KMK, MJW, JLC, JBG, JHN, NDG, AKP	Pass 1	0900–1830	Clear, warm. 70°F–80°F. No wind.
05/08/07	Dudek: JRJ, SMB, DWS, ELL, TBS, MLB Subs: CJS, KMK, MJW, JLC, JBG, JHN, NDG, AKP, RBH, JGD	Pass 1	0800–1930	Clear, warm. 67°F–80°F.
05/09/07	Dudek: JRJ, SMB, DWS, ELL, TBS, MLB Subs: CJS, KMK, MJW, JLC, JBG, JHN, NDG, AKP	Pass 1	0815–1730	Clear, warm. 70°F–80°F.
05/09/07	Subs: MML, FEC	Pass 1	1200–2000	Clear, warm. 70°F–80°F.
05/10/07	Dudek: JRJ, SMB, DWS, ELL, TBS, ACS, MCP, MLB Subs: CJS, KMK, MJW, JLC, JBG, JHN, NDG, AKP, RBH, JGD, FEC, MML	Pass 1	0800–1830	Clear, warm. 70°F–80°F. Breezy in the afternoon.
05/11/07	Dudek: ELL, TBS, ACS, MCP Subs: CJS, KMK, JLC, JBG, JHN, NDG, AKP, FEC	Pass 1	0800–1700	Clear, warm. 62°F–80°F.
05/12/07	Subs: NDG, AKP	Pass 1	0830–1630	Clear, sunny, mild. High clouds, breezy.
05/14/07	Dudek: PCS, DWS, ELL, TBS, MLB Subs: KAB, CJS, KWD, REP, NDG, AKP, RBH, JGD, FEC	Pass 1	1230–1930	Clear, warm. 10°F–85°F. Slight breeze.
05/15/07	Dudek: PCS, MLB, DWS, ELL, TBS, ACS, MCP, MLB Subs: KAB, CJS, KWD, REP, NDG, AKP, RBH, JGD	Pass 1	0930–1915	Clear, warm, dry. 70°F–85°F. Sunny, gentle breeze.
05/16/07	Dudek: PCS, MLB, DWS, ELL, TBS, ACS, MCP Subs: KAB, CJS, KWD, REP, NDG, AKP, FEC	Pass 1	0800–1850	Sunny, warm, clear. 70°F–80°F.
05/17/07	Dudek: PCS, MLB, DWS, ELL, TBS Subs: KAB, CJS, KWD, REP, NDG, AKP, FEC	Pass 1	0900–1830	Clear, warm. 65°F–85°F.
05/21/07	Dudek: ELL, DAG, DWS, MLB Subs: JLC, BAP, BDS, JHN, NDG, AKP, RBH, JGD, FEC	Pass 1	0800–1800	Variable cloud cover. Windy, cool, 65°F.

Table D.1-16. Special-Status Plant Survey Schedule

Date	Personnel	Specific Task	Hours	Weather
05/22/07	Dudek: ELL, DAG, DWS, MLB, PCS, TBS Subs: JLC, BAP, BDS, KWD, JHN, RAR, NDG, AKP, RBH, JGD, FEC, MML	Pass 1	0830–1700	Windy, variable cloud cover. 65°F–75°F.
05/23/07	Dudek: ELL, DAG, DWS, MLB, PCS, ACS, TBS Subs: JLC, BAP, BDS, KWD, JHN, RAR, NDG, AKP, FEC, MML	Pass 1	0900–2030	Clear, 63°F–70°F. Light wind from northeast.
05/24/07	Dudek: ELL, DAG, DWS, MLB, ACS, MCP Subs: JLC, BAP, BDS, KWD, JHN, RAR, NDG, AKP, FEC, MML, BDH	Pass 1	0940–1915	Clear, sunny, warm. 60°F–80°F. Calm.
05/25/07	Dudek: ACS, MCP Subs: JLC, BAP, KWD, JHN, RAR, NDG, AKP, MML	Pass 1	0910–1725	Clear, warm, sunny.
05/26/07	Subs: NDG, AKP, MML	Pass 1	0945–1800	Clear, sunny, mild. Light breeze.
05/28/07	Subs: NDG, AKP	Pass 1	0800–1200	Clear, warm, sunny.
05/29/07	Dudek: KJM, JSH, MLB, PCS, ELL Subs: CJS, JLC, NDG, AKP, RBH, JGD, MML	Pass 1	1015–1930	Sunny and warm, 68°F–85°F. Winds 3–7 mph from the west.
05/30/07	Dudek: KJM, JSH, ELL, FMO, MLB, PCS, MNM Subs: CJS, JLC, NDG, AKP, MML, BDH, FEC, JPG	Pass 1	0745–1930	Sunny and warm, 70°F–85°F. Excellent visibility. North, northwest winds.
05/31/07	Dudek: KJM, JSH, ELL, FMO, MLB, MNM, ACS, MCP Subs: CJS, JLC, NDG, AKP, MML, BDH, FEC	Pass 1	0730–1630	Sunny and warm, 70°F–85°F.
06/01/07	Dudek: ACS, MCP Subs: NDG, AKP	Pass 1	0800–1800	Partly cloudy, warm, humid.
06/02/07	Subs: NDG, AKP	Pass 1	0800–1700	Clear, sunny, warm.
06/04/07	Dudek: JSH, FMO, DWS, ELL, MLB Subs: NDG, AKP, MML	Pass 2	0900–1830	Some clouds, breezy. 65°F–75°F, 5–10 mph.
06/05/07	Dudek: JSH, FMO, DWS, ELL, MLB Subs: NDG, AKP, RBH, JGD, MML	Pass 2	0730–1830	Mostly cloudy, breezy. 60°F–75°F, 5–15 mph. Poor visibility.
06/06/07	Dudek: JSH, FMO, DWS, ELL, ACS, MCP, TBS Subs: NDG, AKP, MML	Pass 2	0745–1845	Cold, windy, and cloudy. 50°F–60°F, 15–30 mph. Clearing and warming up late morning.
06/07/07	Dudek: DWS, ELL, ACS, MCP, TBS Subs: NDG, AKP, MML	Pass 2	0600–1400	Sunny and mild, 60°F–72°F.
06/08/07	Subs: RBH, JGD	Pass 2	0800–1800	Still, clear, mid-70s.

Table D.1-16. Special-Status Plant Survey Schedule

Date	Personnel	Specific Task	Hours	Weather
06/11/07	Dudek: ELL, DWS, KJM, JSH, ACT, CJF, TAC, PCS, MLB Subs: KMK, KWD, BAP, MJW, JLC, NDG, AKP, MML	Pass 2	0930–1930	Sunny and clear, slight breeze. 70°F–85°F, 5–10 mph.
06/12/07	Dudek: ELL, DWS, KJM, JSH, ACT, CJF, TAC, ACS, PCS, MLB Subs: KMK, KWD, BAP, JLC, MJW, CJS, NDG, AKP, MML	Pass 2	0745–1930	Sunny and clear, 70°F–85°F.
06/13/07	Dudek: ELL, DWS, KJM, ACT, TAC, ACS, JSH, MLB Subs: KMK, KWD, MJW, BAP, JLC, CJS, NDG, AKP, RHB, JGD, MML	Pass 2	0745–1900	Clear and warm, 75°F–85°F.
06/14/07	Dudek: ELL, DWS, KJM, TAC, JSH, MLB, ACT Subs: KMK, KWD, BAP, MJW, CJS, JLC, NDG, AKP, RBH, JGD, MML	Pass 2	0730–1900	Clear and warm, 75°F–85°F. Breezy in the afternoon, 5–10 mph.
06/15/07	Subs: KMK, KWD, BAP, CJS, JLC, MJW, NDG, AKP, MML	Pass 2	0800–1900	Sunny, warm, clear. Around 72°F.
06/16/07	Subs: NDG, AKP	Pass 2	0800–1600	Clear, sunny, warm.
06/18/07	Dudek: ELL, DAG, JRJ, DWS, MLB Subs: MJW, RAR, CJS, KAB, BDS, LAD, NDG, AKP, JGD	Pass 2	0830–1615	Clear, hot, mid-80s. Winds 5 mph.
06/19/07	Dudek: ELL, DAG, JRJ, DWS, MLB Subs: MJW, RAR, CJS, KAB, BDS, LAD, NDG, AKP, RBH, JGD, MML	Pass 2	0730–1845	Breezy and clear, 63°F–90°F.
06/20/07	Dudek: ELL, DAG, JRJ, DWS, MLB Subs: MJW, RAR, CJS, KAB, BDS, LAD, NDG, AKP, MML	Pass 2	0600–1800	Clear, hot. 70°F–90°F.
06/21/07	Dudek: ELL, DAG, JRJ, DWS, MLB Subs: MJW, RAR, CJS, KAB, BDS, LAD, NDG, AKP, MML	Pass 2	0730–1800	Sunny and warm. Very little wind.
06/22/07	Dudek: ELL Subs: CJS, LAD, NDG, AKP	Pass 2	0800–1700	Mostly sunny, mild. High clouds. 70°F–88°F.
06/22/07	Subs: MML, ALW	Pass 2	1800–2100	Mostly sunny, mild. High clouds. 70°F–88°F.
06/23/07	Subs: NDG, AKP, MML, ALW	Pass 2	0845–1915	Mostly sunny, clear, hot.
06/25/07	Dudek: TAC, ELL, JSH, MLB Subs: CJS, BAP, BDS, JHN, MJW, JLC, NDG, AKP, RBH, JGD, MML, ALW	Pass 2	0930–1800	Sunny and clear, mild. Breezy.
06/26/07	Dudek: MLB, JSH, ELL, TAC Subs: CJS, JHN, JLC, BDS, KWD, MJW, BAP, NDG, AKP, MML, ALW	Pass 2	0830–1900	Sunny and clear, warm.
06/27/07	Dudek: TAC, ELL, JSH, MLB, ACS Subs: CJS, JHN, JLC, BDS, KWD, MJW, BAP, NDG, AKP, MML, ALW	Pass 2	0815–1830	Sunny and clear, 70°F–80°F.

Table D.1-16. Special-Status Plant Survey Schedule

Date	Personnel	Specific Task	Hours	Weather
06/28/07	Dudek: MLB, ACS, MCP, ELL, TAC, JSH, FMO Subs: CJS, JHN, JLC, BDS, KWD, MJW, BAP, NDG, AKP, MML, ALW	Pass 2	0710–1730	Sunny and clear, 75°F–80°F. Breezy.
06/29/07	Dudek: JSH, FMO, MCP, ACS Subs: CJS, JHN, JLC, KWD, MJW, BAP, NDG, AKP, MML, ALW	Pass 2	0750–1330	Sunny and clear. 70°F–80°F.
06/30/07	Subs: NDG, AKP, ALW, MML	Pass 2	0830–1630	Sunny and clear, warm.
07/02/07	Dudek: FMO Subs: REP, MJW, KWD, BDS, JLC, CJS	Pass 2	0700–1400	Clear and hot. 78°F–94°F. Wind from the north, 5–10 mph.
07/03/07	Dudek: FMO Subs: REP, MJW, KWD, BDS, JLC, CJS	Pass 2	0700–1730	Clear and hot. 78°F–94°F. Wind from the north, 5–10 mph.
07/09/07	Dudek: JRJ, FMO	Pass 2	0700–1845	Clear and hot. 78°F–94°F. Wind from the north, 5–10 mph.
07/10/07	Dudek: JRJ, FMO, MLB, TAC	Pass 3	1030–1800	Hazy sun, 79°F, winds 3–0mph.
07/11/07	Dudek: JSH, JRJ, FMO, MLB, TAC	Pass 3	0730–1830	Sunny and clear, 80°F–95°F.
07/12/07	Dudek: JSH, JRJ, FMO, MLB, TAC	Pass 3	0730–1730	Mostly sunny, 85°F–95°F.
09/18/07	Dudek: JSH, FMO, MLB	Pass 3	0800–1800	Not recorded.
09/19/07	Dudek: JSH, FMO, MLB	Pass 3	0800–1800	Not recorded.
09/20/07	Dudek: JSH, FMO, MLB	Pass 3	0800–1800	Not recorded.
09/21/07	Dudek: JSH, FMO, MLB	Pass 3	0800–1200	Not recorded.

Personnel key:

Dudek: MSE: Megan Enright; MLB: Michelle Balk; MNM: Makela Mangrich; DWS: Daniel Simon; JSH: Joanna Hsu; PCS: Patricia Schuyler; CJF: Callie Ford; SMB: Scott Boczkiewicz; JRJ: Jon Jones; ELL: Eve Laeger; TBS: Teresa Salvato; ACS: Andy Sanders; MCP: Mitch Provance; DAG: Doug Gettinger; KJM: Kam Muri; FMO: F. Marcus Obregon; ACT: Andy Thomson; TAC: Traci Caddy. Subconsultants: KAB: Katherine Bode; RAR: Ramona (Mona) Robison; MJW: Margaret Widdowson; KWD: Kevin Downing; BDS: Brad Schafer; CJS: Cristian Singer; NDG: Nathan Gale; AKP: Anuja Parikh; JPG: Paul Galvin; MML: Melissa Lippincott; DLK: Daryl Koutnik; JGD: Joe Decruyenaere; BDH: Barrett Holland; FEC: Florence Caplow; BAP: Brant Primrose; REP: Rob Preston; JLC: Jessica Cook; KMK: Korey Klutz; LAD: Lily Douglas; JHN: Joy Nishida; ALW: Adrian Wolf.

2.6 SAMPLING METHODS

Field survey methods conformed to CNPS botanical survey guidelines (CNPS 2001) and *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities* (CDFG 2000). All plant species encountered during the field surveys were identified to subspecies or variety, if applicable, to determine sensitivity status. All plant species encountered in the field within the TMV Specific Plan Area are listed in Appendix A to Appendix I to Appendix E-1 of the Tejon Mountain Village EIR (Kern County 2009). Latin and common names follow *The Jepson Manual* (Hickman 1996). When not listed in Hickman (1996), common names were taken from Twisselmann (1967). A variety of sources (e.g., Boyd 1999) were used to name species that are not included in either Hickman (1996) or Twisselmann (1967).

Coverage Rates and Transects

On average, coverage rates varied from 50 to 75 ac. per botanist per day. Coverage rates varied depending on presence of special-status species, topography, and suitability of habitat being surveyed. Meandering transects were walked and transect paths were recorded on field maps.

If a rare plant species was encountered, biologists recorded the center of the polygon in which it was observed as a point using GPS coordinates. Generally, observations of small- to medium-size plants were considered distinct if they were more than 3 m apart. For larger species, such as aromatic canyon gooseberry, observations were considered distinct if they were greater than 10 m apart. Field staff used sub-meter accuracy Trimble GPS units to record both the spatial data (the location) and data about the metapopulation including a count of individuals (recorded as a whole number if the metapopulation was less than 100 individuals or a range if the metapopulation was more than 100 individuals), slope, aspect, survey area, data, percent cover of native and non-native vegetation and bare ground, and any comments about the population. Where Trimble units were not available, this information was recorded on hard copy mapping field forms and spatial data was captured using GPS coordinate data and/or mapped on the 200 ft scale field maps.

2.7 DIGITIZATION PROCESS AND QUALITY ASSURANCE CHECKS

Once the survey was complete, the GPS data and mapping field form data for approximately 580 observations of special-status plant species were combined to generate comprehensive survey maps of the site. The mapping field form data were digitized from field maps or handwritten coordinate data (taken from GPS units) were converted into spatial data. Dudek GIS staff completed post-processing for GPS data by correcting the raw files to further increase the positional accuracy of the data. The population data (i.e., count of individuals, slope, aspect) from the GPS units was converted from these corrected files into GIS shapefiles. These data

were then reviewed by lead botanists and modified if necessary to conform to field maps or data forms.

2.8 HYDROLOGIC FACTORS

Surveys were conducted on the entire study area in 2007, which was a below-average rainfall year for the state and for the hydrologic regions adjacent to the TMV Planning Area (DWR 2007). Temperatures were slightly higher than normal during the first 3 months of the surveys. Precipitation statewide was still 65% of the long-term average between October 2006 and July 2007, when the most substantial special-status plant surveys were conducted (DWR 2007).

The special-status plant surveys during 2007 were also comprehensive statewide, were conducted at the peak phenology for all plant species expected to occur on site, and complemented surveys conducted in 2003 to 2005, when rainfall was normal to above normal. These factors indicate that the multiple-year survey effort was sufficient to identify the special-status plant species that occur within the TMV Planning Area.

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Appendix D2

*Removal of Valley Elderberry Longhorn
Beetle and Ringtail from Covered Species List*

November 14, 2012

Mr. Roger Root
Assistant Field Supervisor
United States Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura, CA 93003

Re: Tehachapi Uplands Multi Species Habitat Conservation Plan (TUMSHCP) Covered Species List

Dear Mr. Root:

We have previously discussed conducting a final review of the Covered Species list that was proposed in the draft Tehachapi Uplands Multiple Species Habitat Conservation Plan ("TUMSHCP"), particularly as it applies to species that have not been detected in the Covered Lands. Based on Dudek's review of the non-detected proposed Covered Species provided in the attached memorandum, Tejon Ranchcorp ("TRC") has asked me to inform you that they request that valley elderberry longhorn beetle and ringtail be removed from the TUMSHCP Covered Species list for the Incidental Take Permit.

Thank you and your team for your diligent work on the TUMSHCP and the associated Supplemental Environmental Impact Statement.

Sincerely yours,



Roberta Rand Marshall
Senior Vice President

Enclosure: Memorandum Re: Review of Proposed Covered Species List for the Tehachapi Uplands Multiple Species Habitat Conservation Plan (TUMSHC), Dudek, October 26, 2102.

Cc: Robert Stine, Tejon Ranch Company
Steve Letterly, DMB PV
Keith Babcock, Dudek
Elizabeth Lake, Holland and Knight

MEMORANDUM

To: Roberta Marshall, DMB-Pacific Ventures
From: Keith Babcock, Dudek
Subject: Review of Proposed Covered Species List For the Tehachapi Uplands
Multiple Species Habitat Conservation Plan (TUMSHCP)
Date: October 26, 2012

As requested, Dudek reviewed the proposed TUMSHCP Covered Species list for those species that have not been observed or otherwise documented on the Covered Lands to provide a final assessment of the need for Endangered Species Act (ESA) coverage for those species. As discussed in Master Response 8, Supplemental Draft Environmental Impact Statement, Vol. II, any Federally listed or candidate species that was considered to have some potential to occur on site and could be subject to incidental take was included in the draft TUMSHCP for purposes of the environmental analysis. Those Federally-listed/candidate species that were not observed during various surveys of the site (and for which no historic records occur) include the following: least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo and valley elderberry longhorn beetle. The following non-detected, non-Federally listed/candidate species were also included in the initial analysis due to their rarity in southern California or state fully protected status. These include western spadefoot, Tejon poppy, and ringtail.

Of the non-detected Federally-listed/candidate species set forth above, the valley elderberry longhorn beetle is now being considered for delisting. The Covered Lands are on the outside edges of the valley elderberry longhorn beetle range, all suitable elderberry bushes in the development envelope were surveyed for exit holes (none were found), and relatively little habitat (elderberry trees) occurs within the Covered Lands; therefore, its likelihood for presence is very low. As such, this memorandum recommends that ESA coverage for this species is not warranted. The remaining Federally listed/candidate species, which are all birds, continue to merit coverage as the Covered Lands are in the range of those species and, given the mobility of bird species, they have a higher likelihood of potentially occurring either as breeders or as migrants within areas of suitable habitat.

Of the non-detected and non-Federally listed/candidate species, the western spadefoot and Tejon poppy both are considered to have a reasonable likelihood of presence. Although not detected in 2007 surveys, the western spadefoot breeds opportunistically in response to warm rains and may not be detectable during unfavorable conditions. In addition, suitable habitat for spadefoot occurs within Covered Lands and elsewhere on Tejon Ranch and the Ranch is within the range of this species. Tejon poppy also has a reasonable likelihood of occurring within Covered Lands and it is known to occur elsewhere on the Ranch, primarily in the foothills bordering the San Joaquin Valley portions of the Ranch. With respect to the ringtail, the Covered Lands are located within

an area of intergradation between one subspecies of ringtail, *B. a. octavus*, which occurs primarily to the south, and another subspecies, *B.a. raptor* which occurs primarily to the north. Extensive camera studies were conducted in 2007 within suitable habitat for this species throughout the TMV Planning Area. An additional survey was conducted in 2011 within a portion of Bear Trap Canyon as part of a California Department of Fish and Game Streambed Alteration Agreement requirement. However, both surveys were negative, and no evidence or sign (scat, nests, etc.) of the ringtail, which is not Federally-listed, was detected within the study area. As such, the ringtail has a very low likelihood of presence. Although the ringtail was listed as a state Fully Protected species in the 1960's, since that time furbearer hunting practices that precipitated its listing as Fully Protected have ceased, and because the species is fairly common outside of California, and relatively widespread within California where it occurs, the species is not expected to be Federally listed. Further, based on the fact that it is a state Fully Protected species, avoidance measures will be required by the California Department of Fish and Game. Therefore, this memorandum recommends that ESA coverage is not warranted for this species.

Additional background information that supports removal of these two species, the longhorn beetle and ringtail, from the Covered Species list, is provided below.

Ringtail

Ringtails are generally common throughout the southwestern U.S. In California, the species is uncommon but is distributed sporadically throughout much of the mountainous and foothill regions of the state (though some have been documented in certain areas of the Mojave and Colorado deserts), occurring in varying population densities where they do occur (CDFG 2005). Since the initial documentation of the distribution of the species in California in 1937, the range of the species has been extended within the state, most recently in 1988 to include portions of the Mojave and Colorado deserts (Orloff 1988). They are most abundant along riparian areas, but can also be found in dense oak woodlands and in steep canyon areas where they forage among rocks and in trees. They have a strong preference for rocky areas such as rock piles, canyon walls, and talus slopes (Davis and Schmidly 2007). As discussed above, the Covered Lands is located within an area of intergradation between two subspecies that occur in California.

There are no known historical occurrences of ringtail on Tejon Ranch based upon a literature review and on CNDDDB records. Following the current accepted methodology for determining presence/absence of this species, extensive camera/scent station surveys (involving 230 camera stations over a 9-month period) were conducted for ringtail in the TMV Planning Area (Dudek 2009). All surveys were negative for evidence of ringtail. Of note, numerous other species were captured on film at these stations, including various small rodent species, spotted skunk (rare), birds, bobcats, mountain lions, and coyotes. If this species breeds or otherwise occurs onsite, it would have been expected that some evidence of the species would have been captured on film, given the extensive survey coverage and length of time associated with the survey effort. Consequently, the potential for this species to occur within Covered Lands is expected to be very low.

As previously noted, ringtails are fairly common outside of California, occurring throughout the southwest U.S. in suitable habitat. In California, where it was historically hunted for its pelt, the species has apparently expanded its range and essentially occurs from the Oregon border to (and

into) Baja, Mexico. The species has no current federal status with any federal resource agency; and in California, other than its status as fully protected, it is not listed as sensitive on any other special-status species list (CDFG 2011). The only geographic regions in California where it is currently not found includes the extreme northeastern portion of the state and the Sacramento and San Joaquin valleys. For these reasons, the species is not expected to be Federally listed.

Valley Elderberry Longhorn Beetle

Valley elderberry longhorn beetle is endemic to the Central Valley of California, where it only occurs in association with red elderberry and blue elderberry (FWS 2006). It is only known to occur as far south as the Bakersfield area.

There are no known historical occurrences of the beetle in the Tejon Ranch region based upon a literature review and on CNDDDB records. Elderberry shrubs (which are relatively uncommon on Tejon Ranch) were mapped within the TMV Planning Area and focused exit-hole surveys were performed on all suitable shrubs (Dudek 2009). Survey results were negative for presence of valley elderberry longhorn beetle. Because the majority of Covered Lands are above the elevation range for this species, and the Ranch as a whole is at the extreme southern edge of, if not outside, the species range in California, and due to the limited amount of elderberry shrubs known and expected to occur within Covered Lands, this beetle species is not expected to occur.

On October 2, 2012, the U.S. Fish and Wildlife Service proposed the removal of the Valley elderberry longhorn beetle from the Federal list of endangered and threatened wildlife, based on a review of the best available scientific and commercial data which indicates that the species no longer meets the definition of endangered or threatened under the ESA. Specifically, the Service found that the species persists in more locations that were not known at the time of listing and is expected to persist in these and other locations, many of which are currently protected, into the future.

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