

APPENDIX B -- SPECIES ACCOUNTS

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SPECIES ACCOUNTS**

Most of the species listed in Table 1 were identified by the Department of Water Resources Kern Fan Element HCP Steering Committee as species occurring on or in the immediate vicinity of the Kern Water Bank project site. The list is divided up into 1) federal and State listed species, 2) species listed only by the State, 3) non-listed animal covered species, and 4) non-listed plant covered species.

Information in the species accounts were taken from three primary sources: 1) the Metropolitan Bakersfield HCP (1991); 2) the Kern Fan Element Administrative Draft HCP (1994), and 3) the Draft Kern County Valley Floor HCP (1996). For species that have documented occurrences at the Kern Water Bank (indicated by having a number 5 next to their common name), specific data from recent surveys at the Kern Water Bank are included in Chapter III of the HCP.

TABLE 1

Scientific Name (2)	Common Name (3) and Plant Community Associations (6)	Status (1)		
		Federal	State	Other
Federally Listed Species				
Plants				
<i>Caulanthus californicus</i>	California jewelflower (7) VSG	E	E	CNPS 1B
<i>Eremalche parryi ssp. kernensis</i>	Kern mallow (4,7) VSS, VSG, GVMS	E		CNPS 1B
<i>Eriastrum hooveri</i>	Hoover's eriastrum (5) VSS, VSG	T		CNPS 1B
<i>Lembertia congdonii</i>	San Joaquin woolly-threads (5) VSS, VSG, NNG	E		CNPS 1B
<i>Opuntia basilaris var. treleasei</i>	Bakersfield cactus MFS, NNG	E	E	CNPS 1B

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Birds				
<i>Branta canadensis leucopareia</i>	Aleutian Canada goose (4) Wetlands	E		MBTA
<i>Falco peregrinus anatum</i>	American peregrine falcon (4) ALL	E	E	MBTA
Invertebrates				
<i>Branchinecta conservatio</i>	Conservancy fairy shrimp (7) Wetlands	E		
<i>Branchinecta lynchi</i>	Vernal pool fairy shrimp (7) Wetlands	T		
<i>Branchinecta longiantenna</i>	Longhorn fairy shrimp (7) Wetlands	E		
<i>Lepidurus packardi</i>	Vernal pool tadpole shrimp (7) Wetlands	E		
<i>Desmocerus californicus dimorphus</i>	Valley elderberry longhorn beetle (7) MFS, GVCRF	T		
Reptiles				
<i>Gambelia sila</i>	Blunt-nosed leopard lizard (5) VSS, VSG, GVMS	E	E	
<i>Thamnophis gigas</i>	Giant garter snake (7) Wetlands	T	T	
Mammals				
<i>Dipodomys ingens</i>	Giant kangaroo rat (4) VSS, VSG, NNG, GVMS	E	E	
<i>Dipodomys nitratoides nitratoides</i>	Tipton kangaroo rat (5) VSS, VSG, NNG, GVMS	E	E	
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox (5) ALL	E	T	
Species Listed Only by the State of California				
Plants				
<i>Atriplex tularensis</i>	Bakersfield saltbush VSS, GVMS	C1	E	CNPS 1B

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Birds				
<i>Buteo swainsoni</i>	Swainson's hawk (4) ALL		T	MBTA
<i>Elanus caeruleus</i>	White-tailed kite (4) ALL		FP	MBTA
<i>Grus canadensis tubida</i>	Greater sandhill crane (4) Wetlands		T	MBTA
Mammals				
<i>Ammospermophilus nelsoni</i>	San Joaquin antelope squirrel (5) VSS, VSG, NNG	C1	T	
Other Covered Species				
Plants				
<i>Atriplex cordulata</i>	Heart-leaved saltbush (4,7) VSS, GVMS			CNPS 11B
<i>Atriplex miniscula</i>	Lesser saltbush (4,7) VSS, GVMS			CNPS 11B
<i>Atriplex vallicola</i>	Lost Hills saltbush VSS, GVMS			CNPS 1B
<i>Calochortus striatus</i>	Alkali mariposa lily (4) VSS			CNPS 4
<i>Cirsium crassicaule</i>	Slough thistle (5,7) MFS, GVCRF			CNPS 2C
<i>Cordylanthus mollis ssp. hispidus</i>	Hispid bird's-beak Saline Marshes and Flats			CNPS 1B
<i>Delphinium recurvatum</i>	Recurved larkspur (5) VSS, VSG, GVMS			CNPS 1B
<i>Hemizonia pallidus</i>	Kern tarplant (4,7) VSS, VSG, NNG			CNPS 4
<i>Layia leucopappa</i>	Comanche Point layia VSG			CNPS 1B
Amphibian				
<i>Scaphiopus hammondi</i>	Western spadefoot toad (5) VSS, VSG, NNG, MFS		SSC	

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Reptiles				
<i>Clemmys marmorata marmorata and/or C. m. pallida</i>	Western pond turtle (4) Wetlands		SSC	
Birds				
<i>Agelaius tricolor</i>	Tricolored blackbird (4) Wetlands, NNG		SSC	MBTA
<i>Athene cunicularia</i>	Burrowing owl (5) VSG, NNG		SSC	MBTA
<i>Buteo regalis</i>	Ferruginous hawk (4) ALL		SSC	MBTA
<i>Charadrius alexandrinus nivosus</i>	Western snowy plover (4) Wetlands		SSC	MBTA
<i>Charadrius montanus</i>	Mountain plover (4) VSG, NNG		SA	MBTA
<i>Lanius ludovicianus</i>	Loggerhead shrike (5) GVCRF		SSC	MBTA
<i>Plegadis chihi</i>	White-faced ibis (4) Wetlands		SSC	MBTA
<i>Toxostoma lecontei</i>	Le Conte's thrasher (4) Saltbush Scrub		SSC	MBTA
Mammals				
<i>Eumops perotis californicus</i>	Greater western mastiff bat Cliffs, crevices, tunnels		SSC	
<i>Plecotus townsendii</i>	Pacific western big-eared bat Cliffs, crevices, tunnels		SSC	
<i>Sorex ornatus relictus</i>	Buena Vista Lake shrew (7) Wetlands, MFS, GVCRF	C1	SSC	
<i>Taxidea taxus</i>	American badger (5) ALL		SSC	

Notes:

(1) Federal: E = endangered; T = threatened; C1 = taxa for which there is substantial information to propose listing, based on species vulnerability and threats.

State: E = endangered; T = threatened; FP = Fully Protected; SSC = species of special concern.

Other: CNPS = California Native Plant Society;

CNPS 1B = plants rare and endangered in California and elsewhere,

CNPS 2 = plants rare, threatened or endangered in California, but more common

elsewhere;

CNPS 4 = not rare, but of limited distribution;

SA = California Natural Diversity Data Base Special Animal;

MBTA = bird protected under the Federal Migratory Bird Treaty Act.

(2) Species are listed in alphabetical order by scientific name, within taxonomic groups.

(3) Plant common names follow CNPS nomenclature.

(4) Sensitive species that may move into the HCP area after implementation of the project.

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- (5) Sensitive species known to occur on Kern Water Bank land.
- (6) Associated Plant Communities (see Section E. Below for descriptions)
- (7) May be introduced to appropriate locations at KWB

VSS = Valley Saltbush Scrub Wetlands = recharge ponds and canals
VSG = Valley Sacaton Grassland
NNG = Non-native Grassland
MFS = Mule Fat Scrub
GVMS = Great Valley Mesquite Scrub
GVCRF = Great Valley Cottonwood Riparian Forest
ALL = Associated with all plant communities

Source: DWR 1993, Thomas Reid Associates 1996

A. Listed Animal Covered Species

1. San Joaquin kit fox (*Vulpes macrotis mutica*)

The kit fox species, *Vulpes macrotis*, represents the smallest of the four species of foxes found in North America. Of the various subspecies of kit fox, San Joaquin kit fox (*Vulpes macrotis mutica*) is the largest in size (USFWS 1983). Adult kit fox are slender, weighing 1.4 to 2.7 kg (3 to 6 pounds). Head and body length is 38 to 51 cm (15 to 20 inches) with a 23 to 30 cm (9 to 12 inch) cylindrical, bushy, black-tipped tail. The inner side of their exceptionally large ears are covered with dense, stiff white hairs (USFWS 1983). Pelage color ranges from a pale grey with rust colors to a buffy yellow; the belly is whitish (Burt and Grossenheider 1976). The underfur is heavy and slightly harsh in texture while overhairs are scattered and meagerly developed (Grinnell et al. 1937).

Kit foxes are primarily nocturnal, emerging at sunset to hunt. Primary prey species are kangaroo rats (*Dipodomys ingens*, *Dipodomys nitratooides*, *Dipodomys heermanni*). Black-tailed jackrabbits (*Lepus californicus*), desert cottontails (*Sylvilagus auduboni*) and California ground squirrel (*Spermophilus beecheyi*) may be primary prey species in some areas and secondary prey species to the kangaroo rat in others (Zoellick et al. 1987; O'Farrell and Scrivner 1987).

Dens are usually found in areas of low to moderate relief in loose textured soils (O'Farrell and McCue 1981, O'Farrell et al. 1980, cited by USFWS 1983). Man-made structures such as culverts, well casings, irrigation pipes and man-made dens constructed specifically for the San Joaquin kit fox have been used by kit foxes for both transient and natal dens (Egoscue 1956, 1962 and Morrell 1972, cited by McGrew 1979; Knapp 1978; O'Farrell and Scrivner 1987).

Prior to the introduction of irrigated agriculture in the valley, the prime habitat for the San Joaquin kit fox is thought to have been in the valley saltbush scrub, alkali sink and lower Sonoran grassland ecological communities. Today, within Kern County, kit foxes still inhabit valley saltbush, valley scrub, non-native grassland and valley sink scrub communities. They have been found to disperse through various types of disturbed habitat including agriculture fields, oil fields, highways, aqueducts and canals (Kato 1982). In the Bakersfield area, railroad tracks and canals are used by kit fox to travel

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from one habitat area to another. Habitat suitable for the San Joaquin kit fox is found throughout the Kern Water Bank.

Historically, this fox occurred throughout the San Joaquin Valley and western portions of the Sacramento Valley from Contra Costa County south to southern Kern County, as well as the arid valleys, plains and lower foothills of the Inner Coast Range (Carizzo Plain, Salinas Valley, Temblor Range, Cholame Hills, Elkhorn Plain and Elk Hills). The original range was estimated to be approximately 5,570,000 acres (O'Farrell 1983). Today, central valley kit fox populations are highly fragmented and restricted to the remaining native vegetation associations of the valley floor and surrounding foothills from Contra Costa County southward to southern Kern County (CDFG 1992).

The Kern County valley floor area harbors some of the highest densities of kit fox. These areas occur along the west side of the valley floor, from the Lokern Natural Area southward to Maricopa. Elsewhere, occurrences are fragmented, with low to moderate densities south and east of the Kern National Wildlife Refuge and north and east of the City of Bakersfield. The latter populations are connected to the populations on the west side of the valley by a series of small populations inhabiting the Kern River floodplain. The DWR 1991 study of the Kern Water Bank property found scattered occurrences of the kit fox throughout the idle agricultural lands. Wildlife surveys conducted for the interim recharge project found 69 potential kit dens but monitoring of these sites showed no signs of activity and they were closed prior to 1995 construction. Night spotlight wildlife surveys were conducted on a 55 mile route within the boundaries of the Kern Water Bank on June 18, 19, and 27, and July 3, 7, and 10, 1996. Also set up were twenty-five scent stations throughout the water bank during 7 working days in August 1996. San Joaquin kit fox prints were noted at three of the scent stations (2 in the south half of Section 20 of T30S, R25E, and 1 in the south half of Section 19, T30S, R26E). The scent stations also revealed sign of 6 coyotes and 3 striped skunks. During the spotlighting, one SJKF was sighted in the southeast quarter section of Section 12, T30S, R25E. Other species sighted were: 67 barn owls, 18 burrowing owls, 9 coyotes, and 6 striped skunk.

Preserves for the San Joaquin kit fox should be able to support an average of 1.4 animals per square mile (USFWS 1983), be composed of native communities or non-native grasslands, support prey populations, contain adequate denning sites, and have few human intrusions, particularly roads. Corridors should be wide enough to provide safety to migrating animals. The 1983 Recovery Plan calls for the protection and/or acquisition of 35,000 acres (55 square miles) of kit fox habitat in areas mapped as first priority for protection in order to meet interim plan objectives of halting the decline of the species and increase population size above 1981 levels. Meeting these interim objectives could result in the changing of the San Joaquin kit fox status from federally "endangered" to "threatened".

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2. Blunt-nosed Leopard Lizard (*Gambelia silus*)

The blunt-nosed leopard lizard (BNLL) is a relatively large and long-lived lizard. It is so-named because of its short, broad skull and blunt snout. The robust body and long tail display a prominent pattern of dark spots and pale cross-bars. Adult males range from 90 mm to 120 mm (3.5 to 4.8 inches) in the body (snout-to-vent length) and are slightly larger than adult females which average 85 to 107 mm SV (3.4 to 4.2 in) (USFWS 1985). If severed, the lizard's tail is able to regenerate itself.

The leopard lizard does not dig its own burrow for escape, cover, shelter, or as egg-laying sites. Instead, it uses existing small mammal burrows, made by kangaroo rats, ground squirrels, pocket gophers, pocket mice and other rodents. Leopard lizard may prefer burrows in pond loam and clay loam soils on sparsely vegetated slopes of less than 30%, canyon floors, low foothills, especially in large washes and arroyos (Montanucci 1965, Chesemore 1980 cited by Uptain et al. 1985; Uptain et al. 1985).

Prey of the leopard lizard includes insects, spiders and occasionally other lizards as well as other leopard lizards (Dick 1977). Due to its foraging habits, the lizard prefers areas of relatively sparse ground cover which is more prevalent during the dry seasons and in dry years. Chesemore (1980) suggests that 15 to 30% bare ground may be the optimum openness for the blunt-nosed leopard lizard, and a site with 50% or more open ground may not be suitable for the species. Conversely, dense vegetative cover appears to interfere with running and hunting ability, thermoregulatory behavior and visibility of potential mates during the breeding season (Snow 1972; Montanucci 1965; Stebbins 1966).

The leopard lizard's historic range extended from Stanislaus County south to the southern edge of Kern County and included San Joaquin Valley, Kettleman Plain, Carrizo Plain and Cuyama Valley (Montanucci 1965, Smith 1946, Tollestrup 1979, cited by USFWS 1985).

Populations of BNLL on the valley floor have been dramatically reduced in size and area, due to loss of habitat. Extant valley floor populations are severely fragmented. Within the Kern County valley floor area, small, isolated populations are scattered north and northeast of Bakersfield and between Elk Hills, bordering the southwestern side of the valley floor, between Maricopa and Highway 33. BNLL are also common in grazed grasslands between the Pleito Hills and Wheeler Ridge, and elsewhere in the southern and southwestern portions of the Kern County valley floor (Van Denburgh 1922, The Planning Center 1991, Weintraub 1991).

Blunt-nosed leopard lizards are known to occur in valley and foothill grassland, saltbush (*Atriplex*) scrubland, iodine bush (*Allenrolfea*) grassland, *Sueda* flats. They are most numerous where large *Atriplex* and *Isomeris* bushes were numerous and widespread. Chesemore (1980) found a correlation between the presence of the blunt-nosed leopard lizard and *Schismus arabicus* (Arabian grass) which could not be reconfirmed in later studies (Uptain et al. 1985).

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The DWR 1991 study showed very few documented occurrences of the blunt-nosed leopard lizard (BNLL) which were restricted to areas of poor soil type associated with very sparse vegetation and areas of open ground. DWR (1991) documented occurrences of BNLL are almost exclusively located in areas designated as either sensitive habitat (NW quarter of Section 7, T30S, R26E and SW quarter of Section 36, T30S, R25E), or compatible habitat (S half of Section 6, SW quarter of Section 5, NE quarter of Section 7, NW quarter of Section 8, SE quarter of Section 20, T30S, R25E, and NW quarter of Section 20, T30S, R26E).

The Blunt-nosed Leopard Lizard Revised Recovery Plan (USFWS 1985) recommends that populations should meet or exceed a level of one blunt-nosed leopard lizard per acre average density to maintain a viable population. While Tollestrup 1976 suggested that one square mile (640 acres) of good habitat might meet minimum area requirements for perpetuating a leopard lizard population, this estimate has not been substantiated by other studies. To disperse from one area to another, the leopard lizards require natural, undisturbed washes or dirt roads with shrub vegetation along the edges for cover. The 1985 Recovery Plan identifies a minimum of 30,000 acres of essential habitat to be protected within five distinct areas of the blunt-nosed leopard lizard range before the species may be re-classified as threatened, rather than endangered.

3. Tipton Kangaroo Rat (*Dipodomys nitratooides nitratooides*)

The Tipton kangaroo rat, whose head and body measure from 100 to 110 mm long (3.9 to 4.3 inches), is a subspecies of the smallest species of kangaroo rat, *Dipodomys nitratooides* (Williams 1985). Its tail is longer than its body length and ranges from 125 - 130 mm (4.9 to 5.1 inches). It weighs an average of 36.5 grams (1.3 ounces) (Grinnell 1920) and is slightly larger than *Dipodomys nitratooides exilis* but smaller than *D. n. brevinasus*.

Like all kangaroo rats, the Tipton is adapted for bipedal locomotion (jumping), having greatly enlarged hind limbs, a long thickened tail, a short neck and a large head. The ears and eyes are on the upper sides of the head. Fur-lined cheek pouches hold seeds and other food for transport to caches which the animal locates close to its burrow. The forelimbs of the Tipton kangaroo rat are short, with long, stout claws and four dexterous finger-like toes.

The Tipton kangaroo rat commonly digs burrows on elevated spots which are not be subject to flooding. Sometimes, areas which are flooded in winter and spring are colonized during the dry seasons. Preferred habitat for Tipton burrows are within alluvial fans and floodplains and include highly alkaline fine sands and, to a lesser degree, alkaline sandy loams. The animal is most commonly associated with alkali sink scrub and valley saltbush scrub on the floor of the Tulare Basin. These communities provide a habitat of sparsely scattered shrubs and a scant-to-moderate groundcover of grasses and forbs.

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Historic populations of the Tipton kangaroo rat are roughly estimated to have been 17,164,800 individuals (CDFG 1990). Habitat loss from agricultural conversion of lands after the completion of the Central Valley Project is the main cause of the decline of the species. Tipton kangaroo rats were formerly occupied a range that included the Tulare Lake Basin in parts of Fresno, Kings, Tulare and Kern counties. The former range of approximately 1,716,500 acres has been reduced to 63,400 acres or 3.7 percent of the original range (CDFG 1990).

Tipton kangaroo rats are associated with habitats on the floor of the Tulare Subbasin. Typically, this species occupies scrub and grassland communities in level or near-level terrain with alluvial fan-floodplain soils (alkaline fine sands and sandy loams) and sparse grasses and woody vegetation such as iodine bush, saltbush, sea blite, and mesquite. These areas generally have a high water table. In areas subjected to seasonal flooding, Tipton kangaroo rats construct burrows on elevated ground (Grinnell 1933, Williams 1985 & 1986, Williams and Kilburn 1992).

Within the Kern County valley floor area, known occurrences of Tipton kangaroo rats are highly disjunct. Because of agricultural conversion of valley floor habitats, populations are now restricted to isolated parcels of native habitat, primarily east of the California Aqueduct (Williams 1985). Populations are concentrated east and south of the Kern National Wildlife Refuge, to Delano on the east and Maricopa on the south along the western edge of the valley floor. The Kern River flood channel between Highway 99 southwest of the mouth at the site of historic Buena Vista Lake, north of Pixley National Wildlife Refuge, and within and west of the City of Bakersfield, were expected by Williams (1985) to support this subspecies. Approximately 200 acres of habitat supporting Tipton kangaroo rats still remained along the western border of Buena Vista Lake bed, and the site north of Pixley National Wildlife Refuge may have contained over 2,500 acres of habitat for the Tipton kangaroo rat.

Within the Kern Water Bank property the study conducted by DWR in 1991 found scattered occurrences of the Tipton kangaroo rat throughout the idle agricultural lands and remnant native habitats. Wildlife surveys conducted for the interim recharge project in 1996 identified approximately 300 potential Tipton kangaroo rat burrows located throughout the interim projects facilities. However, no actual trapping was done for the TKR. As part of the 1996 study two permanent TKR trapping grids were established on the Water Bank. The Strand Grid is located in the northwest 1/4 of Section 7, Township 30S, Range 26 E. The Taft Highway Grid is located in the northeast 1/4 of Section 36, T30S, R25E. both of these locations are within Sensitive Habitat, but are in close proximity to recharge basins, canals and levees. Vanherweg documented five TKR at the Strand Grid and two TKR at the Taft Highway Grid.

4. San Joaquin Antelope Squirrel (*Ammospermophilus nelsoni*)

The San Joaquin antelope squirrel has a yellowish-brown pelage with a creamy white line on each side of the back extending from shoulder to hip and a tail with a white underside. The head and body are 152 to 165 mm (6 to 6.5 inches) long and tail length is

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64 to 76 mm (2.5 to 3 inches) (Burt and Grossenheider 1976). It weighs from 84 to 154 grams (3 to 5.5 ounces).

The squirrel is omnivorous mainly feeding on grass and forb seeds as well as insects (CDFG 1990). It will co-occupy giant kangaroo rat precincts and digs burrows in road cuts and arroyos (Williams 1979; 1985). Williams (1979) states that the range of the antelope squirrel most nearly coincides with the range of the giant kangaroo rat, but its microhabitats are different.

The historic range of the San Joaquin antelope squirrel included the western and southern portions of the Tulare Basin, San Joaquin Valley and areas to the west including the Cuyama Valley, Carrizo Plain and Elkhorn Plain. The western half of the range extended north to western Merced County. San Joaquin antelope squirrel were found the San Joaquin valley floor in Kern County and along the Valley's eastern edge north to Tipton in Tulare County (CDFG 1990).

In Kern County the San Joaquin antelope squirrel was distributed throughout the valley floor (Williams and Kilburn 1992). The squirrel was apparently naturally unevenly distributed throughout this region, occurring in abundance at only a few localities (Williams 1980, Williams and Kilburn 1992, citing Grinnell and Dixon 1918). Populations are currently restricted to approximately 102,000 acres of marginal habitats in the foothills along the western edge of the Tulare Subbasin. The Elk Hills region, between Buttonwillow and Taft, contains the only substantial populations of the species remaining within the Kern County valley floor area. Elsewhere, viable populations are also found on the Carrizo and Elkhorn plains in San Luis Obispo County (Williams and Kilburn 1992).

At the Kern Water Bank studies conducted by DWR in 1991 found only one occurrence of the antelope squirrel in the east half of Section 36, T30S, R25E, land designated as sensitive habitat under the HCP.

The San Joaquin antelope squirrel is found in flat to sloping terrain with loam or sandy loam soils in the western and southern portions of the Tulare Basin. The antelope squirrel could be found in association with the Interior Coast Range saltbush scrub, upper Sonoran subshrub scrub, non-native grassland and valley sink scrub. The habitat normally consists of species such as salt bush (*Atriplex* spp.), ephreda (*Ephreda viridis*), bladder pod (*Isomeris arborea*), goldenbush (*Haplopappus* spp.) and snakeweed (*Gutierrezia californica*). Grinnell and Dixon (1918) and Hawbecker (1953) observed that it more rarely occurred in valley floor habitats with alkaline soils (i.e. ephemerally flooded with a high water table) dominated by iodine bush (*Allenrolfea occidentalis*) and spiny salt bush (*Atriplex spinifera*). It has been observed in the non-native grassland community (Hawbecker 1958).

The home range of the San Joaquin antelope squirrel is thought to be approximately 10 to 50 acres with an average of 35.5 acres (CDFG 1990). The squirrel has a high

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affinity with its home range and remains there from year to year. However, each animal covers up to half of its range per day (Hawbecker 1958).

5. Giant Kangaroo Rat (*Dipodomys ingens*)

The giant kangaroo rat is the largest of the all the kangaroo rats and measures a total length of 311 to 348 mm (12.2 to 13.7 inches). Compared to other kangaroo rats, the ears and tail of the giant kangaroo rat are short in relation to its total body length. It is also the heaviest of the species weighing from 131 to 180 g (4.6 to 6.4 ounces) with males somewhat heavier than females. The fifth toe appears only on the hind foot and is diagnostic for the giant kangaroo rat. Other kangaroo rat within the range of the giant kangaroo have four toes on the hind foot and are smaller in weight as adults (CDFG 1988).

The giant kangaroo rat prefers to dig its burrows in open areas on flat to gently sloping terrain, usually less than 10 percent slopes. The soil in these areas is fine sandy loams with a covering of annual grasses and herbs. The giant kangaroo rat usually does not occur in areas of highly alkaline soils and seasonal flooding (Grinnell 1932, Williams 1981 cited by CDFG 1988).

Original habitat of the giant kangaroo rat may have been 1,303,700 acres from Merced County south to Kern County, west to eastern San Luis Obispo County and northern Santa Barbara County (Williams in prep, cited by CDFG 1988). Of this original habitat, an estimated 97-98% has been lost to agricultural conversion of natural lands (CDFG 1988).

The last relatively large blocks of suitable habitat are at the southern edge of the historic range of the species, in the upper Buena Vista Valley and the western Cuyama Valley of northern Santa Barbara County. Most of the extant populations are small, ranging from fewer than 10 to several hundred individuals. Despite successful translocation efforts to protected lands in the Carrizo Plain, populations of this species are considered to be declining due primarily to continued habitat loss and the use of rodenticides to control California ground squirrels (CDFG 1992). The giant kangaroo rat has not been documented at the Kern Water Bank.

6. American Peregrine Falcon (*Falco peregrinus anatum*)

This species of crow-size falcon has a dark cap on the head that extends down each cheek. The bird typically nests on ledges of large cliff faces, but may also use tall buildings and bridges. Nesting and wintering habitat are varied and include: wetlands, woodlands, other forested habitat, cities, agricultural lands, and coastal areas.

The breeding range of the peregrine falcon in California comprises the Coast and Cascade ranges and the Sierra Nevada. Breeding pairs typically remain near their territories throughout the year. Where suitable habitat occurs, non breeding birds may be found throughout California from September to early May. Inland marshes, riparian

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areas, coastal marshes, and other areas of high prey concentrations provide foraging habitat for migrating and wintering peregrines. There are no documented occurrences of the Peregrine falcon at the Kern Water Bank.

7. Swainson's Hawk (*Buteo swainsoni*)

Swainson's Hawk is a medium sized buteo (25 - 35 ounces) and is distinguished from other buteos by long, narrow, pointed wings; their plumage varies greatly. Light phase birds have buff white wing linings with darkly barred brown flight feathers; dark phase birds are dark brown with white undertail coverts, and intermediate reddish plumage occurs between phases.

Swainson's hawks begin to arrive in the Central Valley from South America in March to breed and raise their young. Territories are established by April with incubation and brooding occurring through June. The earliest fledging occurs in July with the young remaining with the parents until the southern migration in early fall.

Swainson's hawks are opportunistic foragers, flushing prey (birds, rodents and some insects) from fields, pastures and grasslands adjacent to their nests. Males provision the females while they incubate eggs; later both parents feed the young.

Swainson's hawks require large nesting trees with a panoramic view of their foraging grounds. The foraging habitats, open fields and grasslands, need to be within flying distance (maximum 18 miles) and large enough to support the high densities of microtine rodent populations and birds upon which they feed.

Their nesting preference is for large valley oaks (*Quercus lobata*) cottonwoods (*Populus fremontii*) or willow (*Salix goodingii*) within one mile of riparian areas.

The minimum area required for foraging depends on the vegetation supporting the prey populations and the farming activities that make prey particularly susceptible to predation, such as reduction of cover after harvesting, discing, mowing, flood irrigation and burning. Swainson's hawks highly active foraging behavior often results in birds traveling as far as 18 miles from a nesting site (Estep, 1989). Swainson's hawks have been observed foraging behind farm machinery (moving harvester blade or disc), capturing rodents that have become exposed from ground disturbance (Estep, 1989). Foraging ranges in fields with increased vegetation cover and reduced prey availability can be as large as 15,000 acres.

Suitable cover types for foraging habitats, in order of suitability, include native grassland, agriculture soon after discing, alfalfa and other hay crops, fallow fields, lightly grazed pasture, combinations of hay, grain, and row crops, rice fields prior to flooding and after draining, and heavily grazed pasture. Flooded rice fields were formerly considered to be unsuited for foraging, but recent observations indicate that the system of levees, checks, and rice fields is used by Swainson's hawk (Dave Zezulak, CDFG, pers. Comm.)

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Unsuitable cover types for foraging habitats include vineyards, mature orchards, cotton, thistle in fallow fields and any crop where prey are unavailable due to high vegetation height and density.

The habitat suitability index model developed by E.J. Koford of Ebasco Environmental with input from CDFG, Jones & Stokes Assoc. and SMUD, identifies the minimum habitat for the Swainson's hawk to be a suitable nest site surrounded by 1,280 acres of contiguous or semi-contiguous foraging habitat (CDFG mitigation guidelines) within 10 miles of the nest site. There are no documented occurrences of Swainson's hawk at the Kern Water Bank.

8. White-tailed Kite (*Elanus caeruleus*)

The white-tailed kite, also referred to as the black-shouldered kite, is known from coastal and valley lowlands in and around agricultural areas throughout California. It forages in undisturbed, open grasslands, meadows, farmlands, and emergent wetlands. It primarily feeds on small mammals and insects. It builds its nests in dense stands of trees, such as oaks or willows, between 20 to 100 feet above ground. There are no documented occurrences of the white-tailed kite at the Kern Water Bank.

9. Aleutian Canada Goose (*Branta canadensis leucopareia*)

The Aleutian Canada goose is a common migrant and a common to abundant winter resident throughout the Central Valley, Salton Sea, and northeastern areas of California. The goose prefers lacustrine, fresh emergent wetlands, and moist grasslands, croplands, pastures, and meadows. The Central Valley is apparently the main wintering ground of the Aleutian Canada goose. In California this species feeds primarily on green shoots and seeds of cultivated grains and wild grasses and forbs. This bird nests from March to June in northeastern California. There are no documented occurrences of the Aleutian Canada goose at the Kern Water Bank.

10. Greater Sandhill Crane (*Grus canadensis tubida*)

The summer range of the greater sandhill crane is restricted to the northeastern corner of the state (Siskiyou, Modoc and Lassen Counties). In the winter the crane occurs in and near wet meadow, shallow lacustrine, and fresh emergent wetland habitat in the Sacramento and San Joaquin Valleys from Tehama County south to Kings County. It frequents annual and perennial grassland habitats, moist croplands with rice or corn stubble and open emergent wetlands. This species is particularly sensitive to human disturbance when nesting. There are no documented occurrences of the greater sandhill crane at the Kern Water Bank.

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11. Giant Garter Snake (*Thamnophis gigas*)

The giant garter snake (GGS) is one of the largest garter snakes of the genus *Thamnophis*, with a total length up to 4.5 feet or greater. The snake in the Sacramento Valley and Delta regions has a dorsal ground color often dark brown to olive or nearly black, a complete dorsal strip varying in color from dull yellow to bright orange, and often orange on the ventral surfaces as well (G. Hansen, 1988). The GGS was formerly listed as a sub-species of *Thamnophis elegans* but has more recently been elevated to a full species status as *T. gigas*. Since *T. gigas* is adapted to a different ecological habitat than other subspecies of either *T. elegans* or *T. couchii*, *T. gigas* is largely isolated from its related species and sub-species.

Adult and juvenile GGS emerge in late March or early April and bask on elevated ground at overwintering sites. The snakes are active from late March to October with surface activity concentrated from April to July. GGS have been observed mating on vegetated canal banks or on stands of emergent vegetation from April to May. After breeding the males and females separate and spend more time feeding. Gravid females continue to feed in the summer. Females give birth about 120 days after breeding (e.g. breeding in April and bearing young in August). Females three years of age and older can begin to reproduce. Clutch size for young snakes is usually small, with 8 to 10 young. Clutch size increases with age of female, reaching as high as 50 young for a 10 to 12 year old female (4 to 5 feet in length). Females can probably clutch each year, but reproductive success may depend on whether they recover their body weight after they bear.

The species occurs in a combination of permanent and temporary freshwater habitats. The species conducts most of its activities within the immediate vicinity of water. GGS usually occur within a few feet of water (diving distance) and are often found between the water level and the top of the bank. Habitat components could include slow-moving water, mud bottom, ditches, canals, flooded rice fields, sloughs, and low-gradient streams with vegetated banks. Holes in banks provide shelter. Hibernaculae must be located above flood high water.

The species adapts well to human-made waterways as long as they have the primary requirements of: 1) enough water during the active summer season to supply food and cover (minimum April - July; optimum March - October); 2) grassy banks for basking; 3) emergent vegetation for cover during the active season (March - October); and 4) high ground or uplands that provide cover and refuge from flood waters during the dormant season (October - March).

GGS move around to find suitable habitat as conditions in the fields change. Connectivity of canal and ditch systems is important both for genetic health and ability to find summer habitat.

The species specializes in aquatic prey, including small fish and frogs, carp, mosquitofish, bullfrogs and treefrogs.

CDFG has prepared general mitigation guidelines for the GGS.

There are no documented occurrences of the giant garter snake at the Kern Water Bank.

12. Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)

The valley elderberry longhorn beetle (VELB) is a federally listed threatened species. The VELB is a cerambycid beetle in the coleoptera family. The male VELB has a dark pattern of the elytra reduced to four oblong spots, and the basal segments of the antennae are usually covered with pale hairs (Barr, 1991). The beetle is totally dependent on elderberry shrubs, using both *Sambucus mexicana* and *S. caerulea*. The beetle has a two-year life cycle. Adults lay their eggs on elderberry bushes. The emerging larvae bore into and feed upon the stems of the plant. The beetle emerges as an adult during the flowering period of the plant. The adults feed upon the elderberry flowers, reproduce, and die.

The DWR study also reported that the Valley elderberry longhorn beetle (VELB) was not found within the Project Permit area and there have been no historic records reported. Elderberry bushes, their only habitat, were not found.

13. Vernal Pool Shrimp

The following species of vernal pool shrimp are restricted to vernal pools in the State of California and are in danger of extinction as a result of loss of habitat from urban development, agricultural conversion, and random extinction by virtue of the isolated nature of remaining habitat. None of the species is known to occur in riverine waters, marine waters or other permanent bodies of water. They are ecologically dependent on seasonal fluctuations in their habitat, such as absence or presence of water during specific times of the year, duration of inundation, and other environmental factors that include specific salinity, conductivity, dissolved solids, and pH levels. Water chemistry is one of the most important factors in determining the distribution of fairy shrimp and tadpole shrimp. The species listed below are sporadic in their distribution, often inhabiting only one or a few pools in otherwise more widespread vernal pool complexes.

Conservancy Fairy Shrimp (*Branchinecta conservatio*). This species, a member of the aquatic crustacean order Anostraca, inhabits vernal pools with highly turbid water. It is currently known from six distinct populations in the following counties: Tehama, Solano, Glenn, Merced, and Ventura. Pools inhabited by these shrimp range are typically large, such as the 89 acre Olcott Lake at the Jepson Prairie.

Longhorn Fairy Shrimp (*Branchinecta longiantenna*). This member of the aquatic crustacean order Anostraca, inhabits clear to turbid grass-bottomed vernal pools in grasslands and clear-water pools in sandstone depressions. Vernal pools inhabited by the longhorn fairy shrimp are filled by winter and spring rains and may remain inundated

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until June. The water in vernal pools that support this species typically has low conductivity, TDS, and alkalinity. There are four populations of this species known: 1) along the eastern margin of the Central Coast Range from Concord in Contra Costa County south to Soda Lake in San Luis Obispo County; 2) Kellogg Creek watershed in the Altamont Pass area; 3) the western and northern boundaries of Soda Lake on the Carrizo Plain, and 4) the Kesterson National Wildlife Refuge in the Central Valley.

Vernal Pool Fairy Shrimp (*Branchinecta lynchi*). There are 32 known populations of this shrimp ranging from Stillwater Plain in Shasta County through most of the length of the Central Valley to Pixley in Tulare County. It is also found along the Central Coast Range from northern Solano County to the Pinnacles in San Benito County, at Soda Lake in San Luis Obispo County, near Santa Rosa Plateau and Rancho California in Riverside County, and in northern Santa Barbara County. Many of these populations comprise one single inhabited pool. Pool waters inhabited by the vernal pool fairy shrimp are typically low in TDS, conductivity, alkalinity, and chloride. It has a sporadic distribution in vernal pool complexes and typically occurs in low population densities.

Vernal Pool Tadpole Shrimp (*Lepidurus packardii*). This species, a member of the crustacean order Notostraca, inhabits vernal pools containing clear to highly turbid water, ranging in size from 5 square miles in the Mather Air Force Base area of Sacramento to 89 acres at Olcott Lake at the Jepson Prairie. Pools that support the tadpole shrimp are typically located in grass bottomed swales of grasslands in old alluvial soils underlain by hardpan or in mud-bottomed pools containing highly turbid water. There are 17 known populations of the vernal pool tadpole shrimp within the Central Valley area ranging north from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County. There is also a single population located in a vernal pool complex at the San Francisco Wildlife Refuge in the City of Fremont in Alameda County.

There are no documented occurrences of any of the vernal pool shrimp at the Kern Water Bank.

B. Listed Plant Covered Species

The description and discussion of the listed plant species, except where noted, are taken from two submissions to the Federal Register by the U.S. Fish and Wildlife Service: "Proposed Endangered or Threatened Status for Five Plants From the Southern San Joaquin Valley", dated July 27, 1989; and "Endangered and Threatened Wildlife and Plants; Determination of Endangered or Threatened Status for Five Plants from the Southern San Joaquin Valley", dated July 19, 1990.

1. San Joaquin Woolly-threads (*Lembertia congdonii*)

The San Joaquin woolly-threads is an annual herb belonging to the sunflower family (Asteraceae) which produces several, frequently-branching stems arising from the base and small yellow disk-flowers from March to April.

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The USFWS report supporting federal endangered species status for *Lembertia congdonii* in the Federal Register 19 July 1990 states:

"Associated with the valley saltbush scrub, only 12 populations of the San Joaquin woolly-threads remain in the San Joaquin Valley and adjoining foothills from the vicinity of Panoche Pass (San Benito County) southeasterly to Caliente Creek east of Bakersfield (Kern County). Another seven populations occur to the southwest in Cuyama Valley (San Luis Obispo and Santa Barbara Counties) and Carrizo Plain (San Luis Obispo County). Primarily as a result of ag-land conversion, 33 populations or 63% of the 52 historical and extant populations of the species have been lost (Taylor 1987)."

Known populations occur in the Kettleman and Panoche Hills, Lost Hills, and the Carrizo and Elkhorn Plains (Mitchell 1991). Within the Kern County Valley floor area, this species is known from at least eight widely scattered isolated populations; south of Blackwell's Corner; southeast of Lost Hills; between the Semitropic Preserve and Kern National Wildlife Refuge; west of Bakersfield near Highway 43 and Rosedale Highway; and southeast of Bakersfield at Sand Ridge in Caliente Creek area near its junction with Highway 58.

The plant is found in drifted sand or clayey, often alkaline soil in areas of annual grassland and saltbush scrub at elevations between 250 to 2500 feet. It is possible that it grows only in years of more than normal rainfall.

The San Joaquin woolly-threads is found at the Kern Water Bank in small remnant native plant communities which are located around historic oil field facilities in HCP designated sensitive habitat areas (NW quarter of Section 12, N half of Section 14, S half and NW quarter of Section 36, T30S, R25E, and NW quarter of Section 7, T30S, R26E). Other documented rare plant occurrences were located in designated compatible habitat (NE quarter of Section 13, and SW quarter of Section 25, T30S, R25E).

2. Hoover's Woolly-star (*Eriastrum hooveri*)

Hoover's woolly-star, an annual herb of the phlox family (Polemoniaceae), produces many wire-like branches and small white flowers from February to May (Abrams 1940). It is endemic to the southern San Joaquin Valley and adjoining South Coast Ranges, including the Elkhorn Plain, Carrizo Plain, Cuyama Valley from Kern to Fresno County, and east to San Luis Obispo County. Historical distribution of the species is discontinuous, i.e. there are no documented occurrences of *E. hooveri* in Kings or Tulare Counties.

Hoover's woolly-star grows in the sandy soils of rolling plains of valley saltbush scrub and valley sink scrub below 500 feet. Northern populations (Fresno County) are located on more alkaline soils than southern populations (Kern County). Distribution on alkali sinks is patchy. Colonies are often located only within the patches of cryptogamic soils.

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Twelve of the 39 historical and extant populations of the species have been extirpated due to habitat loss (Taylor and Davilla 1986). More recently conducted surveys have both confirmed the status of existing populations as well as previously unrecorded populations on the lands of Naval Petroleum Reserve #1 within the Elk Hills and adjacent lands including the Buena Vista Valley and Buena Vista Hills (EG&G 1988; Russ Lewis pers. comm. 9 September 1989 to USFWS). These two surveys brought the total of remaining populations of *Eriastrum hooveri* to 118. However, of these 118 known populations, 100 are currently threatened by oil and gas development, ag-land conversion, urbanization or reservoir construction. One population is within a preserve, The Nature Conservancy's Paul Paine/Semitropic Ridge Preserve.

The Hoover's woolly-star is present at the Kern Water Bank in small remnant native plant communities which are located around historic oil field facilities. Most of the DWR 1991 documented populations are included in designated sensitive habitat areas (NW quarter of Section 12, N half of Section 14, S half and NW quarter of Section 36, T30S, R25E, and NW quarter of Section 7, T30S, R26E). Other documented rare plant occurrences were located in designated compatible habitat (NE quarter of Section 13, and SW quarter of Section 25, T30S, R25E). One questionable documented occurrence of Hoover's woolly-star was noted in an area designated for recharge facilities (SE quarter of Section 12, T30S, R25E). A recharge basin was established in this area prior to DWR purchasing the property.

3. California Jewelflower (*Caulanthus californicus*)

The California jewelflower is an annual herb of the mustard family (Brassicaceae), usually one foot tall, with several flower branches. The lower leaves of the jewelflower are dry, oblanceolate and lobed with wavy margins. The base of the lower leaves cling to the stem of the plant and are egg-shaped or oblong. The flowers are translucent white with purple tips that turn green at full bloom (Taylor and Davilla 1986). Thin, narrow seed pods up to one inch long are one of the factors which distinguish this plant from related species (USFWS 1989).

Historically, the California jewelflower was distributed in the general area bounded by the present-day cities or communities of Coalinga and Fresno in Fresno County, New Cuyama in Santa Barbara County and Bakersfield in Kern County (Taylor and Davilla 1986). The jewelflower was extirpated from most of its former range as a result of the expansion of agriculture and livestock grazing coupled with the conversion of San Joaquin Valley grasslands from native annual plants to european annual plants (Taylor and Davilla 1986).

Today, the California jewelflower is represented by approximately twenty populations at four locations along the western edge of its range. These locations include the foothills of southwestern Fresno County, two sites on the Carrizo Plain in San Luis Obispo County, and in the Cuyama Valley of Santa Barbara County. The latter locations

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supports the largest populations of this species, but is privately-owned (CDFG 1992, Skinner and Pavlik 1994).

The California jewelflower is thought to be extirpated from Kern County. A transplanted population is being maintained in alkali grassland at The Nature Conservancy's Semitropic Ridge Preserve in Kern County. The U.S. Forest Service is attempting to establish new populations of this species on public lands (CDFG 1992).

The introduced population grows, in wet years, on the alkali plains in The Nature Conservancy's Paul Paine/Semitropic Ridge Preserve. Historical records indicate the jewelflower was found on the floor of the San Joaquin Valley in sandy, grassland type habitat (Taylor and Davilla 1986) and on slopes under 3000 feet on the surrounding foothills (Munz 1973). There are no documented occurrences of the jewelflower at the Kern Water Bank.

4. Kern Mallow (*Eremalche parryi kernensis*)

Kern mallow is a small erect annual plant that is branched from the base with stems from 2 to 4 inches tall. The stems have scattered stellate hairs and support three-to five-lobed leaves that are 0.5 to 1.5 inches long and about as wide. Petioles may be as long as 1 inch. Bractlets are filiform and taper gradually to a slender tip. Flowers are white or lavender-pinkish and appear in early spring (March to April). Fruits resemble small segmented wheels of cheese.

The extant distribution of Kern mallow is restricted to the dry open clay flats between 600 and 900 feet above mean sea level that are found in the southwestern portion of the lower San Joaquin Valley. The habitat for Kern mallow consists of saltbush scrub vegetation, with an approximate saltbush shrub canopy cover of 20 percent. Shrub canopy cover is commonly provided by either valley saltbush and/or spiny saltbush. Within this habitat, Kern mallow grows in areas where the annual grass cover is low, such as old tire tracks or small exposed "balds" with cryptogamic crusts. Soils tend to be silty loams and are classed somewhere between the heavily alkaline sinks and the non-saline soils now largely converted to agricultural uses on the floor of the San Joaquin Valley (Taylor and Davilla 1986).

The systematic position of this plant, as either a full species or subspecies of Parry's mallow (*E. Parryi*) is not clear. Research suggests that two or more subspecies may be present in the San Joaquin Valley. In the strict sense, white-flowered plants in Kern County are called Kern mallow (Bates 1993). There are no documented occurrences of the Kern mallow at the Kern Water Bank.

5. Bakersfield Cactus (*Opuntia basilaris* var. *treleasei*)

The Bakersfield cactus is a low-growing member of the cactus family (Cactaceae) that typically grows in extensive thickets. It generally develops beavertail-like pads 3 to 4 inches wide and 5-7 inches long. The areoles (eye-spots) are never depressed but flush

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with the pad surface or somewhat raised. All areoles have spines, although they vary in number and length. The large flowers are magenta and bloom in May.

Historically, the Bakersfield cactus occurred "in dense, almost impenetrable colonies" (Twisselman 1967) along sandy bluffs, dry stream beds, rolling grassy hills and sandy flats with good drainage in the region surrounding Bakersfield. Habitat elevation ranged from 600-800 feet. Typical habitat soil is granular with large cobbles.

Within the Kern County valley floor area, the Bakersfield cactus is restricted to locations around the southeastern edges of the Tulare Subbasin, from just north of Bakersfield to the north side of Wheeler Ridge. An isolated population also occurs in the Tejon Hills at Comanche Point. All of these areas are threatened by development (Mitchell 1991). There are no documented occurrences of the Bakersfield cactus at the Kern Water Bank.

6. Bakersfield Saltbush (*Atriplex tularensis*)

The Bakersfield saltbush is in the Chenopodiaceae (Goosefoot) family. It is an erect, few-branched annual roughly 8 to 32 inches tall (20 to 80 cm), covered with bran-like, pubescence on the stems and aging to a reddish color. The whitish-gray lanceolate to ovate leaves, less than one inch long (6 to 20 mm), have smooth-edged margins and rounded bases which are attached directly to the stem. The plant is monoecious - the small, greenish flowers are either male or female. Male flowers occur in small, dense clusters while female flowers occur either singly, in small clusters or mixed with the male flowers. Diamond-shaped bracts of fruit, 0.12 to 0.14 inches long (3.0 to 3.5 mm), have a wider lower half. The lower 2 margin edges of the bracts are smooth and the upper 2 margins are toothed with a scurfy-white pubescent surface.

Similar looking species of *Atriplex* occur in the area and careful identification by experts is required. This species is closely related to *A. cordulata*, from which it can be distinguished by its much narrower leaves in proportion to their length, and its smaller seeds.

The Bakersfield saltbush historically occurred on the borders of alkali sinks and on alkaline plains in southern Kern County. First collected in the early 1890's, it had not been seen since the 1930's, until its recent rediscovery in 1983 on the southern edge of Kern Dry Lake (Gator Pond). Here it was found in relatively undisturbed alkali sink vegetation and on a narrow, low, manmade berm. It may be present only during exceptionally wet years (Twisselmann 1967) in the lowland valley sink scrub natural community, associated with rough-leaved dropseed grass (*Sporobolus asperifolius*), salt grass (*Distichlis* sp.), alkali heath (*Frankenia* sp.) and pickleweed (*Salicornia* sp.). It occurs from 300 to 400 feet (90 to 120 m) above sea level.

Since 1985, only one population is known at The Nature Conservancy's Kern Lake Preserve. No individuals of that population are known to have germinated during the dry 1989 season. Studies of *Atriplex tularensis* indicate that it may hybridize with *Atriplex*

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serenana, the bracted saltbush, a closely related and widespread species that tolerates drier conditions. Monitoring data over the past several years suggests that this last population is in decline and faces a serious danger of extinction (CDFG 1990).

C. Non-Listed Animal Covered Species

1. Western Spadefoot Toad (*Scaphiopus hammondi*)

The range of this species includes the Central Valley and adjacent foothills, and the Southern Coast Ranges. It extends from sea level to about 4500 feet in elevation. Its primary habitat is grasslands, but it is occasionally found in valley-foothill hardwood woodlands. The toad requires shallow temporary pools for breeding. Grasslands with shallow temporary pools are optimal habitat for the western spadefoot.

Agricultural and urban conversion of grassland sites containing vernal pools have eliminated at least 50 percent of the known populations in the state. Most of the populations on the southern California coastal plain have been extirpated. Within the Kern County valley floor area, spadefoot toads are known to breed in temporary pools south of Delano, in the Temblor Range south and southeast of Maricopa, and south of Arvin, based on museum records contained in Jennings and Hayes (1992). There are no documented occurrences of the spadefoot toad at the Kern Water Bank.

2. Northwestern Pond Turtle (*Clemmys marmorata marmorata*) and Southwestern Pond Turtle (*Clemmys marmorata pallida*)

Both of these species are uncommon to common in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest. They are associated with permanent or nearly permanent water in a wide variety of habitat types. Pond turtles require basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks. Both turtles are omnivorous and feed on aquatic plant material, beetles, a variety of aquatic invertebrates, fishes, and frogs.

Western pond turtles have been reported from one location along the north side of the Kern River in the Kern Water Bank area (DWR 1991). They are known to use water conveyance canals during dry times of the year.

3. Tricolored Blackbird (*Agelaius tricolor*)

The tricolored blackbird is both a federal and State species of special concern. The male tricolored blackbird has red shoulder patches broadly tipped with white. The female, which has sooty-brown plumage, shows varying amounts of red on its shoulders. The species forages in grasslands, wetlands, rice fields, croplands, and weedy uplands dominated by mustards and thistles, etc. It breeds between April and July. Preferred nesting sites are in marshes containing heavy growth of bulrushes, cattails, and blackberries.

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The number of tricolored blackbird nesting colonies decreases as one travels from the Sacramento-San Joaquin Delta south through progressively more arid habitat. Except for nesting colonies at Kern National Wildlife Refuge, very few records of nesting tricolored blackbird colonies have been recorded on the floor of the valley in Kern County. No tricolored blackbird nesting colonies have been recorded from the vicinity of the Kern Water Bank (DWR 1991).

4. Burrowing Owl (*Athene cunicularia*)

This small owl is a yearlong resident of open, dry grassland and desert habitats throughout the California deserts, Central Valley, and coastal areas. This owl uses rodent or other burrows for roosting and nesting cover, and is often seen by day standing on the ground or on posts near its burrow. Burrowing owl habitat generally includes the following:

- Open habitats and perches which afford a good view of approaching predators, provide burrows, provide a prey base and contain few to no trees (Trulio, in press).
- Nesting habitat which is flat or has a very shallow slope to the topography such as two to three percent slope or is on a levee or slope next to open land in short grass habitat (Trulio, in press).
- Short-grass habitat such as undeveloped grassland, airport, school yard, and golf course environments (Trulio, in press) for forage and nesting habitat. This may include annual or perennial grassland species, as long as the grass is kept short. Forage habitat does not have a slope restriction.
- Non-irrigated grassland, which may support up to three times as many owls as irrigated grassland (Trulio, in press).
- Burrows built by other animals such as ground squirrels, badgers or other small mammals. Where burrows are scarce, pipes, culverts and nest boxes may be used (CDFG 1995).
- Food items including primarily insects and rodents, but also small birds, reptiles, and carrion (Thomsen, 1971; CDFG 1995).
- Human use. The owl is tolerant of human activity and can adapt to human-altered landscapes (Trulio, in press).

The burrowing owl's numbers have been markedly reduced in California for at least the past 60 years. Agricultural and urban conversion, along with ground squirrel poisoning programs, have contributed to the decline of this species.

Burrowing owls have been observed throughout the Kern Water Bank (DWR 1991 and Vanherweg 1996).

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5. Ferruginous hawk (*Buteo regalis*)

The Ferruginous hawk is the largest of the Buteos (length approximately 23 inches; wing span approximately 53 inches) is generally rufous above and whitish below, with a pale or light rufous tail. As viewed in flight from below, the dark rufous legs form a "V" against the light underside (lacking in immature birds). Tips of primaries are black, and the tail lacks a distinctive dark band.

Ferruginous hawks range over much of western North America, occurring in California only as a winter visitor. This large hawk is similar to the Golden Eagle in terms of appearance (large size, feathered tarsi) and other characteristics. These hawks inhabit open areas such as plains and prairies, and feed almost exclusively on rodents and lagomorphs, taking birds only rarely. Although preferred nesting sites are in trees or on cliffs, the bird is somewhat unique in that it will occasionally nest on the ground (Lokemoen and Duebbert 1976).

Conversion of native grasslands and prairies to agricultural fields has eliminated much of the Ferruginous hawk's former habitat. This hawk may forage in the Kern Water Bank area as former agricultural land is converted to grassland.

6. Western Snowy Plover (*Charadrius alexandrinus nivosus*)

Threatened status under the federal Endangered Species Act was extended to all Pacific coast breeding populations of snowy plover in March, 1993. Interior populations which have the potential to occur at the KWB are currently a candidate for federal listing. There is little documented inbreeding between the two populations. Birds appear to be either year-round residents of coastal or inland areas. All populations of the snowy plover are listed by the California Department of Fish and Game as a State Species of Special Concern.

The snowy plover has a compact body 8-15 cm (6-7 in) in length, a short neck and large eyes. It is distinguished from other plovers by its sandy colored back and light underside, small size, dark legs and beak, and partial neckband. The forehead and breast markings of males become black during breeding; females markings are dark brown. During the rest of the year the sexes have the same plumage. They are further distinguished by their run and peck behavior rather than probing behavior of sandpipers. The plover scans an area and then runs over and grabs the insect, worm or crab.

In the interior of California, breeding habitat consists of barren to sparsely vegetated shores of saline and alkaline lakes and agricultural drainwater impoundments (evaporation ponds). Water is generally considered a necessary component of breeding habitat (Page and Bruce 1989).

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In the vicinity of the Kern Water Bank, snowy plovers have been observed at the City of Bakersfield's tertiary treatment Wastewater Pond #3 west of I-5 and south of the Taft Highway (DWR 1991).

7. **White-faced Ibis (*Plegadis chihi*)**

This species is a rare visitor in the Central Valley. It was formerly more common in the San Joaquin Valley, but no longer breeds regularly anywhere in California. The ibis prefers to feed in fresh emergent wetland, shallow lacustrine waters, and muddy ground of wet meadows and irrigated, or flooded, pastures and croplands. It typically nests in dense, fresh emergent wetland. The white-faced ibis has declined in California probably as a result of loss of extensive marshes which are required for nesting. There are not documented occurrences of the white-faced ibis at the Kern Water Bank.

8. **Mountain Plover (*Charadrius montanus*)**

This species is a winter resident from September through March in the Central Valley southward from Sutter and Yuba Counties. It is typically found in short grasslands and plowed fields. It also occurs in foothill valleys west of the San Joaquin Valley and in Imperial Valley in areas below 3200 feet in elevation. The mountain plover does not nest in California. The population of the mountain plover is declining in California.

The mountain plover is one of the few shorebirds that lives away from water in arid regions (Terres 1980). On winter range in the San Joaquin Valley, mountain plovers favor arid sparsely-vegetated grasslands, alkaline flats, sprouting grain fields, grazed pastures, fallow agricultural land, and freshly plowed fields (Terres 1980). On winter range, mountain plovers mostly, if not entirely, eat insects such as grasshoppers, crickets, beetles, and flies (Terres 1980). There are no documented occurrences of the mountain plover at the Kern Water Bank.

9. **Loggerhead Shrike (*Lanius ludovicianus*)**

This species is a common resident and winter visitor in foothills and lowlands throughout California. It occurs rarely in urbanized areas, but uses open cropland. It prefers open habitats with scattered shrubs, trees, fences, posts, or other perches. It can be found in the open areas of the following habitats: valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree. The shrike nests in densely-foliaged shrubs or trees. There are no documented occurrences of this bird at the Kern Water Bank.

10. **Le Conte's Thrasher (*Toxostoma lecontei*)**

An uncommon to rare, local resident in southern California deserts from Inyo County south to the Mexican border, and in western and southern San Joaquin Valley. Occurs primarily in open desert wash, desert scrub, alkali desert scrub, and desert

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succulent scrub habitats. Uses scattered desert shrubs, such as saltbush and cholla, for cover. Populations in the San Joaquin Valley have declined. Formerly this bird was known to breed as far north as Coalinga, Fresno County. It is now restricted to the southwestern corner of the San Joaquin Valley in the Taft-Maricopa area and in the Lost Hills area. Threatened by off-road vehicle activity in desert washes. There are no documented occurrences of this bird at the Kern Water Bank.

11. Greater Western Mastiff Bat (*Eumops perotis californicus*)

The greater western mastiff bat is an uncommon resident of Alameda, San Benito, and Mariposa counties. This species of bat is found in narrow crevices in vertical or near-vertical slopes. The crevices typically have an enlarged opening at the base to allow the bats to drop into flight (Vaughan 1959). The bat may use buildings and tunnels for roosting.

There are no historical records of the greater western mastiff bat on the Kern Water Bank and none were observed during field studies conducted for DWR 1991.

12. Pacific Western Big-eared Bat (*Plecotus townsendii*)

The Pacific Western big-eared bat is a permanent uncommon resident throughout California. This bat roosts in caves, mines, tunnels, and other man-made structures. It prefers mesic habitats where it is most abundant. This bat is very sensitive to disturbance of its roosting sites.

There are no historical records of the Pacific Western big-eared bat on the Kern Water Bank and none were observed during field studies conducted for DWR 1991.

13. Buena Vista Lake Shrew (*Sorex ornatus relictus*)

This description is slightly modified from Appendix B, Kern County Valley Floor Draft HCP. The ornate shrew, *S. Ornatus*, is a California and Baja California, Mexico endemic, occurring on the Pacific slope from the Sacramento Valley southward to northwestern Baja California Norte, with a disjunct distribution at the tip of Baja California del Sur. The low dispersal ability and narrow habitat requirements of ornate shrews promote population fragmentation and hence, the formation of geographically restricted subspecies (Hall 1981, Owen and Hoffman 1983).

The Buena Vista Lake shrew historically inhabited mesic habitats associated with the lakes and watercourses of the Tulare Subbasin, including wet meadows, freshwater marshes, riparian corridors, and alkali sink scrub (Grinnell 1932b). Individuals apparently maintain burrows as retreats (Maldonado 1992a,b). This shrew is distinguished from the upland subspecies, *S. o. ornatus*, on its dependence on mesic habitats, and darker dorsal pelage color, in addition to minor morphological differences. The upland subspecies occupies the area surrounding the Tulare Subbasin and appears to have intergraded with the Buena Vista Lake shrew along the lower courses of streams

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entering the floor of the basin. Consequently, the taxonomic relationship between *relictus* and *ornatus* is unclear (Grinnell 1932b, Williams 1986). Despite this, the shrew is considered one of the most seriously threatened small mammals on the floor of the San Joaquin Valley (Williams and Kilburn 1992, Maldonado 1992a,b, 1994).

Williams (1986) speculated that small populations of Buena Vista Lake shrews may still occur in mesic alkali scrub habitats along the west side of Buena Vista Lake bed, the Tule Elk Reserve, in the vicinity of the Semitropic Preserve, in wetlands associated with the Kern River in the Coles Levee Ecosystem Preserve, and along sloughs and canals on the valley floor leading into Goose Lake and Buena Vista sloughs that retain native vegetation. There are no documented occurrences of the Buena Vista Lake shrew at the Kern Water Bank.

14. American Badger (*Taxidea taxus*)

This description is slightly modified from Appendix B, Kern County Valley Floor Draft HCP. The American badger is a habitat generalist and was historically found throughout California, except the humid northwestern portions, in open grassland, coastal sage scrub, oak savanna, oak woodland, chaparral and desert scrub habitats. Badgers are found primarily in areas with friable soils, which are important for burrowing and also support suitable densities of rodents. Widespread conversion of these habitats to agriculture, grazing and urban purposes, as well as predator control, rodent control, and trapping for fur has drastically reduced badger populations over the past century. Grinnell (1937) noted significant population reductions throughout its range in California even in the 1930s. At that time they were still numerous in the Central Valley, but now they survive only in low numbers in peripheral parts of the valley and adjacent lowlands to the west, such as the Panoche Valley, Carrizo Plain, Cuyama Valley and Elkhorn Plain (Williams 1986).

Current data on the population status of badgers in California are lacking, but they have been eliminated from most parts of the San Joaquin Valley and the coastal basins of southern California. Museum records within the study areas are from Bakersfield, Buttonwillow, Taft, and an old record from "Tulare Lake, at the mouth of the Kern River" (Williams 1986). In Kern County, suitable habitat and prey densities for badgers remain in the foothills bordering the valley floor, such as the Elk Hills. The American badger was observed at the Kern Water Bank by DWR (1991) in four areas comprising 640 acres.

D. Non-Listed Plant Covered Species

1. Heart-leaved Saltbush (*Atriplex cordulata*)

This description is slightly modified from Appendix B, Kern County Valley Floor HCP. Heart-leaved saltbush is an herbaceous annual member of the goosefoot family (*Chenopodiaceae*). This plant grows to two feet tall on an erect stem, and the leaves are

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grey, scaly, with the lower based heart-shaped and the upper bases rounded. Heart-leaved saltbush is restricted to saline or alkaline soils below 650 feet (Taylor and Wilken 1993).

It was originally distributed from the southern Sacramento Valley southward throughout the San Joaquin Valley, to southern Kern County. Agricultural conversion of native habitat is the primary reason for the dramatic decline of this species. Due to its narrow edaphic requirements, the distribution of heart-leaved saltbush can be characterized as geographically widespread, but locally restricted. Due to its restricted soil requirements, populations were naturally fragmented.

This plant is known from several widely-scattered occurrences in the northern and southern portions of Kern County, including large populations just north of Maricopa along Highway 33, along the northwestern shores of the former Buena Vista Lake bed; and smaller, fragmented populations between Delano and the Kern National Wildlife Refuge, and northeast of the Lokern Natural Area. There are no documented occurrences of this plant at the Kern Water Bank.

2. Lesser Saltbush (*Atriplex miniscula*)

This annual herb is a member of the goosefoot family (*Chenopodiaceae*) and occurs in alkali soils in and around valley foothill grasslands and chaparral scrub plant communities. It is known from fewer than five extant occurrences. It is closely related to *A. depressa* and *A. parishii*. There are no documented occurrences of this plant at the Kern Water Bank.

3. Lost Hills Saltbush (*Atriplex vallicola*)

This description is slightly modified from Appendix B, Kern County Valley Floor Draft HCP. The Lost Hills saltbush (or crownscale) is a small, herbaceous annual in the goosefoot family (*Chenopodiaceae*). It has an erect stem, with green to gray, scaly, elliptical to ovate leaves. It intergrades with *A. coronata*, and may be a subspecies of this plant (Taylor and Wilken 1993).

The Lost Hills saltbush is restricted to margins and beds of dried ponds on alkaline soils below 650 feet in the San Joaquin Valley, and possibly in the Carrizo Plain of San Luis Obispo County, but plants from the latter location are undescribed (Taylor and Wilken 1993).

This species has several widely-scattered occurrences in the northern and southern portions of the Kern County valley floor, including a population between Delano and the Kern National Wildlife Refuge and several populations scattered between the Kern National Wildlife Refuge southward to Highway 33 south of McKittrick. There are no documented occurrences of this plant at the Kern Water Bank.

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4. Slough Thistle (*Cirsium crassicaule*)

The genus *Cirsium* comprises thistle-like plants with white, pink or purplish flowers. It is in the Asteraceae (Sunflower) family. Member species have more than one flower per head. The receptacle, or end of the flower stalk on which the floral organs are lie, is non-fleshy. The pappus bristles (appendages that crown the ovary and aid in dispersal) are feathery. *Cirsium crassicaule* is an annual or biennial herb, 3.3 to 9.8 feet tall (1 to 3 m). It sometimes spreads by new rosettes from the base. The stem leaves are pinnately parted with clasping bases that form spiny ear-shaped lobes. The upper surfaces of the leaves become glabrous (smooth and hairless) with age while the lower surfaces are pubescent. The tall, subglabrous flower heads are pinkish purple or sometimes white and 0.8 to 1.2 inches wide (2 to 3 cm). The outer phyllaries (bracts below the flower head) each have a single, long, stiff terminal spine and often a few shorter lateral spines arising near the apex.

The introduced *Cirsium* that may be encountered do not have spines on the margins of the phyllaries. No other native thistle occurs in this habitat.

The slough thistle usually occurs on the banks of streams, washes, sloughs or canals, sometimes in moist to wet places. It sometimes grows in disturbed areas. Populations fluctuate from year to year. Healthy populations one year may be completely gone the next with no evident reason.

Moderate populations of slough thistle are scattered throughout mesic areas along the west of Kern County, such as within and south of Kern National Wildlife Refuge, the vicinity of the Tule Elk Reserve, and within the Coles Levee Ecosystem Preserve. DWR (1991) found one population of the slough thistle at the Kern Water Bank in the southwest quarter of Section 34, T30S, R25E.

5. Hispid Bird's-beak (*Cordylanthus mollis* ssp. *hispidus*)

This annual herb in the *Scrophulariaceae* family is known from alkali meadows, saline marshes and flats in the Great Central Valley (Alameda, Solano, Placer, Merced, and Kern Counties). According to CNPS (1994) it may be extirpated in the lower San Joaquin Valley. There are no documented occurrences of this plant at the Kern Water Bank.

6. Recurved Larkspur (*Delphinium recurvatum*)

Recurved larkspur has shallow, woody, fibrous roots. It is in the Ranunculaceae (Crowfoot) family. The stems are reddish or purplish, ranging from 7.9 to 23.6 inches tall (20 to 60 cm). The stems stand erect and are either smooth or covered with a light pubescence. The palmatifid leaves, 0.5 to 1.2 inches wide (1.5 to 3 cm), have few-parted divisions and grow mainly on the upper part of the stem from ascending-erect petioles. The ultimate leaf segments are hairy on the underside, blunt and have an abrupt, terminal point. Sepals are light blue, oblong to ovate in shape with blunt, incurved tips with

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sparse, flat lying bristles. Petioles are 0.4 to 0.6 inches long (10 to 16 mm). The spur, the hollow projecting appendage of the larkspur calyx is straightish and 0.4 to 0.55 inches long (10 to 14 mm). The conspicuous upper petals are white or cream colored. The lower petals are whitish to pale-blue, bearded and detoid-ovate in shape. The sinus or indentation between the lobes of the corolla, is open. The thinly haired follicles are 0.35 to 0.5 inches long (9 to 12mm). Seeds are light colored and 0.04 inches (1mm) and broadly white-winged.

The recurved larkspur lives in subalkaline soils of bushy or open places in alkali sink and valley grassland habitats. It was known in Glenn and Butte Counties and from Contra Costa County south to Kern County. It flowers from March to May.

Agricultural and urban development of most of the grassland and scrub habitats on the floor of the Central Valley has greatly reduced the size and distribution of most populations. This species is known from several widely scattered population in western Kern County, including areas between Kern National Wildlife Refuge and Interstate 5, west of the Tule Elk Reserve near the base of the Elk Hills, northeast of the Lokern Natural Area, and east of Coles Levee Ecosystem Preserve in the Kern Water Bank Areas.

At the Kern Water Bank, the recurved larkspur is present in the smaller remnant native plant communities which are located around historic oil field facilities. Most of the DWR 1991 documented rare plant populations are included in designated sensitive habitat areas (NW quarter of Section 12, N half of Section 14, S half and NW quarter of Section 36, T30S, R25E, and NW quarter of Section 7, T30S, R26E). Other documented rare plant occurrences were located in designated compatible habitat (NE quarter of Section 13, and SW quarter of Section 25, T30S, R25E).

7. Kern Tarplant (*Hemizonia pallidus*)

The Kern tarplant is a late spring annual that may range from 6 to 30 inches tall. Plants are commonly branched above or throughout with multiple ascending or divergent branches. Branches and leaves are typically villous-hirsute, lightly glandular, and aromatic. Flowering heads support approximately 1-inch wide yellow daisy-like flowers. Plants typically flower from April to May with flowers often persisting well into the summer months.

This species occurs in the valley and in the surrounding east and west side hills of Kern County, up to about 2,200 feet elevation. It seems to grow well in patches of disturbance, such as road shoulders and the edges of well pads, as well as in undisturbed grassland. In grassland habitat tarplant numbers may increase with moderate grazing, which eliminates some of the annual grass competition. There are no documented occurrences of this plant at the Kern Water Bank.

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8. Comanche Point Layia (*Layia leucopappa*)

This description is slightly modified from Appendix B, Kern County Valley Floor HCP. The Comanche Point layia is a small annual herb in the aster family (Asteraceae). The height of this plant ranges from less than 0.5 to 2 feet tall, depending on local rainfall and temperature regimes. The ray flowers are white to cream-colored and the disk flowers are yellow (Baldwin and Bainbridge 1993).

The species is apparently endemic to the foothills of the Tehachapi Mountains bordering the southern and eastern Tulare Subbasin in Kern County, where it is found in heavy, whitish, clayey soils in sparse grasslands on sloping ground below 1100 feet (Baldwin and Bainbridge 1993). Twisselmann (1967) reports that it was once common on the plains southeast of Mettler, an area that is now mostly cultivated.

Comanche Point Layia is known from several isolated populations in the southeastern portions of the valley floor of Kern County, most of which are threatened by development. There are no documented occurrences of this plant at the Kern Water Bank.

9. Alkali mariposa lily (*Calochortus striatus*)

The alkali mariposa lily is a perennial herb found in chaparral, chenopod scrub, Mohavean desert scrub, and alkaline meadows in Kern, Los Angeles and San Bernardino Counties. Populations of this plant are threatened by grazing and urbanization. There are no documented occurrences of this plant at the Kern Water Bank.

E. Plant Communities

Six natural plant communities were identified in and around the Kern Water Bank by DWR (1990). The plant communities are based on Holland's Preliminary Descriptions of the Terrestrial Natural Communities of California (1986). Only the mesquite savanna, saltbush scrub, and grassland habitats are actually within Kern Water Bank lands. The riparian habitats were found either along canals, or along and within the Kern River Corridor which is outside Kern Water Bank lands. The uncultivated plant communities are present on about 1500 acres of the Kern Water Bank. Column 2 of Table 1 above includes the plant communities associated with each of the covered species.

1. Valley Saltbush Scrub

Valley saltbush scrub is generally found in the southwestern San Joaquin Valley on dissected alluvial fans with flat to gently rolling relief. Soils are sandy and loamy soils without surface alkalinity. This community is dominated by gray-green or blue-green shrubs of the Goosefoot family (*Chenopodiaceae*) with a sparse understory of

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short, annual herbaceous vegetation. Stands of valley saltbush scrub range from open to more dense (10 to 40 percent shrub cover).

Characteristic perennial shrub species of valley saltbush scrub include valley saltbush (*Atriplex polycarpa*), spiny saltbush (*Atriplex spinifera*), alkali heath (*Frankenia grandifolia* var. *campestris*), and pale-leaf golden bush (*Haplopappus acradenius bracteosus*). Except for saltbush, most of these perennials flower from May to September. Valley saltbush scrub understory typically consists of annual species such as common tarplant (*Hemizonia pungens*), birds-eye gilia (*Gilia tricolor*), goldfields (*Lasthenia* spp.), filaree (*Erodium* spp.), fescue (*Vulpia* spp.), and peppergrass (*Lipidium* spp.). These annuals flower from January to April.

2. Valley Sacaton Grassland

Valley sacaton grassland is a medium height (39 inches) native grassland dominated by the tussock-forming bunchgrass, alkali sacaton (*Sporobolus airoides*). Valley sacaton grassland and the more widespread non-native grassland both occur on fine-textured soils, but sites supporting valley sacaton grassland are poorly drained, and are usually characterized by alkaline soils. Most sites have seasonally high water tables or are overflowed during winter and spring flooding.

Typical species in this community include saltgrass (*Distichlis spicata*), alkali barley (*Hordeum depressum*), and alkali sacaton (*Sporobolus airoides*).

3. Non-native Grassland

Non-native grassland is found throughout most of California, primarily below 3,000 feet in elevation on fine-textured, usually clay soils. Non-native grassland is dominated by introduced annual grasses in association with many species of showy-flowered native forbs ("wildflowers"), especially in years of abundant rainfall.

Characteristic non-native species typically present in this plant community are red brome, soft chess (*Bromus mollis*), ripgut brome (*Bromus diandrus*), hare barley (*Hordeum leporinum*), wild oats (*Avena* spp.), Italian ryegrass (*Lolium multiflorum*), Arabian schismus (*Schismus arabicus*), rat-tail fescue (*Vulpia myuros*), filaree, and bur-clover (*Medicago polymorpha*). Native plant species found in the non-native grassland include few-flowered fescue (*Vulpia microstachys*), fiddleneck (*Amsinckia* spp.), goldfields, peppergrass, various species of tarplant (*Hemizonia* spp.), lupine (*Lupinus* spp.), gilia (*Gilia* spp.), owl's clover, and phacelia.

These grasses and flowers germinate with the onset of late fall and winter rains. Growth, flowering, and seed-set occur from winter through spring. Most annuals in this community die by summer and persist as seeds until the winter rains return.

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4. Great Valley Cottonwood Riparian Forest

Great valley cottonwood riparian forest is the plant community that characterized the Kern River channel and floodplain under historical conditions. This forest type occurs on fine-grained alluvial soils near perennial (or nearly perennial) streams that provide subsurface irrigation even when the channel is dry. Spring flooding originally provided an annual input of nutrients, soil, and new germination sites that produced a dense, broad-leaved, winter deciduous stream side forest dominated by Fremont cottonwood (*Populus fremontii*) and valley willow (*Salix gooddingii*).

Species characteristic of the great valley cottonwood riparian forest community include Fremont cottonwood, valley willow, sandbar willow (*Salix hindsiana*), other willows (*Salix* spp.), mule fat (*Baccharis viminea*), California sagebrush (*Artemisia douglasiana*), cocklebur (*Xanthium strumarium*), and sweet clover (*Melilotus* spp.).

Great valley cottonwood riparian forest in the HCP area includes components of great valley willow scrub. This community is quite similar to the cottonwood riparian system except that tall trees, especially cottonwoods, are absent. This scrub community is characterized by open to dense, broadleaf, winter deciduous shrubby stream side thickets dominated by one of three or four species of willows. Dense stands usually have little understory or herbaceous component; more open stands have grassy understories dominated by introduced species. Associated species included riggut brome, Bermuda grass (*Cynodon dactylon*), and Mexican-tea (*Chenopodium ambrosioides*).

5. Mule Fat Scrub

Mule fat scrub is an early successional riparian community maintained by regular flooding. The dominant plant in this herbaceous riparian scrub community is mule fat (*Baccharis viminea*), a tall woody shrub. In the absence of frequent flooding, most stands are eventually replaced by cottonwood riparian forest or great valley willow scrub. Mule fat scrub occurs along intermittent stream channels with fairly coarse substrate and moderate depth to the water table. Characteristic species are mule fat, stinging nettle (*Urtica bolsericea*), and members of the sedge family (*Cyperaceae*).

6. Great Valley Mesquite Scrub

Great valley mesquite scrub is an open or savanna dominated by mesquite (*Prosopis glandulosa torreyana*) and valley saltbush. In many ways, this community is very similar to valley saltbush scrub and non-native grassland with the addition of mesquite. Even where mesquite is present, it may occur in densities as low as two to three per acre. This community occurs on sandy loams of alluvial origin. Since mesquite is a deep-rooted plant dependent on groundwater rather than direct rainfall, it requires a high water table. Understories, grassy in years of adequate rainfall, are usually dominated by non-native annuals. The grassy understory is comparable to non-native grassland. Typical species of this community include mesquite, valley saltbush, red brome, and pale-leaf golden bush.

8. Wetlands

Although no wetlands were present on the Kern Water Bank at the time KCWA started a water recharge project in 1995, activities carried out by the Kern Water Bank Authority will convert the dry land to wetlands. The following types of wetlands may emerge.

Open water aquatic habitat is found where standing or slow moving water is at least 5 to 6 feet deep. Within the study area this may include sloughs, canals, and ditches that do not dry up in the summer as well as the large open water recharge ponds. The vegetation supported in this habitat includes pondweeds (*Potamogeton sp.*), duckweed (*Lemna sp.*), *Elodea sp.*, mare's tail (*Hippuris vulgaris*), yellow water-weed (*Jussiaea repens*), water milfoil (*Myriophyllum sp.*), and smartweed (*Polygonum amphibium, P.sp.*).

These species provide cover, food and oxygen for the invertebrates (crayfish, clams, etc.), amphibian larvae and juvenile fish that become prey items for the higher trophic levels including giant garter snakes, larger game and non-game fish, and migratory waterfowl.

Emergent marsh is found in areas where the water depths do not exceed 6.5 feet. They are typically associated with the channels, ditches, sloughs and ponds either as narrow bands along the edge or spreading out from sloping margins. The vegetation that dominates these permanently to semi-permanently submerged areas are cattails (*Typha latifolia*), tules (*Scirpus acutus*) and rushes (*Juncus sp.*) toward the lower margins and river bulrush (*S. fluviatilis*), sedges (*Carex sp., Cyperus sp.*), and vervain (*Verbena hastata*) in the upper margins. The tricolored blackbird (*Agelaius tricolor*), a federal species of concern occurs in this habitat.

Emergent marshes are important to both resident and migratory species. These areas are used for nesting or spawning, foraging, and protection from predators. Birds sighted in these habitats include great egret, great blue heron, green-backed heron, night crowned heron, American coot, greater yellowlegs, pied-billed grebe, belted kingfisher, common yellowthroat and song sparrow.

Riparian scrub-shrub habitat is characterized by thickets of woody shrubs, seedlings and sapling trees growing along the upland margins of canals, sloughs, and ditches. Periodic disturbances such as mowing, discing, burning and spraying have prevented young trees of various species -- valley oak (*Quercus lobata*), walnut (*Juglans californica var. hindsii*), cottonwood (*Populus fremonti*), maple (*Acer negundo*), and willow (*Salix gooddingii*) -- from maturing into a riparian woodland. The dominant shrubs of this habitat include button willow (*Cephalanthus occidentalis*), blackberry (*Rubus ursinus*), arroyo willow (*Salix lasiolepis*), sandbar willow (*Salix hindsiana*) poison oak (*Toxicodendron diversilobum*), wild rose (*Rosa californica*), and elderberry (*Sambucus mexicana*).

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The disturbance regime normally found in riparian scrub-shrub also facilitates an aggressive herbaceous component typically found in ruderal fields and non-native grasslands. Red brome (*Bromus rubens*), wild oat (*Avena fatua*), bermuda grass (*Cynodon dactylon*), ryegrass (*Lolium perenne*), wild mustard (*Brassica campestris*), star thistle (*Centaurea solstitialis*), horseweed (*Conyza canadensis*), fennel (*Foeniculum vulgare*), dock (*Rumex sp.*), knotweed (*Polygonum sp.*), and chicory (*Cichorium intybus*) intergrade with the more mesic understory of the riparian scrub-shrub: smartweed (*Polygonum amphibium*), sedge (*Carex barbarae*, *Carex sp.*), nutsedge (*Cyperus egrostitis*) mugwort (*Artemesia douglasiana*) and creeping spikerush (*Eleocharis palustris*).

Although not as structurally complex as the riparian forest, and therefore less biologically diverse, this habitat will support the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), a federally listed threatened species.

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SUMMARY OF PROJECT IMPACTS ON SECONDARY COVERED PLANT SPECIES

Plant species listed here are species that either have special status, or could potentially reach special status. They have ranges which overlap with the Kern Water Bank project site, or are found in the surrounding region. Included are species that could colonize or be introduced into the created marsh and/or existing grassland and scrub habitats.

Scientific Name	Common Name and Habitat Associations *	Impacts of Project
Plants. Potentially sensitive plant species which could colonize or be introduced to Kern Water Bank during the life of the permit. List is composed of species found in grassland and/or wetland habitat types in Kern County.		
Wetland species that could colonize created marsh habitats on Kern Water Bank		
<i>Azolla mexicana</i>	Mexican Mosquito Fern Marshes and swamps CNPS List 4, RED 1-2-1	Negligible or Beneficial. Deliberate introductions would be restricted to managed wetlands. If any of these species expand to non-managed ponds, some loss could occur through routine maintenance activities or through the cessation of deliberate flooding.
<i>Lasthenia glabrata ssp. coulteri</i>	Coulter's goldfields Marshes and swamps Fed C2, CNPS List 1B, RED 2-3-2	
<i>Mimulus microphyllus</i>	Small-leaved Monkeyflower Meadows CNPS List 4, RED 1-1-3	
<i>Myosurus minimus ssp. apus</i>	Little Mousetail Vernal pools Fed C2, CNPS List 3, RED 2-3-2	
<i>Psilocarphus tenellus var. globiferus</i>	Round Woolly-marbles Coastal dunes, Vernal pools CNPS List 4, RED 1-2-1	
<i>Psoralea arborescens var. arborescens</i>	Mojave Indigo-bush Riparian scrub Fed C3c, CNPS List 4, RED 1-1-1	
<i>Sagittaria sanfordii</i>	Sanford's Arrowhead Marshes and Swamps Fed C2, CNPS List 1B, RED 2-2-3	
Grassland and scrubland plants that could colonize upland habitats on Kern Water Bank		
<i>Atriplex coronata var. coronata</i>	Crownscale Chenopod scrub, Valley and foothill grassland, Vernal pools Fed C2, CNPS List 4, RED 1-2-3	Negligible or Beneficial. Deliberate introductions of any

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Scientific Name	Common Name and Habitat Associations *	Impacts of Project
<i>Atriplex depressa</i>	Brittlescale Chenopod scrub, Valley and foothill grassland, Vernal pools CNPS List 1B, RED 2-2-3	of these species would occur in permanent habitat preserves only.
<i>Clarkia tembloriensis ssp. calientensis</i>	Vasek's Clarkia Valley and foothill grassland Fed C1, CNPS List 1B, RED 3-3-3	Negligible or Beneficial. Deliberate introductions of any of these species would occur in permanent habitat preserves only.
<i>Convolvulus simulans</i>	Small-flowered Morning-glory Valley and foothill grassland CNPS List 4, RED 1-2-2	
<i>Eriogonum gossypinum</i>	Cottony Buckwheat Chenopod scrub, Valley and foothill grassland Fed C3c, CNPS List 4, RED 1-2-3	
<i>Eriogonum temblorense</i>	Temblor Buckwheat Valley and foothill grassland Fed C2, CNPS List 4, RED 1-1-3	
<i>Eschscholzia lemmonii ssp. kernensis</i>	Tejon Poppy Valley and foothill grassland, other CNPS 1B, RED 3-3-3	
<i>Fritallaria agrestis</i>	Stinkbells Valley and foothill grassland, other Fed C3c, CNPS List 4, RED 1-2-3	
<i>Fritallaria striata</i>	Striped Adobe-lily Valley and foothill grassland, other State CT, Fed PT, CNPS List 1B, RED 3-3-3 Valley and foothill grassland, other	
<i>Goodmania luteola</i>	Golden goodmania Valley and foothill grassland, other CNPS List 4, RED 1-2-2	
<i>Lasthenia leptalea</i>	Salinas Valley Goldfields Valley and foothill grassland, other Fed C3c, CNPS List 4, RED 1-1-3	

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Scientific Name	Common Name and Habitat Associations *	Impacts of Project
<i>Layia heterotricha</i>	Pale-yellow Layia Valley and foothill grassland, other Fed C2, CNPS List 1B, RED 3-3-3	Negligible or Beneficial. Deliberate introductions of any of these species would occur in permanent habitat preserves only.
<i>Layia munzii</i>	Munz's Tidy-tips Chenopod scrub, Valley and foothill grassland CEQA, CNPS List 1B, RED 2-2-3	
<i>Lepidium jaredii ssp. jaredii</i>	Jared's Pepper Grass Valley and foothill grassland Fed C2, CNPS List 1B, RED 3-2-3	
<i>Linanthus grandiflorus</i>	Large-flower Linanthus Valley and foothill grassland CNPS List 4, RED 1-2-3	
<i>Madia radiata</i>	Showy Madia Valley and foothill grassland, other CNPS List 1B, RED 2-3-3	
<i>Mucronea californica</i>	California spineflower Valley and foothill grassland, other CNPS List 4, RED 1-2-3	
<i>Nemacladus gracilis</i>	Slender nemacladus Valley and foothill grassland, other CNPS List 4, RED 1-1-3	
<i>Perideridia gairdneri ssp. gairdneri</i>	Gairdner's Yampah Valley and foothill grassland, Vernal pools Fed C2, CNPS List 4, RED 1-2-3	
<i>Stylocline citroleum</i>	Oil Neststraw Chenopod scrub, other Fed C2, CNPS List 1B, RED 3-3-3	
<i>Stylocline masonni</i>	Mason's Neststraw Chenopod scrub, other Fed C2, CNPS List 1B, RED 3-3-3	
<i>Trichostoma ovatum</i>	San Joaquin Bluecurls Valley and Foothill Grassland CNPS List 4, RED 1-2-3	

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ABBREVIATIONS

State CT: State-listed threatened
Fed PT: Federally-proposed, threatened
C1: Enough data are on file to support federal listing
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C3c: Too widespread and/or not threatened

CEQA: Indicates CEQA consideration is mandatory

CNPS List 1B: Plants Rare, Threatened or Endangered in California and Elsewhere.
List 4: Plants of Limited Distribution- a Watch List.

CNPS R-E-D Code (Rarity, Endangerment, Distribution)

Rarity

- 1 Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time.
- 2 Distributed in a limited number of occurrences, occasionally more if each occurrence is small.
- 3 Distributed in one to several highly restricted occurrences, or present in such small numbers that it is seldom reported.

Endangerment

- 1 Not endangered
- 2 Endangered in a portion of its range
- 3 Endangered throughout its range

Distribution

- 1 More or less widespread outside California
- 2 Rare outside California
- 3 Endemic to California

Source: California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California. February 1994. Special Publication No. 1. Fifth edition. Published by The California Native Plant Society, Sacramento, CA.

REFERENCES:

California Natural Diversity Database (CNDDDB). Species elements for Kern County. California Department of Fish and Game

APPENDIX B -- SPECIES ACCOUNTS

SUMMARY OF PROJECT IMPACTS ON SECONDARY COVERED ANIMAL SPECIES

Animal species listed here are species that either have special status, or could potentially reach special status. They have ranges which overlap with the Kern Water Bank project site, or are found in the surrounding region. Included are species that could move in to use the created marsh habitats, as well as species that could be found in the existing grassland and shrubland habitats. This table does not list all potential species that could utilize the Kern Water Bank.

Scientific Name	Common Name/Habitat/ Status	Impacts of Project
Mammals. Though these species' distribution is currently distant from the Kern Water Bank, during the lifetime of the permit they may expand or be introduced into the water bank as a result of habitat improvements.		
<i>Lutra canadensis</i>	River Otter large rivers, lakes and estuaries	Negligible. Species may colonize or be introduced into the Kern River in future. The Kern Water Bank lands may provide potential habitat for river otters.
<i>Castor canadensis subaruratus</i>	Golden Beaver rivers, streams, lakes, ponds	
Mammals. Species whose current distribution overlaps with, or is near, the Kern Water Bank.		
<i>Bassariscus astutus</i>	Ringtail riparian forest CSC	Negligible. Suitable habitat for ringtails along the Kern River will be preserved.
<i>Felis concolor</i>	Mountain Lion all CPS	Negligible. The project will not reduce available habitat for Mountain lions.
<i>Felis rufus</i>	Bobcat riparian forest, brush and scrublands	Negligible. The project will not reduce available habitat for Bobcats.
<i>Cervus elaphus nannodes</i>	Tule Elk brush and scrublands, grassland	Negligible. Species may colonize or be introduced into the Kern Water Bank lands in the future. Species reside on adjacent preserved areas.
<i>Antilocapra americana</i>	Pronghorn brush and scrublands, grassland	
<i>Mustela frenata xanthogenys</i>	Yellow-cheeked Weasel grassland	Negligible. No records of these species on Kern Water Bank lands, but they could colonize preserved upland habitat areas.
<i>Mustela frenata pulchra</i>	Buttonwillow Weasel arid grassland, savannah	
<i>Myotis yumanensis oxalis</i>	San Joaquin Myotis all	
<i>Euderma maculatum</i>	Spotted Bat arid grassland, coniferous forest CSC	

APPENDIX B -- SPECIES ACCOUNTS

Scientific Name	Common Name/Habitat/ Status	Impacts of Project
<i>Antrozous pallidus</i>	Pallid Bat all CSC	Negligible. No records of these species on Kern Water Bank lands, but they could colonize preserved upland habitat areas.
<i>Perognathus inornatus inornatus</i>	San Joaquin Pocket Mouse grasslands	
<i>Perognathus inornatus neglectus</i>	McKittrick Pocket Mouse grasslands, desert shrub	
<i>Onychomys torridus tularensis</i>	Tulare Grasshopper Mouse grassland desert-shrub CSC	
<i>Thomomys bottae ingens</i>	Buena Vista Lake Pocket Gopher grassland, desert shrub	
<i>Dipodomys nitratooides brevinasus</i>	Short-nosed Kangaroo Rat grassland, desert shrub CSC	
<i>Dipodomys heermanni tularensis</i>	Tulare Kangaroo Rat grassland, desert-shrub	
<i>Dipodomys heermanni swarthi</i>	Carrizo Plain Kangaroo Rat grassland, desert-shrub	
Birds — Raptors. Avian raptor species which may utilize Kern Water Bank ponds or preserved uplands as foraging and/ or nesting habitat.		
<i>Aquila chrysaetos</i>	Golden Eagle grasslands, shrublands CSC	Beneficial or Negligible. Species may utilize created ponds and/or preserved upland habitat. Pond refilling and vegetation removal will be prohibited in any areas where birds are nesting.
<i>Haliaeetus leucocephalus</i>	Bald Eagle large lakes and rivers FT, SE	
<i>Accipiter gentilis</i>	Northern Goshawk coniferous and riparian forest CSC	
<i>Accipiter striatus</i>	Sharp-shinned Hawk riparian forest CSC	
<i>Accipiter cooperii</i>	Cooper's Hawk riparian forest CSC	
<i>Buteo lineatus</i>	Red-shouldered Hawk	

APPENDIX B -- SPECIES ACCOUNTS

Scientific Name	Common Name/Habitat/ Status	Impacts of Project
	riparian forest	
<i>Falco columbarius</i>	Merlin grasslands, marshes CSC	
<i>Falco mexicanus</i>	Prairie Falcon grasslands, scrublands CSC	
<i>Circus cyaneus</i>	Northern Harrier marshes CSC	
<i>Asio otis</i>	Long-eared Owl riparian forest CSC	
<i>Asio flammeus</i>	Short-eared Owl grasslands, marshes CSC	Beneficial or Negligible. Species may utilize created ponds and/or preserved upland habitat. Pond refilling and vegetation removal will be prohibited in any areas where birds are nesting.
<i>Tyto alba</i>	Common Barn Owl grassland, shrubland, riparian forest	
<i>Pandion haliaetus</i>	Osprey Large lakes and rivers CSC	
<i>Gymnogyps californianus</i>	California Condor grassland, savannah, desert scrub FE, SE	Negligible. Kern Water Bank lands are within historic range, and species could utilize preserved upland habitat as a result of reintroduction efforts.
Birds -- Songbirds and other terrestrial birds. Species which may utilize riparian and adjacent habitats within the Kern Water Bank.		
<i>Progne subis</i>	Purple Martin montane and riparian forest CSC	
<i>Riparia riparia</i>	Bank Swallow riparian, coastal cliffs ST	
<i>Cypseloides niger</i>	Black Swift Rugged coastlines and canyons CSC	
<i>Chordeiles minor</i>	Common Nighthawk montane and coastal grasslands and freshwater wetlands	
<i>Chordeiles acutipennis</i>	Lesser Nighthawk desert scrub, desert riparian, grasslands	

APPENDIX B -- SPECIES ACCOUNTS

Scientific Name	Common Name/Habitat/ Status	Impacts of Project
<i>Picoides villosus</i>	Hairy Woodpecker coniferous and riparian forests	Beneficial or Negligible. Species may utilize preserved upland habitat areas and/ or created ponds.
<i>Melanerpes lewis</i>	Lewis's Woodpecker oak savannah, coniferous forest	
<i>Guiraca caerulea</i>	Blue Grosbeak riparian forest, grassland	
<i>Dendroica petechia brewsteri</i>	Yellow Warbler riparian, shrublands CSC	
<i>Piranga rubra</i>	Summer Tanager desert riparian woodland CSC	
<i>Icteria virens</i>	Yellow-breasted Chat riparian forest CSC	
<i>Vireo bellii pusillum</i>	Least Bell's Vireo desert riparian woodland FE, SE	Beneficial or Negligible. Species may utilize preserved upland habitat areas and/ or created ponds.
<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo riparian forest SE	
<i>Empidonax traillii</i>	Willow flycatcher montane riparian forest SE	
Birds - Waterfowl. Migratory birds who could potentially use Kern Water Bank as winter refuge habitat.		
<i>Phalacrocorax auritus</i>	Double-crested Cormorant estuaries, lakes, large rivers CSC	Beneficial. Ponds will create winter refuge habitat for these species.
<i>Gavia immer</i>	Common Loon large lakes and estuaries CSC	
<i>Aechmophorus occidentalis</i>	Western Grebe estuaries, lakes	
<i>Aechmophorus clarkii</i>	Clark's Grebe estuaries, Lakes	
<i>Aythya valisineria</i>	Canvasback estuaries, lakes, marshes	
<i>Numenius americanus</i>	Long-billed Curlew marshes CSC	

APPENDIX B -- SPECIES ACCOUNTS

Scientific Name	Common Name/Habitat/ Status	Impacts of Project
Birds - Waterfowl. Potentially resident waterfowl who require trees for nesting.		
<i>Casmerodius albus</i>	Great Egret grasslands, marshes	Beneficial. Ponds will create foraging habitat for these species.
<i>Ardea herodias</i>	Great Blue Heron grasslands, marshes	
<i>Butorides striatus</i>	Green-backed Heron riparian forest, marshes	
<i>Aix sponsa</i>	Wood duck riparian forest	
Birds - Waterfowl. Potential resident waterfowl which could nest on shorelines, islands, or in reeds within Kern Water Bank lands		
<i>Egretta thula</i>	Snowy Egret marshes	Beneficial. Ponds will create foraging and nesting habitat for these species. Pond refilling and vegetation removal will be prohibited in any areas where birds are nesting.
<i>Pelecanus erythrorhynchos</i>	American White Pelican large lakes, salt ponds CSC	
<i>Ixobrychus exilis</i>	Least Bittern marshes FSC, CSC	Beneficial. Ponds will create foraging and nesting habitat for these species. Pond refilling and vegetation removal will be prohibited in any areas where birds are nesting.
<i>Nycticorax nycticorax</i>	Black Crowned Night Heron marshes	
<i>Botaurus lentiginosus</i>	American Bittern marshes	
<i>Dendrocygna bicolor</i>	Fulvous Whistling-duck freshwater marshes FSC, CSC	
<i>Rallus limicola</i>	Virginia Rail marshes	
<i>Porzana carolina</i>	Sora Rail marshes	
<i>Chlidonias niger</i>	Black Tern estuaries, marshes FSC, CSC	
<i>Sterna caspia</i>	Caspian Tern estuaries, marshes	

APPENDIX B -- SPECIES ACCOUNTS

Scientific Name	Common Name/Habitat/ Status	Impacts of Project
<p>Amphibians. Species whose historic range may have included the Kern Water Bank, but where existing populations are distant from the Kern Water Bank. These species may expand or be introduced to the Water Bank during the life of the permit as a result of the long-term management of wetland habitat.</p>		
<i>Ambystoma tigrinum</i>	California Tiger Salamander Ponds, grasslands FSC, CSC	Negligible or Beneficial. Deliberate introduction would be confined to permanently managed wetlands established under cooperative agreement with CDFG, USFWS, and KWBA.
<i>Batrachoseps simatus</i>	Kern Canyon Slender Salamander woodlands, chaparral FSC, ST	
<i>Batrachoseps stebbinsi</i>	Tehachipi Slender Salamander coniferous and riparian forest FSC, ST	
<i>Batrachoseps pacificus relictus</i>	Relictual Slender Salamander woodlands CSC	
<i>Rana aurora draytonii</i>	California Red-legged Frog ponds, streams FE	
<p>Reptiles. Species whose historic range may included the Kern Water Bank, but where existing populations are distant from the Kern Water Bank. These species may expand or be introduced to the Water Bank during the life of the permit as a result of the long-term management of upland habitat.</p>		
<i>Anniella pulchra</i>	California Legless Lizard valley-foothill chaparral, other CSC	Negligible or Beneficial. Deliberate introduction would be confined to permanently managed uplands established under cooperative agreement with CDFG, USFWS, and KWBA
<i>Phrynosoma coronatum frontale</i>	California Horned Lizard coniferous and riparian forests, other CSC	
<i>Charina bottae umbratica</i>	Southern Rubber Boa montane forests, chaparral FSC, ST	
<i>Masticophis flagellum ruddocki</i>	San Joaquin Coachwhip grassland, desert, scrub CSC	
<i>Arizona elegans</i>	California Glossy Snake desert, chaparral, other	
<i>Tantilla hobartsmithi</i>	Southwestern black-headed Snake grassland, chaparral, other	
<i>Coluber constrictor mormon</i>	Western Yellow-bellied Racer grassland, other	
<i>Salvadora hexalepis</i>	Western Patch-nosed Snake chaparral, desert scrub FSC, CSC	

APPENDIX B -- SPECIES ACCOUNTS

Scientific Name	Common Name/Habitat/ Status	Impacts of Project
<i>Fish</i>		
<i>Lampetra hubbsi</i>	Kern Brook Lamprey FSC, CSC	Negligible. Kern Water Bank will not remove or provide suitable habitat for these species.
<i>Oncorhynchus mykiss gairdneri</i>	Kern River Rainbow Trout FSC, CSC	
<i>Invertebrates.</i> Terrestrial insects of special concern which are known to occur in Kern County, but which are not currently known from the Kern Water Bank		
<i>Lytta moesta</i>	Moestan Blister Beetle meadows FSC	Negligible or Beneficial. These insects may benefit from upland habitat enhancement at Kern Water Bank. habitat enhancement at Kern Water Bank.
<i>Lytta morrisoni</i>	Morrison's Blister Beetle meadows FSC	
<i>Lytta hoppingi</i>	Hopping's Blister Beetle meadows FSC	
<i>Danaus plexippus</i>	Monarch Butterfly cismontane meadows	
<i>Helminthoglypta callistoderma</i>	Kern Shoulderband riparian FSC	

Abbreviations

- FE: Federally Endangered
- FT: Federally Threatened
- FSC: Federal Species of Concern
- SE: State Endangered
- ST: State Threatened
- CSC: California Species of Special Concern
- CPS: California Protected Species

References:

California Natural Diversity Database (CNDDDB). Species elements for Kern County. California Department of Fish and Game

Mammals Species of Special Concern in California. State of California, The Resources Agency, Department of Fish and Game.,

Amphibians and Reptiles Species of Special Concern in California. 1994. California Department of Fish and Game, Inland Fisheries Division.

APPENDIX B -- SPECIES ACCOUNTS

California's Wildlife: Volumes I, II, and III. 1990. State of California, The Resources Agency, Department of Fish and Game, Sacramento, California.

Kern County Audubon Society List of Sensitive Birds and Mammals, in Metropolitan Bakersfield Habitat Conservation Plan, Appendix A. July 1991, prepared by Thomas Reid Associates.

Endangered and Sensitive Species of the San Joaquin Valley, California, Their Biology, Management, and Conservation. 1992. Published by California Energy Commission © The Wildlife Society, Western Section.

SUMMARY OF PROJECT IMPACTS ON COVERED SPECIES

Plant species listed here are species that either have special status, or could potentially reach special status. They have ranges which overlap with the Kern Water Bank project site, or are found in the surrounding region. Included are species that could colonize or be introduced into the created marsh and/or existing grassland and scrub habitats.

Scientific Name	Common Name and Habitat Associations *	Impacts of Project
<p>Plants. Potentially sensitive plant species which could colonize or be introduced to Kern Water Bank during the life of the permit. List is composed of species found in grassland and/or wetland habitat types in Kern County.</p>		
<p>Wetland species that could colonize created marsh habitats on Kern Water Bank</p>		
<i>Azolla mexicana</i>	Mexican Mosquito Fern Marshes and swamps CNPS List 4, RED 1-2-1	<p>Negligible or Beneficial. Deliberate introductions would be restricted to managed wetlands.</p> <p>If any of these species expand to non-managed ponds, some loss could occur through routine maintenance activities or through the cessation of deliberate flooding.</p>
<i>Lasthenia glabrata ssp. coulteri</i>	Coulter's goldfields Marshes and swamps Fed C2, CNPS List 1B, RED 2-3-2	
<i>Mimulus microphyllus</i>	Small-leaved Monkeyflower Meadows CNPS List 4, RED 1-1-3	
<i>Myosurus minimus ssp. apus</i>	Little Mousetail Vernal pools Fed C2, CNPS List 3, RED 2-3-2	
<i>Psilocarphus tenellus var. globiferus</i>	Round Woolly-marbles Coastal dunes, Vernal pools CNPS List 4, RED 1-2-1	
<i>Psoralea arborescens var. arborescens</i>	Mojave Indigo-bush Riparian scrub Fed C3c, CNPS List 4, RED 1-1-1	
<i>Sagittaria sanfordii</i>	Sanford's Arrowhead Marshes and Swamps Fed C2, CNPS List 1B, RED 2-2-3	
<p>Grassland and scrubland plants that could colonize upland habitats on Kern Water Bank</p>		
<i>Atriplex coronata var. coronata</i>	Crownscale Chenopod scrub, Valley and foothill grassland, Vernal pools Fed C2, CNPS List 4, RED 1-2-3	<p>Negligible or Beneficial. Deliberate introductions of any of these species would occur in permanent habitat preserves only.</p>
<i>Atriplex depressa</i>	Brittlescale Chenopod scrub, Valley and foothill grassland, Vernal pools CNPS List 1B, RED 2-2-3	

Scientific Name	Common Name and Habitat Associations *	Impacts of Project
<i>Clarkia tembloriensis ssp. calientensis</i>	Vasek's Clarkia Valley and foothill grassland Fed C1, CNPS List 1B, RED 3-3-3	Negligible or Beneficial. Deliberate introductions of any of these species would occur in permanent habitat preserves only.
<i>Convolvulus simulans</i>	Small-flowered Morning-glory Valley and foothill grassland CNPS List 4, RED 1-2-2	
<i>Eriogonum gossypinum</i>	Cottony Buckwheat Chenopod scrub, Valley and foothill grassland Fed C3c, CNPS List 4, RED 1-2-3	
<i>Eriogonum temblorense</i>	Temblor Buckwheat Valley and foothill grassland Fed C2, CNPS List 4, RED 1-1-3	
<i>Eschscholzia lemmonii ssp. kernensis</i>	Tejon Poppy Valley and foothill grassland, other CNPS 1B, RED 3-3-3	
<i>Fritallaria agrestis</i>	Stinkbells Valley and foothill grassland, other Fed C3c, CNPS List 4, RED 1-2-3	
<i>Fritallaria striata</i>	Striped Adobe-lily Valley and foothill grassland, other State CT, Fed PT, CNPS List 1B, RED 3-3-3 Valley and foothill grassland, other	
<i>Goodmania luteola</i>	Golden goodmania Valley and foothill grassland, other CNPS List 4, RED 1-2-2	
<i>Lasthenia leptalea</i>	Salinas Valley Goldfields Valley and foothill grassland, other Fed C3c, CNPS List 4, RED 1-1-3	

Scientific Name	Common Name and Habitat Associations *	Impacts of Project
<i>Layia heterotricha</i>	Pale-yellow Lay ia Valley and foothill grassland, other Fed C2, CNPS List 1B, RED 3-3-3	Negligible or Beneficial. Deliberate introductions of any of these species would occur in permanent habitat preserves only.
<i>Layia munzii</i>	Munz's Tidy-tips Chenopod scrub, Valley and foothill grassland CEQA, CNPS List 1B, RED 2-2-3	
<i>Lepidium jaredii ssp. jaredii</i>	Jared's Pepper Grass Valley and foothill grassland Fed C2, CNPS List 1B, RED 3-2-3	
<i>Linanthus grandiflorus</i>	Large-flower Linanthus Valley and foothill grassland CNPS List 4, RED 1-2-3	
<i>Madia radiata</i>	Showy Madia Valley and foothill grassland, other CNPS List 1B, RED 2-3-3	
<i>Mucronea californica</i>	California spineflower Valley and foothill grassland, other CNPS List 4, RED 1-2-3	
<i>Nemacladus gracilis</i>	Slender nemacladus Valley and foothill grassland, other CNPS List 4, RED 1-1-3	
<i>Perideridia gairdneri ssp. gairdneri</i>	Gairdner's Yampah Valley and foothill grassland, Vernal pools Fed C2, CNPS List 4, RED 1-2-3	
<i>Stylocline citroleum</i>	Oil Neststraw Chenopod scrub, other Fed C2, CNPS List 1B, RED 3-3-3	
<i>Stylocline masonni</i>	Mason's Neststraw Chenopod scrub, other Fed C2, CNPS List 1B, RED 3-3-3	
<i>Trichostoma ovatum</i>	San Joaquin Bluecuris Valley and Foothill Grassland CNPS List 4, RED 1-2-3	

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Distribution

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Scientific Name	Common Name/Habitat/ Status	Impacts of Project
<p>Mammals. Though these species' distribution is currently distant from the Kern Water Bank, during the lifetime of the permit they may expand or be introduced into the water bank as a result of habitat improvements.</p>		
<i>Lutra canadensis</i>	River Otter large rivers, lakes and estuaries	Negligible. Species may colonize or be introduced into the Kern River in future. The Kern Water Bank lands may provide potential habitat for river otters.
<i>Castor canadensis subaruratus</i>	Golden Beaver rivers, streams, lakes, ponds	
<p>Mammals. Species whose current distribution overlaps with, or is near, the Kern Water Bank.</p>		
<i>Bassariscus astutus</i>	Ringtail riparian forest CSC	Negligible. Suitable habitat for ringtails along the Kern River will be preserved.
<i>Felis concolor</i>	Mountain Lion all CPS	Negligible. The project will not reduce available habitat for Mountain lions.
<i>Felis rufus</i>	Bobcat riparian forest, brush and scrublands	Negligible. The project will not reduce available habitat for Bobcats.
<i>Cervus elaphus nannodes</i>	Tule Elk brush and scrublands, grassland	Negligible. Species may colonize or be introduced into the Kern Water Bank lands in the future. Species reside on adjacent preserved areas.
<i>Antilocapra americana</i>	Pronghorn brush and scrublands, grassland	
<i>Mustela frenata xanthogenys</i>	Yellow-cheeked Weasel grassland	Negligible. No records of these species on Kern Water Bank lands, but they could colonize preserved upland habitat areas.
<i>Mustela frenata pulchra</i>	Buttonwillow Weasel arid grassland, savannah	
<i>Myotis yumanensis oxalis</i>	San Joaquin Myotis all	
<i>Euderma maculatum</i>	Spotted Bat arid grassland, coniferous forest CSC	
<i>Antrozous pallidus</i>	Pallid Bat all CSC	
<i>Perognathus inornatus inornatus</i>	San Joaquin Pocket Mouse grasslands	

Scientific Name	Common Name/Habitat/ Status	Impacts of Project
<i>Perognathus inornatus neglectus</i>	McKittrick Pocket Mouse grasslands, desert shrub	Negligible. No records of these species on Kern Water Bank lands, but they could colonize preserved upland habitat areas.
<i>Onychomys torridus tularensis</i>	Tulare Grasshopper Mouse grassland desert-shrub CSC	
<i>Thomomys bottae ingens</i>	Buena Vista Lake Pocket Gopher grassland, desert shrub	
<i>Dipodomys nitratoides brevinasus</i>	Short-nosed Kangaroo Rat grassland, desert shrub CSC	
<i>Dipodomys heermanni tularensis</i>	Tulare Kangaroo Rat grassland, desert-shrub	
<i>Dipodomys heermanni swarthi</i>	Carrizo Plain Kangaroo Rat grassland, desert-shrub	
Birds — Raptors. Avian raptor species which may utilize Kern Water Bank ponds or preserved uplands as foraging and/ or nesting habitat..		
<i>Aquila chrysaetos</i>	Golden Eagle grasslands, shrublands CSC	Beneficial or Negligible. Species may utilize created ponds and/or preserved upland habitat. Pond refilling and vegetation removal will be prohibited in any areas where birds are nesting.
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<i>Accipiter gentilis</i>	Northern Goshawk coniferous and riparian forest CSC	
<i>Accipiter striatus</i>	Sharp-shinned Hawk riparian forest CSC	
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<i>Buteo lineatus</i>	Red-shouldered Hawk riparian forest	
<i>Falco columbarius</i>	Merlin grasslands, marshes CSC	
<i>Falco mexicanus</i>	Prairie Falcon grasslands, scrublands CSC	
<i>Circus cyaneus</i>	Northern Harrier marshes CSC	
<i>Asio otis</i>	Long-eared Owl riparian forest CSC	

Scientific Name	Common Name/Habitat/ Status	Impacts of Project
<i>Asio flammeus</i>	Short-eared Owl grasslands, marshes CSC	Beneficial or Negligible. Species may utilize created ponds and/or preserved upland habitat. Pond refilling and vegetation removal will be prohibited in any areas where birds are nesting.
<i>Tyto alba</i>	Common Barn Owl grassland, shrubland, riparian forest	
<i>Pandion haliaetus</i>	Osprey Large lakes and rivers CSC	
<i>Gymnogyps californianus</i>	California Condor grassland, savannah, desert scrub FE, SE	Negligible. Kern Water Bank lands are within historic range, and species could utilize preserved upland habitat as a result of reintroduction efforts.
Birds -- Songbirds and other terrestrial birds. Species which may utilize riparian and adjacent habitats within the Kern Water Bank.		
<i>Progne subis</i>	Purple Martin montane and riparian forest CSC	Beneficial or Negligible. Species may utilize preserved upland habitat areas and/ or created ponds.
<i>Riparia riparia</i>	Bank Swallow riparian, coastal cliffs ST	
<i>Cypseloides niger</i>	Black Swift Rugged coastlines and canyons CSC	
<i>Chordeiles minor</i>	Common Nighthawk montane and coastal grasslands and freshwater wetlands	
<i>Chordeiles acutipennis</i>	Lesser Nighthawk desert scrub, desert riparian, grasslands	
<i>Picoides villosus</i>	Hairy Woodpecker coniferous and riparian forests	
<i>Melanerpes lewis</i>	Lewis's Woodpecker oak savannah, coniferous forest	
<i>Guiraca caerulea</i>	Blue Grosbeak riparian forest, grassland	
<i>Dendroica petechia brewsteri</i>	Yellow Warbler riparian, shrublands CSC	
<i>Piranga rubra</i>	Summer Tanager desert riparian woodland CSC	
<i>Icteria virens</i>	Yellow-breasted Chat riparian forest CSC	

Scientific Name	Common Name/Habitat/ Status	Impacts of Project
<i>Vireo bellii pusillum</i>	Least Bell's Vireo desert riparian woodland FE, SE	Beneficial or Negligible. Species may utilize preserved upland habitat areas and/ or created ponds.
<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo riparian forest SE	
<i>Empidonax traillii</i>	Willow flycatcher montane riparian forest SE	
Birds - Waterfowl. Migratory birds who could potentially use Kern Water Bank as winter refuge habitat.		
<i>Phalacrocorax auritus</i>	Double-crested Cormorant estuaries, lakes, large rivers CSC	Beneficial. Ponds will create winter refuge habitat for these species.
<i>Gavia immer</i>	Common Loon large lakes and estuaries CSC	
<i>Aechmophorus occidentalis</i>	Western Grebe estuaries, lakes	
<i>Aechmophorus clarkii</i>	Clark's Grebe estuaries, Lakes	
<i>Aythya valisineria</i>	Canvasback estuaries, lakes, marshes	
<i>Numenius americanus</i>	Long-billed Curlew marshes CSC	
Birds - Waterfowl. Potentially resident waterfowl who require trees for nesting.		
<i>Casmerodius albus</i>	Great Egret grasslands, marshes	Beneficial. Ponds will create foraging habitat for these species.
<i>Ardea herodias</i>	Great Blue Heron grasslands, marshes	
<i>Butorides striatus</i>	Green-backed Heron riparian forest, marshes	
<i>Aix sponsa</i>	Wood duck riparian forest	
Birds - Waterfowl. Potential resident waterfowl which could nest on shorelines, islands, or in reeds within Kern Water Bank lands		
<i>Egretta thula</i>	Snowy Egret marshes	Beneficial. Ponds will create foraging and nesting habitat for these species. Pond refilling and vegetation removal will be prohibited in any areas where birds are nesting.
<i>Pelecanus erythrorhynchos</i>	American White Pelican large lakes, salt ponds CSC	

Scientific Name	Common Name/Habitat/ Status	Impacts of Project
<i>Ixobrychus exilis</i>	Least Bittern marshes F2, CSC	Beneficial. Ponds will create foraging and nesting habitat for these species. Pond refilling and vegetation removal will be prohibited in any areas where birds are nesting.
<i>Nycticorax nycticorax</i>	Black Crowned Night Heron marshes	
<i>Botaurus lentiginosus</i>	American Bittern marshes	
<i>Dendrocygna bicolor</i>	Fulvous Whistling-duck freshwater marshes F2, CSC	
<i>Rallus limicola</i>	Virginia Rail marshes	
<i>Porzana carolina</i>	Sora Rail marshes	
<i>Chlidonias niger</i>	Black Tern estuaries, marshes F2, CSC	
<i>Sterna caspia</i>	Caspian Tern estuaries, marshes	
<p>Amphibians. Species whose historic range may have included the Kern Water Bank, but where existing populations are distant from the Kern Water Bank. These species may expand or be introduced to the Water Bank during the life of the permit as a result of the long-term management of wetland habitat.</p>		
<i>Ambystoma tigrinum</i>	California Tiger Salamander Ponds, grasslands F2, CSC	Negligible or Beneficial. Deliberate introduction would be confined to permanently managed wetlands established under cooperative agreement with CDFG, USFWS, and KWBA.
<i>Batrachoseps simatus</i>	Kern Canyon Slender Salamander woodlands, chapparal F2, ST	
<i>Batrachoseps stebbinsi</i>	Tehachipi Slender Salamander coniferous and riparian forest F2, ST	
<i>Batrachoseps pacificus relictus</i>	Relictual Slender Salamander woodlands CSC	
<i>Rana aurora draytonii</i>	California Red-legged Frog ponds, streams FE	

Scientific Name	Common Name/Habitat/ Status	Impacts of Project
Reptiles. Species whose historic range may included the Kern Water Bank, but where existing populations are distant from the Kern Water Bank. These species may expand or be introduced to the Water Bank during the life of the permit as a result of the long-term management of upland habitat.		
<i>Anniella pulchra</i>	California Legless Lizard valley-foothill chaparral, other CSC	Negligible or Beneficial. Deliberate introduction would be confined to permanently managed uplands established under cooperative agreement with CDFG, USFWS, and KWBA
<i>Phrynosoma coronatum frontale</i>	California Horned Lizard coniferous and riparian forests, other CSC	
<i>Charina bottae umbratica</i>	Southern Rubber Boa montane forests, chaparral F2, ST	
<i>Masticophis flagellum ruddocki</i>	San Joaquin Coachwhip grassland, desert, scrub CSC	
<i>Arizona elegans</i>	California Glossy Snake desert, chaparral, other	
<i>Tantilla hobartsmithi</i>	Southwestern black-headed Snake grassland, chaparral, other	
<i>Coluber constrictor mormon</i>	Western Yellow-bellied Racer grassland, other	
<i>Salvadora hexalepis</i>	Western Patch-nosed Snake chaparral, desert scrub F2, CSC	
Fish		
<i>Lampetra hubbsi</i>	Kern Brook Lamprey F2, CSC	Negligible. Kern Water Bank will not remove or provide suitable habitat for these species.
<i>Oncorhynchus mykiss gairdneri</i>	Kern River Rainbow Trout F2, CSC	
Invertebrates. Terrestrial insects of special concern which are known to occur in Kern County, but which are not currently known from the Kern Water Bank		
<i>Lytta moesta</i>	Moestan Blister Beetle meadows F2	Negligible or Beneficial. These insects may benefit from upland habitat enhancement at Kern Water Bank.
<i>Lytta morrisoni</i>	Morrison's Blister Beetle meadows F2	
<i>Lytta hoppingi</i>	Hopping's Blister Beetle meadows F2	
<i>Danaus plexippus</i>	Monarch Butterfly cismontane meadows	

Scientific Name	Common Name/Habitat/ Status	Impacts of Project
<i>Euproserpinus euterpe</i>	Kern Primrose Sphinx Moth desert scrub FT	Negligible or Beneficial. These insects may benefit from upland habitat enhancement at Kern Water Bank.
<i>Helminthoglypta callistoderma</i>	Kern Shoulderband riparian F2	

Abbreviations

- FE: Federally Endangered
- FT: Federally Threatened
- F2: Category 2 candidate for listing
- SE: State Endangered
- ST: State Threatened
- CSC: California Species of Special Concern
- CPS: California Protected Species

References:

California Natural Diversity Database (CNDDDB). Species elements for Kern County. California Department of Fish and Game

Mammals Species of Special Concern in California. State of California, The Resources Agency, Department of Fish and Game.,

Amphibians and Reptiles Species of Special Concern in California. 1994. California Department of Fish and Game, Inland Fisheries Division.

California's Wildlife: Volumes I,II,and III. 1990. State of California, The Resources Agency, Department of Fish and Game, Sacramento, California.

Kern County Auduban Society List of Sensitive Birds and Mammals, in Metropolitan Bakersfield Habitat Conservation Plan, Appendix A. July 1991, prepared by Thomas Reid Associates.

Endangered and Sensitive Species of the San Joaquin Valley, California, Their Biology, Management, and Conservation. 1992. Published by California Energy Commission © The Wildlife Society, Westen Section.

* KERN WATER BANK SPECIES

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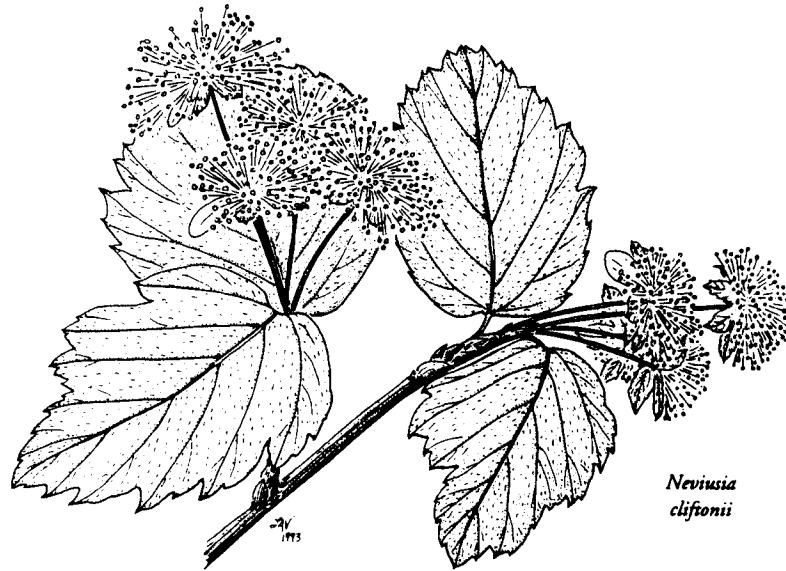
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Edited by

MARK W. SKINNER

Botanist

California Native Plant Society

and

BRUCE M. PAVLIK

Associate Professor of Biology

Mills College

Illustrations by

LINDA ANN VOROBK

Photographs by

MARK W. SKINNER



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Azolla mexicana C. Presl *

"Mexican mosquito fern" Azollaceae
 CNPS List: 4 R-E-D Code: 1-2-1 State/Fed. Status: CEQA?
 Distribution: BUT, KRN, LAK, MOD, NEV, PLU, SCL, SDG,
 TUL, AZ, BA, GU, NV, OR, ++
 Habitat: MshSw (ponds, slow water)
 Life Form: Annual/Perennial herb
 Fertile: August
 Notes: Too common? Difficult to distinguish from *A. filiculoides*,
 which is common. See *American Fern Journal* 34(3):69-84 (1944)
 for a review of New World *Azolla*.

Baccharis malibuensis

Considered but rejected: Not yet published

Baccharis plummerae

See *Baccharis plummerae* ssp. *plummerae*

Baccharis plummerae Gray ssp. *glabrata* Hoov.

"San Simeon baccharis" Asteraceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: CEQA
 Distribution: SLO
 Quads: 271A, 271B, 272A
 Habitat: CoScr
 Life Form: Shrub (deciduous)
 Blooming: June
 Notes: Known only from San Simeon and Arroyo de la Cruz. Prob-
 ably threatened by grazing. See *Vascular Plants of San Luis Obispo*
County, p. 302 (1970) by R. Hoover for original description.

Baccharis plummerae Gray ssp. *plummerae*

"Plummer's baccharis" Asteraceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: ANA, LAX, SBA, SCZ, VEN
 Habitat: BUFRs, Chprl, CmWld, CoScr / rocky
 Life Form: Shrub (deciduous)
 Blooming: August-October

Baccharis vanessae Beauch.

"Encinitas baccharis" Asteraceae
 CNPS List: 1B R-E-D Code: 2-3-3 State/Fed. Status: CE/PE
 Distribution: SDG
 Quads: 22A, 34C, 35C, 35D, 36D, 51B
 Habitat: Chprl (sandstone)
 Life Form: Shrub (deciduous)
 Blooming: August-November
 Notes: Known from fewer than twenty occurrences. Almost extir-
 pated from Encinitas area. Threatened by development and recre-
 ation. See *Phytologia* 46(4):216-222 (1980) for original
 description, and *Madroño* 40(2):133 (1993) for range extension
 information.
 Status Report: 1987

Bacopa nobisiana

Considered but rejected: A synonym of *B. rotundifolia*; a common,
 non-native taxon

Balsamorhiza hookeri Nutt. var. *lanata* Sharp

"woolly balsamroot" Asteraceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: CEQA
 Distribution: SIS
 Quads: 716C, 717B
 Habitat: CmWld
 Life Form: Perennial herb
 Blooming: April-June
 Notes: Known only from the Shasta Valley area. Probably reduced by
 grazing. See *Annals of the Missouri Botanical Garden* 22:130
 (1935) for original description.

Balsamorhiza macrolepis Sharp var. *macrolepis*

"big-scale balsamroot" Asteraceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: CEQA
 Distribution: ALA, BUT, MPA, NAP, PLA, SCL, TEH
 Quads: 406D, 438D, 446A, 447A, 465C, 482B, 528A, 528D,
 575A, 630D
 Habitat: CmWld, VFGrs / sometimes serpentinite
 Life Form: Perennial herb
 Blooming: March-June
 Notes: See *Annals of the Missouri Botanical Garden* 22:132 (1935) for
 original description.

Balsamorhiza sericea W.A. Weber

"silky balsamroot" Asteraceae
 CNPS List: 4 R-E-D Code: 2-1-2 State/Fed. Status: /C2
 Distribution: SIS, TRI, OR
 Habitat: LCFrs (serpentinite)
 Life Form: Perennial herb
 Blooming: April-May
 Notes: On watch list in OR. Perhaps not distinct from *B. macrolepis*
 var. *platylepis*. See *Phytologia* 50(5):357-359 (1982) for original de-
 scription.

Benitoa occidentalis

See *Lessingia occidentalis*

Bensoniella oregona (Abrams & Bacig.) Morton

"bensoniella" Saxifragaceae
 CNPS List: 1B R-E-D Code: 3-3-2 State/Fed. Status: CR/C2
 Distribution: HUM, OR
 Quads: 653A, 671D
 Habitat: BgFns, LCFrs (openings), Medws / mesic
 Life Form: Perennial herb
 Blooming: July
 Notes: Known in CA from fewer than ten occurrences. Threatened
 by logging and grazing. Candidate for state listing in OR. See
Contributions from the Dudley Herbarium 1:95 (1929) for original
 description, and *Leaflets of Western Botany* 10:181 (1965) for re-
 vised nomenclature.
 Status Report: 1987

Juniperus communis var. *montana*

Considered but rejected: A synonym of *J. communis*; a common taxon

Kallstroemia californica

Considered but rejected: Too common

Kobresia bellardii (All.) Degl.

"seep kobresia" Cyperaceae
 CNPS List: 2 R-E-D Code: 3-1-1 State/Fed. Status: CEQA
 Distribution: MNO, ID, OR, ++
 Quads: 434C, 434D, 471D
 Habitat: AlpBR (mesic), Medws (carbonate), SCFRs
 Life Form: Perennial herb (rhizomatous)
 Blooming: August
 Notes: Known in CA only from Convict Basin. On review list in ID, and endangered in OR. See *Madroño* 17(4):93-109 (1964) and 40(1):66-67 (1993) for first and second CA reports respectively.

Kobresia myosuroides

See *Kobresia bellardii*

Koerberlinia spinosa

See *Koerberlinia spinosa* ssp. *tenuispina*

Koerberlinia spinosa Zucc.ssp. *tenuispina* (Kearn. & Peebles) E. Murray

"crown-of-thorns" Koerberliniaceae
 CNPS List: 2 R-E-D Code: 3-2-1 State/Fed. Status: CEQA
 Distribution: IMP, AZ, SO+
 Quads: 12B, 27A, 27B, 42C, 43D
 Habitat: RpWld, SDScr
 Life Form: Shrub (deciduous)
 Blooming: May-July
 Notes: Known in CA from fewer than ten occurrences. Threatened by mining.

Lagophylla minor

Considered but rejected: Too common

Larrea tridentata var. *arenaria*

Considered but rejected: A synonym of *L. tridentata*; a common taxon

Lasthenia burkei (Greene) Greene

"Burke's goldfields" Asteraceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: CE/FE
 Distribution: LAK, MEN, SON
 Quads: 502A, 518A, 518D, 533A, 533B, 550B
 Habitat: Medws (mesic), VnPls
 Life Form: Annual herb
 Blooming: April-June
 Notes: Threatened by agriculture, urbanization, and grazing. See *Bulletin of the California Academy of Sciences* 2(6):151 (1887) for original description, and *American Journal of Botany* 56(9):1042-1047 (1969) for information on origin and relationships.
 Status Report: 1988

Lasthenia conjugens Greene

"Contra Costa goldfields" Asteraceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: /C
 Distribution: ALA*, CCA*, MEN*, NAP, SBA*, SCL*, SOL
 Quads: 142A*, 143A*, 427D*, 447D*, 463C*, 465A*, 481B, 481D*, 482A, 483A, 498C, 499B*, 499C*, 500D*, 517D*, 537B*
 Habitat: VFGrs (mesic), VnPls
 Life Form: Annual herb
 Blooming: March-June
 Notes: Known from only four occurrences after comprehensive 1 surveys. Many historical occurrences extirpated by development also threatened by overgrazing.
 Status Report: 1979

Lasthenia coronaria

Considered but rejected: Too common

Lasthenia glabrata Lindl. ssp. *coulteri* (Gray) Ornduff *

"Coulter's goldfields" Asteraceae
 CNPS List: 1B R-E-D Code: 2-3-2 State/Fed. Status: /C2
 Distribution: KRN*, LAX*, ORA*, RIV, SBA, SBD*, SDG, SLO SRO, TUL*, VEN, BA
 Quads: 11A, 11D, 22B, 22C, 36B, 36D, 50B, 68C, 68D, 69A, 71B*, 71D*, 72A*, 84C?, 85A, 85C, 85D, 86B, 88C*, 89A*, 89D*, 90A*, 90B*, 90D*, 102A*, 110A*, 110B*, 114B, 114D, 141D, 142A, 142B, 143A, 171A, 212A*, 212B*, 212C*, 217D, 218A, 247D, SROE, SRON
 Habitat: MshSw (coastal salt), Plyas, VnPls
 Life Form: Annual herb
 Blooming: February-June
 Notes: Known to have declined significantly by 1966, and now seriously threatened by urbanization and agricultural development. Does plant occur in TUL Co.? See *Synoptical Flora of North America* 1(2):324 (1884) for original description, and *University of California Publications in Botany* 40:1-92 (1966) for taxonomic treatment.

Lasthenia leptalea (Gray) Ornduff

"Salinas Valley goldfields" Asteraceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: /C3c
 Distribution: INY, KRN, MNT, SLO
 Habitat: CmWld, VFGrs
 Life Form: Annual herb
 Blooming: April
 Notes: See *Proceedings of the American Academy of Arts and Science* 6:546 (1865) for original description, and *University of California Publications in Botany* 40:63-66 (1969) for revised nomenclature.

Lasthenia maritima

Considered but rejected: Too common

Lasthenia minor ssp. *maritima*

Considered but rejected: A synonym of *L. maritima*; a common taxon

Mimulus diffusus Grant

"Palomar monkeyflower" Scrophulariaceae
 CNPS List: 4 R-E-D Code: 1-1-1 State/Fed. Status: CEQA?
 Distribution: ORA, RIV, SDG, BA
 Habitat: Chprl, LCFrs
 Life Form: Annual herb
 Blooming: April-June
 Notes: A synonym of *M. palmeri* in *The Jepson Manual*; probably indistinct from it. See *Annals of the Missouri Botanical Garden* 11:254 (1925) for original description.

Mimulus dudleyi

Considered but rejected: Too common; perhaps a synonym of *M. floribundus*

Mimulus exiguus Gray

"San Bernardino Mtns. monkeyflower" Scrophulariaceae
 CNPS List: 1B R-E-D Code: 2-2-2 State/Fed. Status: /C2
 Distribution: SBD, BA
 Quads: 105A, 105B, 131C, 131D
 Habitat: Medws, PbPln, UCFrs / mesic
 Life Form: Annual herb
 Blooming: June-July
 Notes: Threatened by development and vehicles.

Mimulus filicaulis Wats.

"slender-stemmed monkeyflower" Scrophulariaceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: /C2
 Distribution: MPA, TUO
 Quads: 419B, 438A, 438B, 438C, 438D, 439A, 456A, 456C, 456D, 457C, 457D
 Habitat: CmWld, LCFrs, Medws, UCFrs / vernal mesic
 Life Form: Annual herb
 Blooming: April-August
 Notes: Threatened by logging and reforestation with herbicides, and possibly by grazing. Includes *M. biolettii*. See *Proceedings of the American Academy of Arts and Sciences* 26:125 (1891) for original description, and *Changing Seasons* 1(3):3-5 (1981) for taxonomic discussion.

Mimulus flemingii Munz

"island bush monkeyflower" Scrophulariaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: ANA, SCM, SCZ, SRO
 Habitat: CBScr
 Life Form: Shrub (evergreen)
 Blooming: March-July
 Notes: See *M. aurantiacus* in *The Jepson Manual*.

Mimulus glabratus Kunth. ssp. *utahensis* Penn.

"Utah monkeyflower" Scrophulariaceae
 CNPS List: 2 R-E-D Code: 3-2-1 State/Fed. Status: CEQA
 Distribution: MNO, INY, NV+
 Quads: 326A, 453A, 453B
 Habitat: Medws, PJWld
 Life Form: Perennial herb (rhizomatous)
 Blooming: April
 Notes: Known in CA from fewer than ten occurrences. Threatened by the dewatering of Mono Lake. See *M. guttatus* in *The Jepson Manual*.

Mimulus glaucescens Greene

"shield-bracted monkeyflower" Scrophulariaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: BUT, COL, LAK, TEH
 Habitat: CmWld, VFGrs / serpentinite seeps
 Life Form: Annual herb
 Blooming: March-May

Mimulus gracilipes Rob.

"slender-stalked monkeyflower" Scrophulariaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: FRE, MPA
 Habitat: Chprl (often in burns and disturbed areas)
 Life Form: Annual herb
 Blooming: April-June
 Notes: See *Madroño* 28(1):41 (1981) for range extension information.

Mimulus grayi Grant

"Gray's monkeyflower" Scrophulariaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: FRE, MAD, MPA, TUL
 Habitat: LCFrs, UCFrs / mesic
 Life Form: Annual herb
 Blooming: May-July
 Notes: A synonym of *M. inconspicuus* in *The Jepson Manual*.

Mimulus guttatus ssp. *arenicola*

Considered but rejected: Too common; perhaps a synonym of *guttatus*

Mimulus inconspicuus Gray

"small-flowered monkeyflower" Scrophulariaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: AMA, BUT, CAL, MPA, TUO
 Habitat: Chprl, CmWld, LCFrs / mesic
 Life Form: Annual herb
 Blooming: May-June
 Notes: Does not include *M. acutidens* or *M. grayi*.

Mimulus laciniatus Gray

"cut-leaved monkeyflower" Scrophulariaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: AMA, BUT, FRE, MAD, MPA, PLU, TUL, TUO
 Habitat: LCFrs, UCFrs / mesic, granitic
 Life Form: Annual herb
 Blooming: May-July
 Notes: See *Proceedings of the American Academy of Arts and Sciences* 11:98 (1876) for original description.

Mimulus microphyllus Benth. *

"small-leaved monkeyflower" Scrophulariaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: KRN
 Habitat: Medws (mesic)
 Life Form: Annual herb
 Blooming: May-August
 Notes: See *M. guttatus* in *The Jepson Manual*.

Munroa squarrosa (Nutt.) Torr.

"false buffalo-grass" Poaceae
 CNPS List: 2 R-E-D Code: 3-2-1 State/Fed. Status: CEQA
 Distribution: SBD, AZ, NV, ++
 Quads: 200A, 249D
 Habitat: PJWld (gravelly or rocky)
 Life Form: Annual herb
 Blooming: October
 Notes: Known in CA only from the Clark and New York Mtns: May appear only after heavy summer rains.

Munzothamnus blairii

See *Stephanomeria blairii*

Myosotis laxa

Considered but rejected: Too common

Myosurus minimus L. ssp. *apus* (Greene) G.R. Campbell *

"little mousetail" Ranunculaceae
 CNPS List: 3 R-E-D Code: 2-3-2 State/Fed. Status: /C2
 Distribution: ALA, BUT, CCA, COL, KRN, RIV, SBD, SDG, SOL, STA, BA, OR
 Quads: 10A, 10B, 10C, 11D, 22B, 22D, 34C, 68A, 68B, 68C, 69A, 69D, 86A, 86D, 131B, 423B, 424A, 445B, 463D?, 498D, 561D, 562C
 Habitat: VnPls (alkaline)
 Life Form: Annual herb
 Blooming: March-June
 Notes: Move to List 1B? Need quads for KRN Co. Reduced by vernal pool habitat loss; threatened by vehicles, grazing, and agriculture. Endangered in OR. Taxonomic problems; distinguishing between this taxon and *M. sessilis* (= *M. minimus* ssp. *apus* var. *sessiliflorus* in *A California Flora* (1959) by P. Munz) is difficult; are both rare? May be a stabilized hybrid between *M. minimus* and *M. sessilis*, at least in the Central Valley; see *Evolution* 13:151-174 (1959) for details. See *M. minimus* in *The Jepson Manual*. See *Bulletin of the California Academy of Sciences* 1:277 (1885) for original description.

Myrica hartwegii

Considered but rejected: Too common

Myriophyllum quitense

Considered but rejected: Not native

Nama dichotomum (Ruiz, Lopez & Pav.) Choisyvar. *dichotomum*

"forked purple mat" Hydrophyllaceae
 CNPS List: 2 R-E-D Code: 3-1-1 State/Fed. Status: CEQA
 Distribution: SBD, AZ, NM, TX+
 Quads: 225D
 Habitat: PJWld (granitic or carbonate)
 Life Form: Annual herb
 Blooming: September-October
 Notes: Known in CA only from the New York Mtns.

Nama stenocarpum Gray

"mud nama" Hydrophyllaceae
 CNPS List: 2 R-E-D Code: 3-2-1 State/Fed. Status: CEQA
 Distribution: IMP, LAX*, ORA, SCM, SDG, AZ, BA+
 Quads: 1A, 1B, 10B, 11A, 36A, 71D, 72A, 111C*, SCMN
 Habitat: MshSw (lake margins, riverbanks)
 Life Form: Annual/Perennial herb
 Blooming: January-July
 Notes: See *Proceedings of the American Academy of Arts and Sciences* 10:331 (1875) for original description, and *American Journal of Botany* 20:415-430, 518-534 (1933) for taxonomic treatment.

Nasturtium gambellii

See *Rorippa gambellii*

Navarretia eriocephala Mason

"hoary navarretia" Polemoniaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: AMA, CAL, ELD, PLA, SAC
 Habitat: CmWld, VFGrs
 Life Form: Annual herb
 Blooming: May-June
 Notes: Intergrades somewhat with *N. heterandra*. See *Madroño* 8:196-197 (1946) for original description.

Navarretia fossalis Moran

"spreading navarretia" Polemoniaceae
 CNPS List: 1B R-E-D Code: 2-3-2 State/Fed. Status: /C1
 Distribution: RIV, SDG, BA
 Quads: 10B, 10C, 11A, 11D, 22B, 22C, 34C, 35B, 35C, 36D, 51C, 68A, 85C, 85D
 Habitat: ChScr, MshSw (assorted shallow freshwater), VnPls
 Life Form: Annual herb
 Blooming: April-June
 Notes: Threatened by agriculture, road construction, grazing, and urbanization. See *Madroño* 24(3):155-159 (1977) for original description.

Navarretia heterandra Mason

"Tehama navarretia" Polemoniaceae
 CNPS List: 4 R-E-D Code: 1-1-2 State/Fed. Status: CEQA?
 Distribution: BUT, COL, LAK, SHA, TEH, TRI, YUB, OR*
 Habitat: VFGrs (mesic), VnPls
 Life Form: Annual herb
 Blooming: May-June
 Notes: To be expected elsewhere; need information. See *Madroño* 8:197 (1946) for original description.

Navarretia heterodoxa ssp. *rosulata*

See *Navarretia rosulata*

Navarretia jaredii Eastw.

"Paso Robles navarretia" Polemoniaceae
 CNPS List: 4* R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: MNT, SLO
 Habitat: Chprl?, CmWld, VFGrs / clay, serpentinite
 Life Form: Annual herb
 Blooming: April-June

Proboscidea althaeifolia (Benth.) Dcne.

"desert unicorn-plant" Martyniaceae
 CNPS List: 4 R-E-D Code: 1-1-1 State/Fed. Status: CEQA?
 Distribution: IMP, RJV, SDG, AZ, BA, SO
 Habitat: SDScr
 Life Form: Perennial herb
 Blooming: May-August

Prunus fasciculata (Torr.) Gray var. *punctata* Jeps.

"sand almond" Rosaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: SBA, SLO
 Habitat: Chprl (maritime), CmWld, CoDns, CoScr / sandy
 Life Form: Shrub (deciduous)
 Blooming: March-April

Prunus lyonii

Considered but rejected: Too common

Pseudobahia bahiifolia (Benth.) Rydb.

"Hartweg's golden sunburst" Asteraceae
 CNPS List: 1B R-E-D Code: 2-3-3 State/Fed. Status: CE/PE
 Distribution: FRE, MAD, STA, SUT*, YUB*
 Quads: 378B, 398C, 440B, 440C, 441A, 459C*, 544A*
 Habitat: CmWld, VFGrs / clay
 Life Form: Annual herb
 Blooming: March-April
 Notes: Known from fewer than twenty occurrences. Seriously threatened by development, agriculture, overgrazing, and trampling.
 Status Report: 1986

Pseudobahia peirsonii Munz

"San Joaquin adobe sunburst" Asteraceae
 CNPS List: 1B R-E-D Code: 2-3-3 State/Fed. Status: CE/PE
 Distribution: FRE, KRN, TUL
 Quads: 239A, 262A*, 262B, 262D, 286B, 287A*, 287D*, 309C, 310A*, 310D, 311A*, 333C*, 333D*, 356B, 356C*, 378D
 Habitat: CmWld, VFGrs / adobe
 Life Form: Annual herb
 Blooming: March-April
 Notes: Known from fewer than twenty occurrences. Seriously threatened by agriculture, grazing, development, road construction, and flood control activities. See *Aliso* 2:84 (1949) for original description.
 Status Report: 1985

Psilocarphus brevissimus Nutt. var. *multiflorus* Cronq.

"delta woolly-marbles" Asteraceae
 CNPS List: 4 R-E-D Code: 1-2-3 State/Fed. Status: CEQA?
 Distribution: ALA, NAP, SCL, SJQ, SOL, STA, YOL
 Habitat: VnPls
 Life Form: Annual herb
 Blooming: May-June
 Notes: Does plant occur in CCA, SAC, or other counties? Similar to *P. elatior*. See *Research Studies of the State College of Washington* 18:80 (1950) for original description.



Pseudobahia bahiifolia

Psilocarphus elatior (Gray) Gray

"tall woolly-marbles" Asteraceae
 CNPS List: 4 R-E-D Code: 1-1-1 State/Fed. Status: CEQA?
 Distribution: LAS, MOD, OR, ++
 Habitat: Medws, VFGrs / vernally mesic
 Life Form: Annual herb
 Blooming: May-August
 Notes: Probably more widespread in northern CA; need information. Possibly a variant of *P. brevissimus* var. *brevissimus*. See *Proceedings of the American Academy of Arts and Sciences* 8:652 (1873) for original description.

Psilocarphus tenellus Nutt. var. *globiferus* (DC.) Morefield *

"round woolly-marbles" Asteraceae
 CNPS List: 4 R-E-D Code: 1-2-1 State/Fed. Status: CEQA?
 Distribution: CAL, FRE, KRN, MER, MNT, MRN, SLO, STA, TUL, SA
 Habitat: CoDns, VnPls
 Life Form: Annual herb
 Blooming: April-May
 Notes: To be expected in other areas of the Sierra Nevada foothills, San Joaquin Valley, Central Coast, and S.F. Bay; need information. See *Madroño* 39(2):156 (1992) for revised nomenclature.

Psoralea rigida
See *Rupertia rigida*

Psorothamnus arborescens (Gray) Barneby var. *arborescens* *

"Mojave indigobush" Fabaceae
CNPS List: 4 R-E-D Code: 1-1-1 State/Fed. Status: /C3c
Distribution: KRN, SBD, SO
Habitat: RpScr
Life Form: Shrub (deciduous)
Blooming: April-May
Notes: See *Memoirs of the New York Botanical Garden* 27:182 (1977) for taxonomic treatment.

Psorothamnus arborescens var. *simplicifolius*
Considered but rejected: Too common

Puccinellia californica (Beetle) Munz

"Sierra Nevada alkali-grass" Poaceae
CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
Distribution: FRE, TUL
Habitat: SCFRs (mesic)
Life Form: Perennial herb (rhizomatous)
Blooming: August-September
Notes: See *Torreyochloa pallida* var. *pauciflora* in *The Jepson Manual*.

Puccinellia howellii Davis

"Howell's alkali-grass" Poaceae
CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: /C1
Distribution: SHA
Quads: 648B
Habitat: Medws (mineralized)
Life Form: Perennial herb
Blooming: April-June
Notes: Known from only one occurrence. Threatened by highway runoff pollution and disturbance from the realignment of Highway 299. See *Madroño* 37(1):55-58 (1990) for original description.

Puccinellia lemmonii
Considered but rejected: Too common

Puccinellia parishii Hitchc.

"Parish's alkali-grass" Poaceae
CNPS List: 1B R-E-D Code: 3-3-2 State/Fed. Status: /C1
Distribution: KRN?, SBD, AZ, NM
Quads: 131B, 186D?
Habitat: Medws (alkaline)
Life Form: Annual herb
Blooming: April-May
Notes: Confirmed in 1992 at Rabbit Springs, SBD Co. (type locality, 131B). New occurrence also found in 1992 at Edwards AFB, KRN Co. (186D), but identity is questionable. Declining elsewhere; confirmed extant from only a few occurrences in AZ, and one in NM where state-listed as Endangered. Threatened by groundwater pumping, flood control, and grazing. See *Proceedings of the Biological Society of Washington* 41:157 (1928) for original description.
Status Report: 1979

Puccinellia pumila (Vasey) Hitchc.

"dwarf alkali-grass" Poaceae
CNPS List: 2 R-E-D Code: 3-2-1 State/Fed. Status
Distribution: HUM, MEN, OR, WA, ++
Quads: 569A, 655A
Habitat: MshSw (coastal salt)
Life Form: Perennial herb
Blooming: July
Notes: Known in CA from only three occurrences. Is pl. known?

Purpusia saxosa
See *Ivesia arizonica* var. *arizonica*

Pyrocoma lucida (Keck) Kartesz & Gandhi

"sticky pyrrocoma" Asteraceae
CNPS List: 1B R-E-D Code: 3-1-3 State/Fed. Status:
Distribution: PLU, SIE, YUB
Quads: 558A, 571D, 572A, 587C, 588A, 589B
Habitat: LCFrs (alkaline clay)
Life Form: Perennial herb
Blooming: July-September
Notes: See *Phytologia* 71(1):58-65 (1991) for revised nomen

Pyrocoma racemosa (Nutt.) T. & G.
var. *congesta* (Greene) G. Brown & Keil

"Del Norte pyrrocoma" Asteraceae
CNPS List: 4 R-E-D Code: 1-1-1 State/Fed. Status:
Distribution: DNT, OR
Habitat: Chprl, LCFrs / serpentinite
Life Form: Perennial herb
Blooming: August-September
Notes: See *Pittonia* 3:23 (1898) for original description, and *Phytologia* 73(1):57-58 (1992) for revised nomenclature.

Pyrocoma uniflora (Hook.) Greene
var. *gossypina* (Greene) Kartesz & Gandhi

"Bear Valley pyrrocoma" Asteraceae
CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: /
Distribution: SBD
Quads: 105A, 105B, 131C, 131D
Habitat: Medws, PbPln
Life Form: Perennial herb
Blooming: July-September
Notes: Known from fewer than twenty occurrences. Threatened by grazing, development, and vehicles. See *Pittonia* 3:23 (1898) for original description, and *Phytologia* 71(1):58-65 (1991) for nomenclature.

Rorippa gambellii (Wats.) Roll. & Al-Shehbaz

"Gambel's water cress" Brassicaceae
 CNPS List: 1B R-E-D Code: 3-3-2 State/Fed. Status: CT/FE
 Distribution: LAX*, ORA*, SDG*, SLO, BA
 Quads: 33D*, 107D*, 111D*, 221D
 Habitat: MshSw (freshwater or brackish)
 Life Form: Perennial herb (rhizomatous)
 Blooming: April-June
 Notes: Nearly extinct in U.S.; known in CA from only one or two extant occurrences. VEN Co. occurrence (141D) erroneous; probably misidentified *R. nasturtium-aquaticum*. Seriously threatened by habitat loss, and *Eucalyptus* may be altering hydrology at Black Lake Cyn. See *Journal of the Arnold Arboretum* 69:65-71 (1988) for revised nomenclature.
 Status Report: 1991

Rorippa subumbellata Roll.

"Tahoe yellow cress" Brassicaceae
 CNPS List: 1B R-E-D Code: 3-3-2 State/Fed. Status: CE/C1
 Distribution: ELD, NEV*, PLA, NV
 Quads: 522B, 523A, 538A*, 538B, 538C, 538D, 554C*
 Habitat: LCFrs, Medws / decomposed granitic beaches
 Life Form: Perennial herb (rhizomatous)
 Blooming: June-September
 Notes: Known in CA from fewer than ten extant occurrences around Lake Tahoe; over one-half of historical occurrences extirpated. Threatened by development, recreation, and trampling; recovery work underway. State-listed as Critically Endangered in NV. See *Contributions from the Dudley Herbarium* 3:177 (1941) for original description.
 Status Report: 1991

Rosa minutifolia Engelm.

"small-leaved rose" Rosaceae
 CNPS List: 2 R-E-D Code: 3-3-1 State/Fed. Status: CE/C2
 Distribution: SDG, BA
 Quads: 11D
 Habitat: Chprl
 Life Form: Shrub (deciduous)
 Blooming: January-June
 Notes: Known in CA from only one occurrence on Otay Mesa. Threatened by development and vehicles. See *Madroño* 33:150 (1986) for first CA record.
 Status Report: 1989

Rubus glaucifolius Kell. var. *ganderi* (Bailey) Munz

"Cuyamaca raspberry" Rosaceae
 CNPS List: 1B R-E-D Code: 3-1-3 State/Fed. Status: /C2
 Distribution: SDG
 Quads: 20A, 33D
 Habitat: LCFrs
 Life Form: Shrub (evergreen)
 Blooming: June
 Notes: Known from only two occurrences on Harrison Pk. and Middle Pk. in the Cuyamaca Mtns. Historical occurrences need field surveys. See *R. glaucifolius* in *The Jepson Manual*.

Rubus nivalis Dougl.

"snow dwarf bramble" Rosaceae
 CNPS List: 2 R-E-D Code: 3-1-1 State/Fed. Status: (C)
 Distribution: DNT, ID, OR+
 Quads: 738C
 Habitat: NCFrs
 Life Form: Vine (evergreen)
 Blooming: June-August

Rubus pedatus

Considered but rejected: Not in CA; name misapplied to *R. L. cus*; a common taxon

Rupertia hallii (Rydb.) Grimes

"Hall's rupertia" Fabaceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: CE
 Distribution: BUT, TEH
 Quads: 608C, 608D
 Habitat: CmWld
 Life Form: Perennial herb
 Blooming: July-August
 Notes: See *North American Flora* 24:11 (1919) for original description, and *Memoirs of the New York Botanical Garden* 61:1 (1990) for taxonomic treatment.

Rupertia rigida (Parish) Grimes

"Parish's rupertia" Fabaceae
 CNPS List: 4 R-E-D Code: 1-1-2 State/Fed. Status: CEC
 Distribution: RIV, SBD, SDG, BA
 Habitat: Chprl, CmWld, LCFrs
 Life Form: Perennial herb
 Blooming: June-July
 Notes: See *Systematic Botany* 14:233 (1989) for revised nomenclature.

Sagittaria rigida

Considered but rejected: Not native

Sagittaria sanfordii Greene *

"Sanford's arrowhead" Alismataceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: /C2
 Distribution: BUT, DNT, FRE, KRN, MER, MRN, ORA*, SAC, SHA, SJQ, TEH, VEN*
 Quads: 72A*, 141A*, 381D, 402C, 403D, 421C, 423D, 462D, 478B, 485C, 496A, 496B, 496D, 512C, 575B, 593B, 628A, 628D, 740C
 Habitat: MshSw (assorted shallow freshwater)
 Life Form: Perennial herb (rhizomatous, emergent)
 Blooming: May-August
 Notes: Mostly extirpated from the Central Valley. Need quads for FRE and KRN counties. Threatened by grazing, development and channel alteration.

Astragalus webberi Gray

"Webber's milk-vetch" Fabaceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: /C2
 Distribution: PLU, SIE
 Quads: 605C, 605D, 606D
 Habitat: LCFrs
 Life Form: Perennial herb
 Blooming: May-July
 Notes: Known from approximately ten occurrences. Undocumented in SIE Co.; need quads. See *Botany of California* 1:154 (1876) for original description.

Astrolepis cochisensis (Goodd.) Benham & Windham

"scaly cloak fern" Pteridaceae
 CNPS List: 2 R-E-D Code: 2-1-1 State/Fed. Status: CEQA
 Distribution: SBD, AZ, BA+
 Quads: 249D
 Habitat: JTWld, PJWld / carbonate
 Life Form: Perennial herb (rhizomatous)
 Fertile: April-October
 Notes: Need quad for occurrence in the Providence Mtns. See *Madroño* 25:57 (1978) for distributional information, *Phytologia* 41(6):431-437 (1979) for nomenclature, *American Journal of Botany* 75:138 (1988) for taxonomic discussion, and *American Fern Journal* 82(2):57 (1992) for revised nomenclature.

Atriplex cordulata Jeps. *

"heartscale" Chenopodiaceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: /C2
 Distribution: ALA, BUT, CCA*, FRE, GLE, KNG, KRN, MAD, MER, SJQ*, SOL, STA*, TUL
 Quads: 215B, 216A, 216C, 287B, 287C, 288A, 288B, 288C, 288D, 359A*, 360A, 381A*, 381D, 401B*, 401D*, 403A, 403B*, 403C*, 403D, 423B, 423C, 424A*, 445B, 463A*, 463D, 481C, 481D*, 561D, 562B
 Habitat: ChScr, VFGrs (sandy) / saline or alkaline
 Life Form: Annual herb
 Blooming: May-October
 Notes: Need quads for KNG and SJQ counties.

Atriplex coronata Wats. var. *coronata* *

"crowscale" Chenopodiaceae
 CNPS List: 4 R-E-D Code: 1-2-3 State/Fed. Status: CEQA?
 Distribution: ALA, CCA, FRE, KNG, KRN, MER, MNT, SJQ?, SLO, STA
 Habitat: ChScr?, VFGrs, VnPls / alkaline
 Life Form: Annual herb
 Blooming: April-October
 Notes: Does plant occur in SJQ Co.? Similar to *A. cordulata* and *A. vallicola*. See *Proceedings of the American Academy of Arts and Sciences* 9:114 (1874) for original description.

Atriplex coronata Wats. var. *notatior* Jeps.

"San Jacinto Valley crowscale" Chenopodiaceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: /C1
 Distribution: RIV
 Quads: 68A, 84C*, 85A, 85C, 85D
 Habitat: Plyas, VnPls / alkaline
 Life Form: Annual herb
 Blooming: April-August
 Notes: Known from one extended but fragmented population in the San Jacinto Valley. Threatened by flood control, agriculture, urbanization, grazing, and vehicles. See *Manual of the Flowering Plants of California*, p. 325 (1925) by W.L. Jepson for original description.
 Status Report: 1988

Atriplex coulteri (Moq.) D. Dietr.

"Coulter's saltbush" Chenopodiaceae
 CNPS List: 1B R-E-D Code: 2-2-2 State/Fed. Status: CEQA
 Distribution: ANA, LAX, ORA, RIV, SBA, SBD, SCM, SCT, SCZ, SDG, SMI, SRO, BA
 Quads: 10C, 11A, 11B, 11D, 22C, 34A, 49D, 52B, 70C, 71B, 71D, 87B, 113D, 142A, 142B, 143A, 145B, 170C, ANAC, SCMC, SCTN, SCTS, SCTW, SCZA, SCZB, SCZC, SMIE, SROE, SRON
 Habitat: CBScr, CoDns, CoScr, VFGrs / alkaline or clay
 Life Form: Perennial herb
 Blooming: March-October
 Notes: Few recent sightings. Need quads for RIV Co. Threatened by development, and probably by feral herbivores.

Atriplex depressa Jeps. *

"brittlescale" Chenopodiaceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: CEQA
 Distribution: ALA, CCA, COL, FRE, GLE, KRN, MAD, MER, SOL, STA*, TUL, YOL
 Quads: 265A, 288D, 334B*, 334D*, 335B*, 358C*, 359A, 359B, 359D*, 360A, 381A*, 401B*, 401D*, 402A, 403A, 423B*, 424A*, 443B*, 445B, 463C, 481B, 498D, 513B, 514A*, 546A, 547A, 562B, 562D, 578C*
 Habitat: ChScr, Plyas, VFGrs / alkaline or clay
 Life Form: Annual herb
 Blooming: May-October
 Notes: Closely related to *A. minuscula* and *A. parishii*; a synonym of the latter in *A California Flora* (1959) by P. Munz. See *Pittonia* 2:304 (1892) for original description.

Atriplex joaquiniana A. Nels.

"San Joaquin spearscale" Chenopodiaceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: /C2
 Distribution: ALA, CCA, COL, GLE, MER, NAP, SAC, SBT, SCL*, SJQ*, SOL, TUL*, YOL
 Quads: 340D, 385B*, 385C*, 403A, 403B, 406D*, 423C, 427B*, 445B, 462A*, 463C, 463D, 464A, 464B*, 464C*, 465D*, 480B*, 480C*, 481D*, 483A, 498C*, 498D, 499D*, 500D, 511A, 513B*, 530B*, 547A, 547C, 562B, 564A, 578C*
 Habitat: ChScr, Medws, VFGrs / alkaline
 Life Form: Annual herb
 Blooming: April-September
 Notes: Need historical quads for TUL Co. Threatened by grazing, agriculture, and development.

Atriplex minuscule Standl. *

"lesser saltscale" Chenopodiaceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: CEQA
 Distribution: FRE*, KRN, MAD, MER*, TUL*
 Quads: 241B, 287C*, 288D*, 334C*, 334D*, 359B*, 359D*,
 381A, 381C, 401B*, 401C, 401D*, 402A*
 Habitat: ChScr, Plyas, VFGrs / alkaline
 Life Form: Annual herb
 Blooming: May-October
 Notes: Known from fewer than five extant occurrences. Historical
 occurrences extirpated by agriculture. Closely related to *A. depressa*
 and *A. parishii*, a synonym of the latter in *A California Flora*
 (1959) by P. Munz. See *North American Flora* 21:51 (1916) for
 original description.

Atriplex pacifica Nels.

"South Coast saltscale" Chenopodiaceae
 CNPS List: 1B R-E-D Code: 3-2-2 State/Fed. Status: /C2
 Distribution: ANA, LAX, ORA*, RIV, SCM, SCT, SCZ, SDG,
 SNI, SRO, VEN*, BA
 Quads: 10C(*?), 11B, 22A, 22B, 22C*, 52A, 52D, 68A, 71B*,
 71D*, 73A, 85C, 85D, 90C*, 141D*, ANAC, SCTE, SCTN,
 SCTS, SCZC, SNIC
 Habitat: ChScr, CoScr, Plyas
 Life Form: Annual herb
 Blooming: March-October
 Notes: Many known occurrences extirpated; need information. Need
 quads for SCM and SRO islands. Greatly reduced by urbanization
 on mainland. See *Proceedings of the Biological Society of Washington*
 17:99 (1904) for original description.

Atriplex parishii Wats.

"Parish's brittle scale" Chenopodiaceae
 CNPS List: 1B R-E-D Code: 3-3-2 State/Fed. Status: /C2
 Distribution: LAX*, ORA*, RIV, SBD*, SDG*, BA
 Quads: 66D*, 68A, 71B?, 71D*, 72A?, 83D*, 85C, 89D*, 90C*,
 111A*, 111C*, 131D*
 Habitat: ChScr, Plyas, VnPls
 Life Form: Annual herb
 Blooming: June-October
 Notes: Plant collected only once (1993) in CA since 1974; proba-
 bly still extant in BA. Threatened by development, agricultural
 conversion, and grazing. Taxonomic reevaluation indicates plant
 is only from southern California, but is closely related to more
 northern *A. depressa* and *A. minuscule*. See *Proceedings of the*
American Academy of Arts and Sciences 17:377 (1882) for original
 description.

Atriplex patula ssp. *spicata*
 See *Atriplex joaquiniana*

Atriplex serenana Nels. var. *davidsonii* (Standl.) Munz

"Davidson's saltscale" Chenopodiaceae
 CNPS List: 1B R-E-D Code: 3-2-2 State/Fed. Status: CEQ
 Distribution: LAX(*?), ORA, RIV, SBA, SDG, SRO, VEN, BA
 Quads: 71B, 71D, 73A(*?), 85D, 88A, 140B
 Habitat: ChScr, CoScr / alkaline
 Life Form: Annual herb
 Blooming: April-October
 Notes: Is plant extirpated from LAX Co.? Need quads for SBA a
 SDG counties and SRO Isl. See *North American Flora* 21:
 (1916) for original description.

Atriplex tularensis Cov. *

"Bakersfield smallscale" Chenopodiaceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: CE/C
 Distribution: KRN(*?)
 Quads: 214B?, 215A*, 239C*
 Habitat: ChScr
 Life Form: Annual herb
 Blooming: June-October
 Notes: Possibly extinct. Three historical occurrences extirpated i
 agriculture; only remaining occurrence at Kern Lake Preser
 (TNC) is probably an undescribed form of *A. serenana*, not
tularensis as thought. Immediate taxonomic study warrant
 Threatened by lowering of water table. See *Contributions from t*
U.S. National Herbarium 4:182 (1893) for original descriptio
 and *Fremontia* 19(2):15-18 (1991) for species account and discu
 sion of management.
 Status Report: 1993

Atriplex vallicola Hoov. *

"Lost Hills crown scale" Chenopodiaceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: /C2
 Distribution: FRE, KNG, KRN, MER, SLO
 Quads: 218A, 218B, 242A, 242D, 243C, 265B*, 265D, 266A,
 289C, 290D, 359B, 381C, 383B
 Habitat: ChScr, VFGrs, VnPls / alkaline
 Life Form: Annual herb
 Blooming: May-August
 Notes: Threatened by grazing and agricultural conversion. Plan
 from SLO Co. are probably an unnamed new taxon. See *Leaflets*
Western Botany 2(8):130-131 (1938) for original description.
 Status Report: 1988

Ayenia compacta Rose

"ayenia" Sterculiaceae
 CNPS List: 2 R-E-D Code: 2-1-1 State/Fed. Status: CEQA
 Distribution: RIV, SBD, SDG, BA
 Quads: 7C, 19A, 19B, 20D, 32A, 32B, 32C, 32D, 33A, 47D, 61B,
 62B, 65C, 65D, 66A, 79D, 83D, 176A
 Habitat: MDScr, SDScr / washes
 Life Form: Perennial herb
 Blooming: March-April

Clarkia rubicunda ssp. *blasdalei*

Considered but rejected: A synonym of *C. rubicunda*, a common taxon

Clarkia rubicunda ssp. *rubicunda*

Considered but rejected: Too common and taxonomic problem

Clarkia speciosa Lewis & Lewis
ssp. *immaculata* Lewis & Lewis

"Pismo clarkia" Onagraceae
CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: CR/PE
Distribution: SLO
Quads: 221A, 221D
Habitat: Chprl (margins, openings), CmWld, VFGrs
Life Form: Annual herb
Blooming: May-June
Notes: Known from only four extant occurrences. Threatened by development and road maintenance, and possibly by grazing. USFWS uses the name *C. speciosa* var. *immaculata*. See *University of California Publications in Botany* 20:291 (1955) for original description.
Status Report: 1987

Clarkia springvillensis Vasek

"Springville clarkia" Onagraceae
CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: CE/C1
Distribution: TUL
Quads: 308A, 308B, 309A, 332A
Habitat: Chprl, CmWld, VFGrs
Life Form: Annual herb
Blooming: May-July
Notes: Known from fewer than ten occurrences. Threatened by grazing, vehicles, road maintenance, logging, and residential development. Sequoia NF has adopted species management guidelines. See *Madroño* 17:220 (1964) for original description.
Status Report: 1993

Clarkia tembloriensis Vasek *
ssp. *calientensis* (Vasek) Holsinger

"Vasek's clarkia" Onagraceae
CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: /C1
Distribution: KRN
Quads: 238C, 239D
Habitat: VFGrs
Life Form: Annual herb
Blooming: April
Notes: Known from only three occurrences near Caliente Creek. Threatened by grazing and non-native plants. Perhaps best treated as *C. calientensis*. See *Systematic Botany* 2:252-255 (1977) for original description and 10(2):155-165 (1985) for taxonomic treatment.

Clarkia tembloriensis ssp. *tembloriensis*

Considered but rejected: Too common

Clarkia virgata Greene

"Sierra clarkia" Onagraceae
CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
Distribution: AMA, CAL, ELD, MPA, TUO
Habitat: CmWld, LCFrs
Life Form: Annual herb
Blooming: May-July
Notes: May form sterile hybrids with *C. australis*.

Clarkia xantiana Gray
ssp. *parviflora* (Eastw.) Lewis & Raven

"Kern Canyon clarkia" Onagraceae
CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: CEQA
Distribution: KRN
Quads: 284B, 284C
Habitat: CmWld
Life Form: Annual herb
Blooming: May-June
Notes: Known only from the Kern River drainage. Threatened by road construction. See *Bulletin of the Torrey Botanical Club* 30:492 (1903) for original description, and *Madroño* 39(3):163-169 (1992) for revised nomenclature.

Claytonia bellidifolia
See *Claytonia megarhiza**Claytonia lanceolata* Pursh var. *peirsonii* Munz & Jtn.

"Peirson's spring beauty" Portulacaceae
CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: /C1
Distribution: SBD
Quads: 108A, 134D
Habitat: SCFrS, UCFrs (scree)
Life Form: Perennial herb
Blooming: May-June
Notes: Threatened by trampling and proposed ski area expansion. A synonym of *C. lanceolata* in *The Jepson Manual*. Angeles NF has adopted species management guidelines. See *Bulletin of the Torrey Botanical Club* 49:352 (1922) for original description.
Status Report: 1980

Claytonia megarhiza (Gray) Wats.

"fell-fields claytonia" Portulacaceae
CNPS List: 2 R-E-D Code: 2-1-1 State/Fed. Status: /C3c
Distribution: ALP, MNO, MOD, MPA, NEV, TUO, OR+
Quads: 435B, 454C, 454D, 472D, 506D, 523B, 555A, 690C
Habitat: AlpBR, SCFrS (rocky)
Life Form: Perennial herb
Blooming: July-August

Claytonia megarhiza var. *bellidifolia*
See *Claytonia megarhiza**Claytonia palustris* Swanson & Kelley

"marsh claytonia" Portulacaceae
CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
Distribution: BUT, FRE, PLU, SIS, TEH, TUL
Habitat: Medws (mesic), MshSw (montane)
Life Form: Perennial herb
Blooming: June-August
Notes: See *Madroño* 34(2):155-161 (1987) for original description.

Collomia tracyi Mason

"Tracy's collomia" Polemoniaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: DNT, HUM, LAS, SIS, TEH, TRI
 Habitat: LCFrs
 Life Form: Annual herb
 Blooming: June-July
 Notes: Similar to *C. tinctoria*, but does not intergrade.

Colubrina californica Jtn.

"Las Animas colubrina" Rhamnaceae
 CNPS List: 4 R-E-D Code: 1-1-2 State/Fed. Status: /C3c
 Distribution: IMP, RIV, SDG, AZ, BA, SO
 Habitat: MDScr
 Life Form: Shrub (evergreen)
 Blooming: April-May
 Notes: See *Proceedings of the California Academy of Sciences* IV 12:1085 (1924) for original description, and *Brittonia* 23:36 (1971) for distributional information.

Comarostaphylis diversifolia (Parry) Greene ssp. *diversifolia*

"summer holly" Ericaceae
 CNPS List: 1B R-E-D Code: 2-2-2 State/Fed. Status: /C2
 Distribution: ORA, RIV, SDG, BA
 Quads: 10B, 10C, 10D, 22B, 22C, 22D, 35B, 35C, 35D, 36D, 47C?, 51B, 69C, 70C
 Habitat: Chprl
 Life Form: Shrub (evergreen)
 Blooming: April-June
 Notes: Threatened by development and gravel mining.

Condalia globosa Jtn. var. *pubescens* Jtn.

"spiny abrojo" Rhamnaceae
 CNPS List: 4 R-E-D Code: 1-2-1 State/Fed. Status: CEQA?
 Distribution: IMP, RIV, AZ, BA, SO+
 Habitat: SDSr
 Life Form: Shrub (deciduous)
 Blooming: March-May
 Notes: See *Proceedings of the California Academy of Sciences* IV 12:1087 (1924) for original description, and *Brittonia* 14:332-368 (1972) for taxonomic treatment.

Conioselinum chinense

Considered but rejected: Too common; a synonym of *C. pacificum*

Convolvulus simulans Perry *

"small-flowered morning-glory" Convolvulaceae
 CNPS List: 4 R-E-D Code: 1-2-2 State/Fed. Status: CEQA?
 Distribution: CCA, KRN, LAX, RIV, SBA, SBT, SCM, SCT, SCZ, SDG, SJQ, SLO, STA, BA
 Habitat: CoScr, VFGrs / clay, serpentinite seeps
 Life Form: Annual herb
 Blooming: March-June
 Notes: Rare in southern CA. See *Rhodora* 33:76 (1931) for original description.

Corallorhiza trifida Chatel.

"northern coralroot" Orchidaceae
 CNPS List: 2 R-E-D Code: 3-3-1 State/Fed. Status: CEQA
 Distribution: PLU, NV, OR, ++
 Quads: 590B
 Habitat: LCFrs, Medws (edges) / mesic
 Life Form: Perennial herb (rhizomatous, saprophytic)
 Blooming: June-July
 Notes: Known in CA from only one occurrence near Buck's Lake. See *The Wasmann Journal of Biology* 36:199-200 (1978) for information on CA occurrence, and *Fremontia* 19(1):22-23 (1991) for account of recent discovery (1990).

Cordylanthus bernardinus

See *Cordylanthus eremicus* ssp. *eremicus*

Cordylanthus brunneus ssp. *capillaris*

See *Cordylanthus tenuis* ssp. *capillaris*

Cordylanthus capitatus Benth.

"Yakima bird's-beak" Scrophulariaceae
 CNPS List: 2 R-E-D Code: 1-2-1 State/Fed. Status: CEQA
 Distribution: LAS, MOD, ID, NV, OR, WA
 Quads: 622C, 707C, 724A, 724C
 Habitat: LCFrs, PJWld
 Life Form: Annual herb (hemiparasitic)
 Blooming: July-September
 Notes: See *Systematic Botany Monographs* 10:69-73 (1986) for taxonomic treatment.
 Status Report: 1980

Cordylanthus eremicus (Cov. & Mort.) Munz ssp. *eremicus*

"desert bird's-beak" Scrophulariaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: /C3c
 Distribution: INY, SBD
 Habitat: JTWld, MDScr / rocky
 Life Form: Annual herb (hemiparasitic)
 Blooming: August-October
 Notes: Includes *C. bernardinus*. See *Systematic Botany Monographs* 10:89-92 (1986) for revised taxonomic treatment.
 Status Report: 1977

Cordylanthus eremicus (Cov. & Mort.) Munz ssp. *kernensis* Chuang & Heckard

"Kern Plateau bird's-beak" Scrophulariaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: INY, KRN, TUL
 Habitat: UCFrs
 Life Form: Annual herb (hemiparasitic)
 Blooming: July-September
 Notes: Endemic to the Kern Plateau region. See *Systematic Botany Monographs* 10:89-92 (1986) for original description.

Cordylanthus ferrisianus

Considered but rejected: A synonym of *C. rigidus* ssp. *rigidus*, a common taxon

Cordylanthus helleri

Considered but rejected: Too common; a synonym of *C. kingii* ssp. *helleri*

Eriogonum foliosum Wats.

"leafy buckwheat" Polygonaceae
 CNPS List: 1B R-E-D Code: 2-2-2 State/Fed. Status: CEQA
 Distribution: RIV, SBD, SDG, BA
 Quads: 20D, 48C, 66B, 105A, 105B, 131C, 131D
 Habitat: Chprl, LCFrs, PJWld / sandy
 Life Form: Annual herb
 Blooming: July-October
 Notes: Known in SDG Co. from only two collections. Easily confused with *E. davidsonii*, so possibly overlooked. See *Phytologia* 66(4):382 (1989) for taxonomic treatment.

Eriogonum giganteum Wats. var. *compactum* Dunkle

"Santa Barbara Island buckwheat" Polygonaceae
 CNPS List: 1B R-E-D Code: 3-1-3 State/Fed. Status: CR/C2
 Distribution: SBR
 Quads: SBRA
 Habitat: CBScr (rocky)
 Life Form: Shrub (deciduous)
 Blooming: May-August
 Notes: Known from fewer than fifteen occurrences, but population numbers are increasing. See *Bulletin of the Southern California Academy of Sciences* 41:130 (1943) for original description, and *Phytologia* 66(4):318-319 (1989) for taxonomic treatment.
 Status Report: 1986

Eriogonum giganteum Wats. var. *formosum* K. Bdg.

"San Clemente Island buckwheat" Polygonaceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: /C2
 Distribution: SCM
 Quads: SCMC, SCMN, SCMS
 Habitat: CBScr (rocky)
 Life Form: Shrub (deciduous)
 Blooming: March-October
 Notes: Possibly threatened by Navy activities. Feral herbivores removed from SCM Isl., and vegetation recovering. See *Phytologia* 66(4):318-319 (1989) for taxonomic treatment.

Eriogonum giganteum var. *giganteum*

Considered but rejected: Too common

Eriogonum gilmanii S. Stokes

"Gilman's buckwheat" Polygonaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: /C3c
 Distribution: INY
 Habitat: MDScr (gravelly)
 Life Form: Perennial herb
 Blooming: May-August
 Notes: See *Leaflets of Western Botany* 3(1):16 (1941) for original description, and *Phytologia* 66(4):335 (1989) for taxonomic treatment.
 Status Report: 1977

Eriogonum gossypinum Curran *

"cottony buckwheat" Polygonaceae
 CNPS List: 4 R-E-D Code: 1-2-3 State/Fed. Status: /C3c
 Distribution: FRE, KNG, KRN, SLO
 Habitat: ChScr, VFGrS / clay
 Life Form: Annual herb
 Blooming: April-September
 Notes: See *Phytologia* 66(4):372 (1989) for taxonomic treatment.

Eriogonum gracilipes

Considered but rejected: Too common

Eriogonum grande var. *dunklei*

See *Eriogonum grande* var. *rubescens*

Eriogonum grande Greene var. *grande*

"island buckwheat" Polygonaceae
 CNPS List: 4 R-E-D Code: 1-2-3 State/Fed. Status: CEQA?
 Distribution: ANA, SCM, SCT, SCZ
 Habitat: CBScr
 Life Form: Perennial herb
 Blooming: June-October
 Notes: See *Phytologia* 66(4):333-334 (1989) for taxonomic treatment.

Eriogonum grande Greene var. *rubescens* (Greene) Munz

"red-flowered buckwheat" Polygonaceae
 CNPS List: 4 R-E-D Code: 1-2-3 State/Fed. Status: /C2
 Distribution: ANA?, SCZ, SMI, SRO
 Habitat: CBScr, CoScr
 Life Form: Perennial herb
 Blooming: June-October
 Notes: Does plant occur on ANA Isl.? Threatened by feral herbivores, and by cattle grazing on SRO Isl. Includes *E. grande* var. *dunklei*. See *Phytologia* 66(4):333-334 (1989) for taxonomic treatment.

Eriogonum grande Greene var. *timorum* Reveal

"San Nicolas Island buckwheat" Polygonaceae
 CNPS List: 1B R-E-D Code: 2-3-3 State/Fed. Status: CE/C2
 Distribution: SNI
 Quads: SNIC
 Habitat: CBScr
 Life Form: Perennial herb
 Blooming: June-October
 Notes: Possibly threatened by Navy activities, erosion, and non-native plants. See *Aliso* 7(2):229 (1970) for original description, and *Phytologia* 66(4):333-334 (1989) for taxonomic treatment.
 Status Report: 1987

Eriogonum heermannii Dur. & Hilg. var. *floccosum* Munz

"Clark Mtn. buckwheat" Polygonaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: /C3c
 Distribution: SBD
 Habitat: PJWld (carbonate)
 Life Form: Shrub (deciduous)
 Blooming: August-October
 Notes: See *Phytologia* 66(4):314-316 (1989) for taxonomic treatment.

Eriogonum temblorense J.T. Howell & Twisselmann *

"Temblor buckwheat" Polygonaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: /C2
 Distribution: KRN, MNT, SLO
 Habitat: VFGrs (clay or sandstone)
 Life Form: Annual herb
 Blooming: May-September
 Notes: Marginally distinct from *E. eastwoodianum* and *E. vestitum*.
 See *Phytologia* 66(4):375 (1989) for taxonomic treatment.

Eriogonum ternatum Howell

"ternate buckwheat" Polygonaceae
 CNPS List: 4 R-E-D Code: 1-1-2 State/Fed. Status: CEQA?
 Distribution: DNT, SIS, SON, TEH, OR
 Habitat: LCFrs (serpentinite)
 Life Form: Perennial herb
 Blooming: June-August
 Notes: On watch list in OR. See *Phytologia* 66(4):348-349 (1989)
 for taxonomic treatment.

Eriogonum tripodum Greene

"tripod buckwheat" Polygonaceae
 CNPS List: 4 R-E-D Code: 1-2-3 State/Fed. Status: CEQA?
 Distribution: AMA, COL, ELD, LAK, MPA, NAP, PLA, TEH,
 TUO
 Habitat: Chprl, CmWld / often serpentinite
 Life Form: Shrub (deciduous)
 Blooming: May-July
 Notes: Some occurrences threatened by mining. See *Pittonia* 1:39
 (1887) for original description, and *Phytologia* 66(4):350-351
 (1989) for taxonomic treatment.

Eriogonum truncatum T. & G.

"Mt. Diablo buckwheat" Polygonaceae
 CNPS List: 1A Last Seen: 1940 State/Fed. Status: /C3a
 Distribution: ALA*, CCA*, SOL*
 Quads: 445A*, 445B*, 464A*, 464B*, 464C*, 481D*, 482A*
 Habitat: Chprl, CoScr, VFGrs / sandy
 Life Form: Annual herb
 Blooming: April-September
 Notes: Recent attempts to rediscover this plant have been unsuccess-
 ful. See *Proceedings of the American Academy of Arts and Sciences*
 8:173 (1870) for original description, and *Phytologia* 66(4):375-
 376 (1989) for taxonomic treatment.
 Status Report: 1988

Eriogonum twisselmannii (J.T. Howell) Reveal

"Twisselmann's buckwheat" Polygonaceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: CR/C2
 Distribution: TUL
 Quads: 308A, 308D
 Habitat: UCFrs (granitic)
 Life Form: Perennial herb
 Blooming: July-September
 Notes: Endemic to Sequoia NF; protected in part at Slate Mtn. BA,
 which contains the largest of approximately ten known occurrences.
 See *Leaflets of Western Botany* 10(1):13 (1963) for original descrip-
 tion, and *Phytologia* 66(4):352 (1989) for taxonomic treatment.
 Status Report: 1979

Eriogonum umbellatum var. *aureum*
 See *Eriogonum umbellatum* var. *glaberrimum**Eriogonum umbellatum* Torr.
var. *glaberrimum* (Gand.) Reveal

"green buckwheat" Polygonaceae
 CNPS List: 2 R-E-D Code: 3-1-1 State/Fed. Status: CEQA
 Distribution: MOD, OR
 Quads: 724B
 Habitat: LCFrs, UCFrs / sandy or gravelly
 Life Form: Perennial herb
 Blooming: June-September
 Notes: Known in CA only from the Warner Mtns., where it is either
 rare or undercollected. Status in OR unknown. See *Taxon* 17:531-
 532 (1968) for revised nomenclature, and *Phytologia* 66(4):341-
 347 (1989) for taxonomic treatment.

Eriogonum umbellatum var. *hausknechtii*
 Considered but rejected: Not in CA*Eriogonum umbellatum* Torr. var. *humistratum* Reveal

"Mt. Eddy buckwheat" Polygonaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: /C3c
 Distribution: SIS, TRI
 Habitat: AlpBR, Chprl, Medws, SCFrs, UCFrs / rocky, usually
 serpentinite
 Life Form: Perennial herb
 Blooming: May-September
 Notes: Intergrades with var. *polyanthum*. See *Phytologia* 66(3):260
 (1989) for original description and 66(4):341-345 (1989) for tax-
 onomic treatment.

Eriogonum umbellatum Torr. var. *juniporinum* Reveal

"juniper buckwheat" Polygonaceae
 CNPS List: 2 R-E-D Code: 3-1-1 State/Fed. Status: CEQA
 Distribution: SBD, NV
 Quads: 176A, 200B, 225D, 249C, 250B
 Habitat: MDScr, PJWld
 Life Form: Perennial herb
 Blooming: July-October
 Notes: Similar to var. *subaridum*. See *Great Basin Naturalist* 45:279
 (1985) for original description, and *Phytologia* 66(4):341-347
 (1989) for taxonomic treatment.

Eriogonum umbellatum Torr. var. *minus* Jtn.

"alpine sulfur-flowered buckwheat" Polygonaceae
 CNPS List: 4 R-E-D Code: 1-2-3 State/Fed. Status: /C3c
 Distribution: LAX, SBD
 Habitat: SCFrs, UCFrs / gravelly
 Life Form: Perennial herb
 Blooming: July-September
 Notes: See *Bulletin of the California Academy of Sciences* 17:64 (1918)
 for original description, and *Phytologia* 66(4):341-344 (1989) for
 taxonomic treatment.
 Status Report: 1979

Erythronium pluriflorum Shevock, Bartel & G. Allen

"Shuteye Peak fawn lily" Liliaceae
 CNPS List: 1B R-E-D Code: 2-1-3 State/Fed. Status: CEQA
 Distribution: MAD
 Quads: 417B, 417C, 417D
 Habitat: Medws, SCFrS, UCFrS / granitic
 Life Form: Perennial herb (bulbiferous)
 Blooming: May-July
 Notes: Occurrences highly localized; endemic to Chiquito Ridge in the San Joaquin River watershed. See *Madroño* 37(4):261-273 (1990) for original description.

Erythronium pusaterii (Munz & J.T. Howell) Shevock, Bartel & G. Allen

"Hocket Lakes fawn lily" Liliaceae
 CNPS List: 1B R-E-D Code: 3-1-3 State/Fed. Status: /C3c
 Distribution: TUL
 Quads: 308A, 308D, 331C
 Habitat: SCFrS (granitic or metamorphic)
 Life Form: Perennial herb (bulbiferous)
 Blooming: May-July
 Notes: Known from fewer than five occurrences. Most occurrences are relatively inaccessible. Protected in part at Slate Mtn. BA (USFS). See *Leaflets of Western Botany* 10(7):104-105 (1964) for original description, and *Madroño* 37(4):261-273 (1990) for revised nomenclature.
 Status Report: 1977

Erythronium tuolumnense Appleg.

"Tuolumne fawn lily" Liliaceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: /C2
 Distribution: TUO
 Quads: 457B, 458A, 474C, 475C, 475D
 Habitat: BUFrS, Chprl, LCFrS
 Life Form: Perennial herb (bulbiferous)
 Blooming: March-May
 Notes: Threatened by logging, vehicles, horticultural collecting, and reforestation with herbicides.
 Status Report: 1980

Eschscholzia covillei

Considered but rejected: Too common; a synonym of *E. minutiflora* ssp. *covillei*

Eschscholzia hypocoides Benth.

"San Benito poppy" Papaveraceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA
 Distribution: FRE, IMP, MEN, MNT, SBT, SLO
 Habitat: Chprl, CmWld, VFGs / serpentinite clay
 Life Form: Annual herb
 Blooming: March-June

Eschscholzia lemmonii Greene ssp. *kernensis* (Munz) C. Clark *

"Tejon poppy" Papaveraceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: CEQA
 Distribution: KRN
 Quads: 189B, 214D, 216C, 238C, 242D
 Habitat: VFGs
 Life Form: Annual herb
 Blooming: March-April
 Notes: Probably threatened by grazing and non-native plants. See *Aliso* 4:90 (1958) for original description, and *Madroño* 33(3):224 (1986) for revised nomenclature.

Eschscholzia lemmonii ssp. *lemmonii*

Considered but rejected: Too common

Eschscholzia lobbii

Considered but rejected: Too common

Eschscholzia minutiflora ssp. *minutiflora*

Considered but rejected: Too common

Eschscholzia minutiflora Wats. ssp. *twisselmannii* C. Clark & Faull

"Red Rock poppy" Papaveraceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: /C2
 Distribution: KRN
 Quads: 234B, 235A, 235C, 236D
 Habitat: MDScr (volcanic tuff)
 Life Form: Annual herb
 Blooming: March-May
 Notes: Known only from the Rand and El Paso Mtns. of the western Mojave Desert. Threatened by vehicles. See *E. minutiflora* in *The Jepson Manual*. See *Madroño* 38(2):73-79 (1991) for original description.

Eschscholzia procera Greene

"Kernville poppy" Papaveraceae
 CNPS List: 3 R-E-D Code: ?-?-3 State/Fed. Status: /C2
 Distribution: KRN
 Quads: 212B, 260B
 Habitat: CmWld (sandy floodplain)
 Life Form: Perennial herb
 Blooming: June-August
 Notes: Move to List 1B? Taxonomic problem. Threatened by urbanization. See *E. californica* in *The Jepson Manual*.

Eschscholzia ramosa Greene

"island poppy" Papaveraceae
 CNPS List: 4 R-E-D Code: 1-1-2 State/Fed. Status: /C3c
 Distribution: SBR, SCM, SCT, SCZ, SMI, SNI, SRO, GU
 Habitat: CBScr, Chprl
 Life Form: Annual herb
 Blooming: March-April
 Notes: See *Bulletin of the California Academy of Sciences* 1:182 (1885) for original description.

Ferocactus viridescens (T. & G.) Britt. & Rose

"San Diego barrel cactus" Cactaceae
 CNPS List: 2 R-E-D Code: 1-3-1 State/Fed. Status: /C2
 Distribution: SDG, BA
 Quads: 10B, 10C, 11A, 11B, 11D, 21B, 21C, 22A, 22B, 22C, 22D, 35C, 35D
 Habitat: Chprl, CoScr, VFGrs, VnPls
 Life Form: Shrub (stem succulent)
 Blooming: May-June
 Notes: Seriously threatened by urbanization, vehicles, and horticultural collecting.
 Status Report: 1977

Festuca arizonica

Considered but rejected: Not documented in CA

Fimbristylis spadicea

See *Fimbristylis thermalis*

Fimbristylis thermalis Wats.

"hot-springs fimbristylis" Cyperaceae
 CNPS List: 2 R-E-D Code: 2-2-1 State/Fed. Status: /C3b
 Distribution: INY, KRN*, MNO, SBD, NV, AZ
 Quads: 107A, 324A, 346B, 413B, 413D, 432C
 Habitat: Medws (alkaline, near hot springs)
 Life Form: Perennial herb (rhizomatous)
 Blooming: July-September
 Notes: Need historical quads for KRN Co. See *Intermountain Flora* 6:88 (1977) for revised nomenclature.

Forsellesia pungens var. *glabra*

See *Glossopetalon pungens*

Forsellesia stipulifera

Considered but rejected: A synonym of *Glossopetalon spinescens*; a common taxon

Frankenia palmeri Wats.

"Palmer's frankenia" Frankeniaceae
 CNPS List: 2 R-E-D Code: 3-3-1 State/Fed. Status: CEQA
 Distribution: SDG, BA, SO
 Quads: 11A, 11B, 11D, 22C
 Habitat: CoDns, MshSw (coastal salt), Plyas
 Life Form: Perennial herb
 Blooming: May-July
 Notes: Seriously threatened by development.

Frasera neglecta

See *Swertia neglecta*

Frasera puberulenta

Considered but rejected: Too common; a synonym of *Swertia puberulenta*

Frasera tubulosa

Considered but rejected: Too common; a synonym of *Swertia tubulosa*

Frasera umpquaensis

See *Swertia fastigiata*

Fraxinus trifoliata

Considered but rejected: Taxonomic problem

Fremontodendron californicum ssp. *napensis*

Considered but rejected: A synonym of *F. californicum*; a common taxon

Fremontodendron californicum ssp. *obispoense*

Considered but rejected: A synonym of *F. californicum*; a common taxon

Fremontodendron decumbens R. Lloyd

"Pine Hill flannelbush" Sterculiaceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: CR/C1
 Distribution: ELD, NEV
 Quads: 510B, 511A, 542A
 Habitat: Chprl, CmWld / gabbroic or serpentinite
 Life Form: Shrub (evergreen)
 Blooming: April-June
 Notes: Known from fewer than ten occurrences in the Pine Hill area (ELD Co.), and one near Grass Valley (NEV Co.) where plant occurs on serpentinite. See *F. californicum* ssp. *decumbens* in *The Jepson Manual*. See *Brittonia* 17:382 (1965) for original description, *Fremontia* 13(1):3-6 (1985) for species account, and *Systematic Botany* 16(1):3-20 (1991) for revised nomenclature and taxonomic treatment.
 Status Report: 1993

Fremontodendron mexicanum A. Davids.

"Mexican flannelbush" Sterculiaceae
 CNPS List: 1B R-E-D Code: 3-2-2 State/Fed. Status: CR/C2
 Distribution: IMP, ORA, SDG, BA
 Quads: 7A, 10A, 10B*, 10C, 10D, 11B*, 19B
 Habitat: CCFrs, Chprl, CmWld / gabbroic or serpentinite
 Life Form: Shrub (evergreen)
 Blooming: March-June
 Notes: Known from fewer than twenty occurrences. Need quads for ORA Co. See *Bulletin of the Southern California Academy of Sciences* 16:50 (1917) for original description, and *Systematic Botany* 16(1):3-20 (1991) for taxonomic treatment.
 Status Report: 1987

Fritillaria affinis var. *tristulis*

Not yet published; see *F. lanceolata* var. *tristulis*

Fritillaria agrestis Greene *

"stinkbells" Liliaceae
 CNPS List: 4 R-E-D Code: 1-2-3 State/Fed. Status: /C3c
 Distribution: ALA, CCA, FRE, KRN, MEN, MNT, MPA, PLA, SAC, SBA, SBT, SLO, SMT, STA, TUO
 Habitat: Chprl, CmWld, VFGrs / clay, sometimes serpentinite
 Life Form: Perennial herb (bulbiferous)
 Blooming: March-April
 Notes: Threatened by grazing and development.

Fritillaria biflora var. *biflora*

Considered but rejected: Too common

Fritillaria purdyi Eastw.

"Purdy's fritillary" Liliaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: COL, GLE, HUM, LAK, MEN, NAP, TEH, TRI, YOL
 Habitat: Chprl, VFGrs / serpentinite
 Life Form: Perennial herb (bulbiferous)
 Blooming: March-June

Fritillaria roderickii Knight

"Roderick's fritillary" Liliaceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: CE/C3b
 Distribution: MEN
 Quads: 537B*, 537C, 537D, 551C, 569A
 Habitat: CBScr, CoPrr, VFGrs
 Life Form: Perennial herb (bulbiferous)
 Blooming: March-May
 Notes: Known from fewer than ten occurrences. SON Co. plants are introduced. Threatened by road maintenance, residential development, and erosion. Taxonomic validity has been questioned; further study needed. A synonym of *F. biflora* var. *biflora* in *The Jepson Manual*. USFWS uses the name *F. grayana*. See *Four Seasons* 2(2):14-16 (1967) for original description.
 Status Report: 1988

Fritillaria striata Eastw. *

"striped adobe-lily" Liliaceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: CT/C1
 Distribution: KRN, TUL
 Quads: 213C, 239A, 261C, 262B, 262D, 309B*, 309C, 310A*, 310D
 Habitat: CmWld, VFGrs / adobe
 Life Form: Perennial herb (bulbiferous)
 Blooming: February-April
 Notes: Known from fewer than twenty occurrences. Threatened by circulture, urbanization, and grazing. See *Proceedings of the California Academy of Sciences* IV 20:136 (1931) for original description.
 Status Report: 1985

Fritillaria viridea Kell.

"San Benito fritillary" Liliaceae
 CNPS List: 4 R-E-D Code: 1-2-3 State/Fed. Status: /C2
 Distribution: MNT, SBT, SLO
 Habitat: Chprl (serpentinite)
 Life Form: Perennial herb (bulbiferous)
 Blooming: March-May
 Notes: Much more common than previously thought in SBT Co.; plants from MNT Co. may be another taxon. Threatened by vehicles and expansion of mining.



Fritillaria striata

Goodmania luteola (Parry) Reveal & Ertter *

"golden goodmania" Polygonaceae
 CNPS List: 4 R-E-D Code: 1-2-2 State/Fed. Status: CEQA?
 Distribution: FRE, INY, KRN, LAX, MAD, MNO, TUL, NV
 Habitat: MDScr, Medws, Plyas, VFGrs / alkaline or clay
 Life Form: Annual herb
 Blooming: April-August
 Notes: May be threatened by groundwater lowering and trampling by cattle. See *Bulletin of the Torrey Botanical Club* 10:23 (1883) for original description, *Brittonia* 28:427-429 (1976) for revised nomenclature, and *Phytologia* 66(4):389 (1989) for taxonomic treatment.

Gratiola heterosepala Mason & Bacig.

"Boggs Lake hedge-hyssop" Scrophulariaceae
 CNPS List: 1B R-E-D Code: 1-2-2 State/Fed. Status: CE/C3c
 Distribution: FRE, LAK, LAS, MAD, MOD, PLA, SAC, SHA, SJQ, SOL, TEH, OR
 Quads: 398A, 398D, 495B, 495D, 496A, 498D, 511C, 512B*, 527C, 528A, 528D, 533D, 534A, 594B, 628A, 628B, 628D, 643B, 661A, 661C, 678B, 678D, 690C
 Habitat: MshSw (lake margins), VnPls
 Life Form: Annual herb
 Blooming: April-June
 Notes: Threatened by agriculture, development, grazing, and vehicles. Candidate for state listing in OR. Lassen NF has adopted species management guidelines. See *Madroño* 12:150-152 (1954) for original description.
 Status Report: 1987

Grindelia camporum var. *parviflora*

Considered but rejected: A synonym of *G. camporum* var. *camporum*, a common taxon

Grindelia fraxino-pratensis Reveal & Beatley

"Ash Meadows gumplant" Asteraceae
 CNPS List: 1B R-E-D Code: 3-2-2 State/Fed. Status: /FT
 Distribution: INY, NV
 Quads: 322C, 322D
 Habitat: Medws (mesic clay)
 Life Form: Perennial herb
 Blooming: June-October
 Notes: Known in CA from only two extant occurrences in Carson Slough in the Amargosa Desert. Threatened by water diversion, habitat alteration, and non-native plants. State-listed as Critically Endangered in NV. See *Bulletin of the Torrey Botanical Club* 98:332 (1971) for original description.

Grindelia hallii

See *Grindelia hirsutula* var. *hallii*

Grindelia hirsutula H. & A. var. *hallii* (Steyerm.) M.A. Lane

"San Diego gumplant" Asteraceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: /C3c
 Distribution: SDG
 Quads: 9B?, 10D?, 19B, 19C, 20A, 22B, 33B, 33C, 33D
 Habitat: Chprl, LCFrs, Medws, VFGrs
 Life Form: Perennial herb
 Blooming: July-October
 Notes: Threatened by grazing and road maintenance. See *Annals of the Missouri Botanical Garden* 21:229 (1934) for original description, and *Novon* 2(3):215-217 (1992) for revised nomenclature.

Grindelia hirsutula H. & A. var. *maritima* (Greene) M.A. Lane

"San Francisco gumplant" Asteraceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: /C2
 Distribution: MNT, MRN, SCR, SFO, SLO, SMT
 Quads: 271D, 272A, 344B, 366C, 366D, 387B, 387D, 387E, 408C, 409B, 409D, 429C, 448B, 448C, 466C, 467A, 467B, 467D, 467E, 485B, 485C, 485D
 Habitat: CBScr, CoScr, VFGrs / sandy, serpentinite
 Life Form: Perennial herb
 Blooming: August-September
 Notes: Most collections are old; need current information on distribution and rarity. Threatened by coastal development and non-native plants. See *Pittonia* 2:289 (1892) for original description, and *Novon* 2(3):215-217 (1992) for revised nomenclature.

Grindelia humilis

See *Grindelia stricta* var. *angustifolia*

Grindelia latifolia ssp. *latifolia*

Considered but rejected: A hybrid and synonym of *G. stricta* var. *platyphylla* and *G. camporum* var. *camporum*; common taxa

Grindelia maritima

See *Grindelia hirsutula* var. *maritima*

Grindelia paludosa

Considered but rejected: A hybrid

Grindelia stricta DC. var. *angustifolia* (Gray) M.A. Lane

"marsh gumplant" Asteraceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: ALA, CCA, MNT, MRN, NAP, SCL, SFO, SMT, SOL, SON
 Habitat: MshSw (coastal salt)
 Life Form: Perennial herb
 Blooming: August-October
 Notes: Rare in MNT Co. Hybridizes with *G. camporum* var. *camporum*. See *Novon* 2(3):215-217 (1992) for revised nomenclature.

Grindelia stricta ssp. *blakei*

Considered but rejected: A synonym of *G. stricta* var. *stricta*; a common taxon

Gutierrezia californica

Considered but rejected: Too common

Juniperus communis var. *montana*

Considered but rejected: A synonym of *J. communis*; a common taxon

Kallstroemia californica

Considered but rejected: Too common

Kobresia bellardii (All.) Degl.

"seep kobresia" Cyperaceae
 CNPS List: 2 R-E-D Code: 3-1-1 State/Fed. Status: CEQA
 Distribution: MNO, ID, OR, ++
 Quads: 434C, 434D, 471D
 Habitat: AlpBR (mesic), Medws (carbonate), SCFrS
 Life Form: Perennial herb (rhizomatous)
 Blooming: August
 Notes: Known in CA only from Convict Basin. On review list in ID, and endangered in OR. See *Madroño* 17(4):93-109 (1964) and 40(1):66-67 (1993) for first and second CA reports respectively.

Kobresia myosuroides

See *Kobresia bellardii*

Koerberlinia spinosa

See *Koerberlinia spinosa* ssp. *tenuispina*

Koerberlinia spinosa Zucc.ssp. *tenuispina* (Kearn. & Peebles) E. Murray

"crown-of-thorns" Koerberliniaceae
 CNPS List: 2 R-E-D Code: 3-2-1 State/Fed. Status: CEQA
 Distribution: IMP, AZ, SO+
 Quads: 12B, 27A, 27B, 42C, 43D
 Habitat: RpWld, SDSr
 Life Form: Shrub (deciduous)
 Blooming: May-July
 Notes: Known in CA from fewer than ten occurrences. Threatened by mining.

Lagophylla minor

Considered but rejected: Too common

Larrea tridentata var. *arenaria*

Considered but rejected: A synonym of *L. tridentata*; a common taxon

Lasthenia burkei (Greene) Greene

"Burke's goldfields" Asteraceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: CE/FE
 Distribution: LAK, MEN, SON
 Quads: 502A, 518A, 518D, 533A, 533B, 550B
 Habitat: Medws (mesic), VnPls
 Life Form: Annual herb
 Blooming: April-June
 Notes: Threatened by agriculture, urbanization, and grazing. See *Bulletin of the California Academy of Sciences* 2(6):151 (1887) for original description, and *American Journal of Botany* 56(9):1042-1047 (1969) for information on origin and relationships.
 Status Report: 1988

Lasthenia conjugens Greene

"Contra Costa goldfields" Asteraceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: /C1
 Distribution: ALA*, CCA*, MEN*, NAP, SBA*, SCL*, SOL
 Quads: 142A*, 143A*, 427D*, 447D*, 463C*, 465A*, 481B, 481D*, 482A, 483A, 498C, 499B*, 499C*, 500D*, 517D*, 537B*
 Habitat: VFGrs (mesic), VnPls
 Life Form: Annual herb
 Blooming: March-June
 Notes: Known from only four occurrences after comprehensive 1993 surveys. Many historical occurrences extirpated by development; also threatened by overgrazing.
 Status Report: 1979

Lasthenia coronaria

Considered but rejected: Too common

Lasthenia glabrata Lindl. ssp. *coulteri* (Gray) Ornduff

"Coulter's goldfields" Asteraceae
 CNPS List: 1B R-E-D Code: 2-3-2 State/Fed. Status: /C2
 Distribution: KRN*, LAX*, ORA*, RIV, SBA, SBD*, SDG, SLO, SRO, TUL?, VEN, BA
 Quads: 11A, 11D, 22B, 22C, 36B, 36D, 50B, 68C, 68D, 69A, 71B*, 71D*, 72A*, 84C?, 85A, 85C, 85D, 86B, 88C*, 89A*, 89D*, 90A*, 90B*, 90D*, 102A*, 110A*, 110B*, 114B, 114D, 141D, 142A, 142B, 143A, 171A, 212A*, 212B*, 212C*, 217D, 218A, 247D, SROE, SRON
 Habitat: MshSw (coastal salt), Plyas, VnPls
 Life Form: Annual herb
 Blooming: February-June
 Notes: Known to have declined significantly by 1966, and now seriously threatened by urbanization and agricultural development. Does plant occur in TUL Co.? See *Synoptical Flora of North America* 1(2):324 (1884) for original description, and *University of California Publications in Botany* 40:1-92 (1966) for taxonomic treatment.

Lasthenia leptalea (Gray) Ornduff

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"Salinas Valley goldfields" Asteraceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: /C3c
 Distribution: INY, KRN, MNT, SLO
 Habitat: CmWld, VFGrs
 Life Form: Annual herb
 Blooming: April
 Notes: See *Proceedings of the American Academy of Arts and Sciences* 6:546 (1865) for original description, and *University of California Publications in Botany* 40:63-66 (1969) for revised nomenclature.

Lasthenia maritima

Considered but rejected: Too common

Lasthenia minor ssp. *maritima*

Considered but rejected: A synonym of *L. maritima*; a common taxon

Lathyrus vestitus var. *ochropetalus*

Considered but rejected: Too common

Lavatera assurgentiflora Kell. ssp. *assurgentiflora*

"island mallow" Malvaceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: /C1
 Distribution: ANA, SMI, SNI*, SRO
 Quads: ANAC, SMIE, SMIW, SNIC*, SRON
 Habitat: CBScr
 Life Form: Shrub (evergreen)
 Blooming: May-September

Notes: Known from fewer than ten native occurrences. Rare at all occurrences, and seriously threatened by grazing; reduced to one plant on ANA Isl. Reintroduced into native habitat on SMI Isl. (SMIE); cultivated plants grow on SNI Isl. but native occurrence extirpated. May not be native to SRO Isl.; plants on mainland and Todos Santos Isl. (BA) most likely planted. See *L. assurgentiflora* in *The Jepson Manual*. See *Proceedings of a Multidisciplinary Symposium: The California Islands*, pp. 157-158 (1980) for species account.

Status Report: 1979

Lavatera assurgentiflora Kell. ssp. *glabra* Philbrick

"southern island mallow" Malvaceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: /C1
 Distribution: SCM, SCT
 Quads: SCMC, SCMN, SCMS, SCTN, SCTW
 Habitat: CBScr
 Life Form: Shrub (evergreen)
 Blooming: May-September

Notes: Known from approximately ten native occurrences. Feral herbivores removed from SCM Isl.; possibly still a threat on SCT Isl. See *L. assurgentiflora* in *The Jepson Manual*. See *Proceedings of a Multidisciplinary Symposium: The California Islands*, pp. 157-158 (1980) for original description.

Layia carnosa (Nutt.) T. & G.

"beach layia" Asteraceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: CE/FE
 Distribution: HUM, MNT, MRN, SBA*, SFO*
 Quads: 171A*, 171B*, 171C*, 366C, 466C*, 485B, 485C, 637D, 654B, 655A, 672A*, 672B, 672C, 689D*
 Habitat: CoDns
 Life Form: Annual herb
 Blooming: May-July

Notes: Threatened by coastal development, vehicles, and non-native plants. Protected in part at Manila Dunes ACEC and Mattole Beach ACEC (both BLM), HUM Co.
 Status Report: 1990

Layia chrysanthemoides ssp. *maritima*

Considered but rejected: A synonym of *L. chrysanthemoides*, a common taxon

Layia discoidea (Keck) Keck

"rayless layia" Asteraceae
 CNPS List: 1B R-E-D Code: 2-3-3 State/Fed. Status: /C2
 Distribution: FRE, SBT
 Quads: 339B, 339C, 339D, 340D
 Habitat: Chprl, CmWld, LCFrs / serpentinite, talus and alluvial terraces
 Life Form: Annual herb
 Blooming: May
 Notes: Threatened by vehicles in the New Idria area. Similar to *L. glandulosa*. See *Aliso* 4:101-104 (1958) for original description.
 Status Report: 1977

Layia heterotricha (DC.) H. & A. *

"pale-yellow layia" Asteraceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: /C2
 Distribution: FRE*, KNG*, KRN*, MNT*, SBA, SBT(*?), SLO*, VEN(*?)
 Quads: 165A(*?), 165B(*?), 166A(*?), 166B*, 166D*, 190C*, 190D(*?), 191C, 192C, 211C*, 212A*, 212B*, 212D*, 217D*, 243A*, 243B*, 244C*, 244D*, 267B*, 291B*, 294B*, 294C*, 315A*, 315C*, 318A(*?), 318B*, 340C*, 362D(*?)
 Habitat: CmWld, PJWld, VFGrs / alkaline or clay
 Life Form: Annual herb
 Blooming: March-June
 Notes: Recent searches of historical occurrences were largely unsuccessful. Threatened by agricultural conversion and previous construction of San Antonio Reservoir, and possibly by overgrazing.

Layia jonesii Gray

"Jones's layia" Asteraceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: /C2
 Distribution: MNT, SLO
 Quads: 221B, 246C, 246D, 247A, 247B, 247D, 294B, 366C
 Habitat: Chprl, VFGrs / clay or serpentinite
 Life Form: Annual herb
 Blooming: March-May

Layia leucopappa Keck *

"Comanche Point layia" Asteraceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: /C1
 Distribution: KRN
 Quads: 213C, 214A, 214D, 215D, 239D
 Habitat: ChScr, VFGrs
 Life Form: Annual herb
 Blooming: May-April
 Notes: Reduced by agriculture; also threatened by development and grazing.

Layia munzii Keck *

"Munz's tidy-tips" Asteraceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: CEQA
 Distribution: FRE, KRN, SLO
 Quads: 192A, 218A, 243C, 244A, 265C, 265D, 268A, 337A, 359C, 360B, 360C, 381C, 383D
 Habitat: ChScr, VFGrs (alkaline clay)
 Life Form: Annual herb
 Blooming: March-April
 Notes: Historical occurrences need field surveys. Similar to *L. jonesii* and *L. leucopappa*.

Lepidium jaredii Bdg. ssp. *jaredii*

"Jared's pepper-grass" Brassicaceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: /C2
 Distribution: KRN, SLO
 Quads: 217C, 218A, 267A, 269A*
 Habitat: VFGrs (alkaline, adobe)
 Life Form: Annual herb
 Blooming: March-May
 Notes: Known only from Soda Lake on the Carrizo Plain (SLO Co.) and Devil's Den (KRN Co.).

Lepidium latipes Hook. var. *heckardii* Roll.

"Heckard's pepper-grass" Brassicaceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: CEQA
 Distribution: YOL
 Quads: 513B, 513C
 Habitat: VFGrs (alkaline flats)
 Life Form: Annual herb
 Blooming: April-May

Lepidium latipes var. *latipes*

Considered but rejected: Too common

Lepidium virginicum L. var. *robinsonii* (Thell.) Hitchc.

"Robinson's pepper-grass" Brassicaceae
 CNPS List: 1B R-E-D Code: 3-2-2 State/Fed. Status: CEQA
 Distribution: LAX, ORA, RIV, SBA*, SBD, SCZ, SDG, BA
 Quads: 8C, 11B, 34D, 71B, 87D, 88C, 108C, 109A, 110A, 160D, SCZB, SCZC
 Habitat: Chprl, CoScr
 Life Form: Annual herb
 Blooming: January-July
 Notes: Need historical quads for SBA Co. Threatened by erosion and feral herbivores on SCZ Isl. See *Madroño* 3(7):265-320 (1936) for taxonomic treatment.

Lepidospartum squamatum var. *palmeri*

Considered but rejected: A synonym of *L. squamatum*; a common taxon

Leptodactylon californicum H. & A. ssp. *tomentosum* Gordon

"fuzzy prickly phlox" Polemoniaceae
 CNPS List: 4 R-E-D Code: 1-2-3 State/Fed. Status: CEQA?
 Distribution: SBA, SLO
 Habitat: CoDns
 Life Form: Shrub (deciduous)
 Blooming: March-August
 Notes: See *L. californicum* in *The Jepson Manual*. See *Madroño* 37(1):28-42 (1990) for original description and discussion.

Leptodactylon jaegeri (Munz) Wherry

"San Jacinto prickly phlox" Polemoniaceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: /C3c
 Distribution: RIV
 Quads: 83C
 Habitat: SCFrS, UCFrS / granitic
 Life Form: Perennial herb
 Blooming: July-August
 Notes: Known from fewer than twenty occurrences in the San Jacinto Mtns.

Lesquerella bernardina

See *Lesquerella kingii* ssp. *bernardina*

Lesquerella kingii (Wats.) Wats. ssp. *bernardina* (Munz) Munz

"San Bernardino Mtns. bladderpod" Brassicaceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: /PE
 Distribution: SBD
 Quads: 105A, 131C, 131D
 Habitat: LCFrs, PJWld / often carbonate
 Life Form: Perennial herb
 Blooming: May-June
 Notes: Known from only five occurrences in the Big Bear Valle area. Threatened by development and carbonate mining. See *Fremontia* 16(1):20-21 (1988) for discussion of mining threats.

Lessingia arachnoidea Greene

"Crystal Springs lessingia" Asteraceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: /C2
 Distribution: SMT, SON?
 Quads: 429A, 448C, 448D, 502B?, 518C?
 Habitat: CmWld, CoScr, VFGrs / serpentinite, often roadsides
 Life Form: Annual herb
 Blooming: July-October
 Notes: Known only from Crystal Springs Reservoir (SMT Co.); occurrences from SON Co. need taxonomic verification. See *Leaflets of Botanical Observation and Criticism* 2:29 (1910) for original description.

Lessingia germanorum Cham.

"San Francisco lessingia" Asteraceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: CE/C1
 Distribution: SFO, SMT
 Quads: 448B, 466C
 Habitat: CoScr (remnant dunes)
 Life Form: Annual herb
 Blooming: August-November
 Notes: Known from only four occurrences at the Presidio of San Francisco, and one on San Bruno Mtn. (SMT Co.). Threatened by urbanization, base-closure activities, trampling, and non-native plants.
 Status Report: 1990

Lessingia germanorum var. *germanorum*

See *Lessingia germanorum*

Lessingia germanorum var. *tenuis*

See *Lessingia tenuis*

Lessingia glandulifera Gray var. *tomentosa* (Greene) Ferris

"Warner Springs lessingia" Asteraceae
 CNPS List: 2 R-E-D Code: 3-1-1 State/Fed. Status: /C2
 Distribution: SDG, BA
 Quads: 33A, 33B, 48C
 Habitat: Chprl (sandy)
 Life Form: Annual herb
 Blooming: October
 Notes: Known in CA from fewer than five occurrences.

Linanthus grandiflorus (Benth.) Greene *

"large-flower linanthus" Polemoniaceae
 CNPS List: 4 R-E-D Code: 1-2-3 State/Fed. Status: CEQA?
 Distribution: ALA, KRN, MAD, MER, MNT, MRN, SBA*, SCL,
 SCR, SFO, SLO, SMT, SON
 Habitat: CBScr, CCFrs, CmWld, CoDns, CoPrr, CoScr, VFGrs
 Life Form: Annual herb
 Blooming: April-July
 Notes: Many historical occurrences extirpated by development; need
 information. Other taxa often misidentified as *L. grandiflorus*. See
Pittonia 2:260 (1892) for original description.

Linanthus harknessii ssp. *condensatus*

Considered but rejected: A synonym of *L. harknessii*; a common
 taxon

Linanthus killipii Mason

"Baldwin Lake linanthus" Polemoniaceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: /C2
 Distribution: SBD
 Quads: 104B, 105A, 126D, 130C, 131D
 Habitat: Medws (alkaline), PbPln, PJWld, UCFrs
 Life Form: Annual herb
 Blooming: May-July
 Notes: Threatened by urbanization and vehicles. See *Madroño*
 9:251-252 (1948) for original description.
 Status Report: 1979

Linanthus maculatus

See *Gilia maculata*

Linanthus nudatus

Considered but rejected: Too common

Linanthus nuttallii (Gray) Mlkn.ssp. *howellii* Nels. & Patterson

"Mt. Tedoc linanthus" Polemoniaceae
 CNPS List: 1B R-E-D Code: 3-1-3 State/Fed. Status: /C2
 Distribution: TEH
 Quads: 613B, 631C
 Habitat: LCFrs (serpentine)
 Life Form: Perennial herb
 Blooming: May-August
 Notes: Known from only four occurrences in the Mt. Tedoc region
 of the Klamath Mtns. See *Madroño* 32(2):102-105 (1985) for
 original description.

Linanthus oblanceolatus (Brand) Jeps.

"Sierra Nevada linanthus" Polemoniaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: FRE, INY, TUL
 Habitat: SCFrs
 Life Form: Annual herb
 Blooming: July-August

Linanthus orcuttii (Parry & Gray) Jeps.

"Orcutt's linanthus" Polemoniaceae
 CNPS List: 1B R-E-D Code: 3-1-2 State/Fed. Status: /C2
 Distribution: LAX*, RIV, SDG, BA
 Quads: 19B, 20A, 20D, 48D, 49B, 49C, 49D, 110A*
 Habitat: Chprl, LCFrs / openings
 Life Form: Annual herb
 Blooming: May-June
 Notes: See *Madroño* 24(3):150-151 (1977) for taxonomic treatment.

Linanthus orcuttii ssp. *pacificus*

See *Linanthus orcuttii*

Linanthus pygmaeus (Brand) J.T. Howell ssp. *pygmaeus*

"pygmy linanthus" Polemoniaceae
 CNPS List: 1B R-E-D Code: 3-2-2 State/Fed. Status: CEQA
 Distribution: SCM, GU
 Quads: SCMC, SCMN
 Habitat: CoScr, VFGrs
 Life Form: Annual herb
 Blooming: April
 Notes: Feral herbivores removed from SCM Isl., and vegetation re-
 covering. See *Pflanzenreich* 4(250):134 (1907) for original descrip-
 tion.

Linanthus rattanii (Gray) Greene

"Rattan's linanthus" Polemoniaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: COL, GLE, LAK, MEN, TEH
 Habitat: CmWld, LCFrs
 Life Form: Annual herb
 Blooming: May-July

Linanthus serrulatus Greene

"Madera linanthus" Polemoniaceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: CEQA
 Distribution: FRE, KRN, MAD, MPA, TUL
 Quads: 261A, 309C, 332B, 354C, 376C, 380A, 396B, 398C,
 399A, 419B, 420A
 Habitat: CmWld, LCFrs
 Life Form: Annual herb
 Blooming: April-May

Listera caurina

Considered but rejected: Too common

Listera cordata (L.) R. Br.

"heart-leaved twayblade" Orchidaceae
 CNPS List: 4 R-E-D Code: 1-2-1 State/Fed. Status: CEQA?
 Distribution: DNT, HUM, SIS, NV, OR, WA, ++
 Habitat: BgFns, LCFrs, NCFrs
 Life Form: Perennial herb
 Blooming: March-July
 Notes: Easily overlooked. Threatened by grazing and logging. In-
 cludes *L. cordata* var. *nephrophylla*. See *Fremontia* 17(3):26-27
 (1989) for species account.

Listera cordata var. *nephrophylla*

See *Listera cordata*

Madia nutans (Greene) Keck

"nodding madia" Asteraceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: NAP, SON
 Habitat: Chprl, CmWld
 Life Form: Annual herb
 Blooming: April-May

Madia radiata Kell. *

"showy madia" Asteraceae
 CNPS List: 1B R-E-D Code: 2-3-3 State/Fed. Status: CEQA
 Distribution: CCA*, FRE, KNG, KRN, MNT, SBT, SJQ, SLO
 Quads: 267B, 268A, 291B, 291C, 315D, 316D, 339A, 339B,
 340A, 361C, 362D, 444D, 464A*, 481D*
 Habitat: CmWld, VFGrs
 Life Form: Annual herb
 Blooming: March-May
 Notes: Apparently occurs as very scattered populations at only a few
 locations on private land. Threatened by grazing and non-native
 plants.

Madia stebbinsii T.W. Nelson & J.P. Nelson

"Stebbins's madia" Asteraceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: /C3c
 Distribution: SHA, TEH, TRI
 Quads: 596A, 596B, 632C, 632D
 Habitat: Chprl, LCFrs / serpentinite
 Life Form: Annual herb
 Blooming: May-June
 Notes: Possibly threatened by road maintenance. See *Brittonia*
 32(3):323-325 (1980) for original description.

Madia subspicata

Considered but rejected: Too common

Madia yosemitana Gray

"Yosemite madia" Asteraceae
 CNPS List: 3 R-E-D Code: ?-2-3 State/Fed. Status: CEQA?
 Distribution: AMA, FRE, MAD?, MPA, TUL, TUO
 Quads: 353C, 397C, 397D, 419B, 436B, 437A, 455A, 455B,
 455D, 456A, 490D, 492A
 Habitat: LCFrs, Medws
 Life Form: Annual herb
 Blooming: April-July
 Notes: Move to List 4? Easily overlooked; location and rarity infor-
 mation needed. Does plant occur in MAD Co.? See *Proceedings of*
the American Academy of Arts and Sciences 17:219 (1881-2) for
 original description.

Mahonia higginsiae

See *Berberis fremontii*

Mahonia nervosa var. *mendocinensis*

Considered but rejected: A synonym of *Berberis nervosa*, a common
 taxon

Mahonia nevinii

See *Berberis nevinii*

Mahonia pinnata ssp. *insularis*

See *Berberis pinnata* ssp. *insularis*

Mahonia sonnei

Considered but rejected: A synonym of *Berberis aquifolium* var.
repens; a common taxon

Malacothamnus abbottii (Eastw.) Kearns.

"Abbott's bush mallow" Malvaceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: /C1

Distribution: MNT
 Quads: 294A, 295D
 Habitat: RpScr
 Life Form: Shrub (deciduous)
 Blooming: June-October

Notes: Rediscovered in 1990 by D. Mitchell near Sargent Creek;
 now known from about five extended populations. Threatened by
 housing development, grazing, energy development, and road con-
 struction. See *Leaflets of Western Botany* 1:213-222 (1936) for orig-
 inal description.

Status Report: 1977

Malacothamnus aboriginum (Rob.) Greene

"Indian Valley bush mallow" Malvaceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: CEQA

Distribution: FRE, MNT, SBT
 Quads: 293A, 294A, 295D, 315B, 315C, 316B, 339C, 340B,
 340D, 341A, 341B, 341D, 362C, 363A, 363B, 363C, 364A?,
 364C, 385C, 385D

Habitat: Chprl, CmWld / rocky
 Life Form: Shrub (deciduous)
 Blooming: April-October

Notes: Appears in abundance after fires. See *Synoptical Flora of North*
America 1(1):311 (1897) for original description.

Malacothamnus arcuatus (Greene) Greene

"arcuate bush mallow" Malvaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?

Distribution: SCL, SCR, SMT
 Habitat: Chprl
 Life Form: Shrub (evergreen)
 Blooming: April-July

Notes: Rare in SCR Co. A synonym of *M. fasciculatus* in *The Jepson*
Manual.

Malacothamnus clementinus (Munz & Jtn.) Kearns.

"San Clemente Island bush mallow" Malvaceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: CE/FE

Distribution: SCM
 Quads: SCMC, SCMS
 Habitat: VFGrs
 Life Form: Shrub (deciduous)
 Blooming: March-August

Notes: Known from six occurrences. Threatened by Navy activities.
 Feral herbivores removed from SCM Isl., and vegetation recover-
 ing. See *Bulletin of the Torrey Botanical Club* 51:296 (1924) for
 original description, and *Leaflets of Western Botany* 6(6):127-128
 (1951) for revised nomenclature.

Status Report: 1987

Montia howellii Wats.

"Howell's montia" Portulacaceae
 CNPS List: 1A Last Seen: 1933 State/Fed. Status: /C2
 Distribution: DNT?*, HUM*, TRI*, OR, WA+
 Quads: 617A*, 617D*, 635A*, 670A*, 672C*
 Habitat: Medws, NCFrs, VnPls / vernal mesic
 Life Form: Annual herb
 Blooming: March-May
 Notes: Known in CA from seven collections. Did plant occur in DNT Co.? To be looked for in wet, disturbed sites. Known from about 30 sites in OR, WA, and British Columbia. Candidate for state listing in OR. Sometimes mistaken for *M. fontana* or *M. dichotoma*. See *Proceedings of the American Academy of Arts and Sciences* 18:191 (1883) for original description.

Montia saxosa

Considered but rejected: A synonym of *Claytonia saxosa*; a common taxon

Mucronea californica Benth. *

"California spineflower" Polygonaceae
 CNPS List: 4 R-E-D Code: 1-2-3 State/Fed. Status: CEQA?
 Distribution: KRN, LAX, MNT, ORA, RIV, SBA, SBD, SDG, SLO, VEN
 Habitat: Chprl, CmWld, CoDns, CoScr, VFGrs / sandy
 Life Form: Annual herb
 Blooming: March-August
 Notes: Rare in southern California. Many herbarium records old. Threatened by aggregate mining, vehicles, flood control modification, and water percolation projects. Includes *Chorizanthe californica* var. *suskdorfii*. See *Phytologia* 66(3):203-205 (1989) for revised nomenclature.

Muhlenbergia appressa C. Goodd.

"appressed muhly" Poaceae
 CNPS List: 2 R-E-D Code: 2-2-1 State/Fed. Status: CEQA
 Distribution: SBD, SCM, AZ, BA
 Quads: 176A, SCMC, SCMS
 Habitat: CoScr, MDScr, VFGrs / rocky
 Life Form: Annual herb
 Blooming: April-May
 Notes: Has this taxon been poorly collected in CA? See *Journal of the Washington Academy of Sciences* 31:504 (1914) for original description, and *Madroño* 35(4):353 (1988) for discussion of SCM Isl. records.

Muhlenbergia arsenei Hitchc.

"tough muhly" Poaceae
 CNPS List: 2 R-E-D Code: 2-1-1 State/Fed. Status: CEQA
 Distribution: SBD, AZ, BA, NM, NV, UT
 Quads: 200B, 225D, 249D
 Habitat: PJWld (rocky, carbonate)
 Life Form: Perennial herb (rhizomatous)
 Blooming: August-October
 Notes: Known in CA only from the Clark and New York Mtns.

Muhlenbergia californica Vasey

"California muhly" Poaceae
 CNPS List: 1B R-E-D Code: 2-2-3 State/Fed. Status: CEC
 Distribution: LAX, RIV, SBD
 Quads: 83B, 83C, 108D, 110A, 135A, 135D, 136D
 Habitat: Chprl, CoScr, LCFrs, Medws / mesic, seeps and streambanks
 Life Form: Perennial herb (rhizomatous)
 Blooming: July-September
 Notes: See *Botanical Gazette* 7:92 (1882) for original description.

Muhlenbergia fragilis Swall.

"delicate muhly" Poaceae
 CNPS List: 2 R-E-D Code: 3-1-1 State/Fed. Status: CEQ
 Distribution: SBD, AZ, BA, NM, SO, TX+
 Quads: 225D, 249D
 Habitat: PJWld (carbonate, gravelly)
 Life Form: Annual herb
 Blooming: October
 Notes: Known in CA only from the Clark and New York Mtns. *Contributions from the U.S. National Herbarium* 29:206 (1947) original description, and *Madroño* 35(4):353 (1988) for first record.

Muhlenbergia pauciflora Buckl.

"few-flowered muhly" Poaceae
 CNPS List: 2 R-E-D Code: 3-1-1 State/Fed. Status: CEQ
 Distribution: SBD, AZ, ++
 Quads: 200A, 225D
 Habitat: PJWld (rocky)
 Life Form: Perennial herb (rhizomatous)
 Blooming: September
 Notes: Known in CA only from the New York Mtns. See *Madroño* 35(4):353-359 (1988) for first CA records.

Muilla clevelandii (Wats.) Hoov.

"San Diego goldenstar" Liliaceae
 CNPS List: 1B R-E-D Code: 2-2-2 State/Fed. Status: /C2
 Distribution: SDG, BA
 Quads: 10A, 10B, 10C, 10D, 21B, 21C, 21D, 22A, 22B, 22C, 22D, 33D, 35C
 Habitat: Chprl, CoScr, VFGrs, VnPls
 Life Form: Perennial herb (bulbiferous)
 Blooming: May
 Notes: Threatened by urbanization, road construction, vehicles, a illegal dumping.

Muilla coronata Greene

"crowned muilla" Liliaceae
 CNPS List: 4 R-E-D Code: 1-2-2 State/Fed. Status: /C3c
 Distribution: INY, KRN, LAX, SBD, TUL, NV
 Habitat: JTWld, MDScr, PJWld
 Life Form: Perennial herb (bulbiferous)
 Blooming: March-April
 Notes: See *Pittonia* 1:165 (1888) for original description, and *Al* 10(4):621-627 (1984) for taxonomic treatment.
 Status Report: 1978

Muilla transmontana

Considered but rejected: Too common

Navarretia rosulata Brand

"Marin County navarretia"
 CNPS List: 1B R-E-D Code: 2-2-3
 Distribution: MRN, NAP
 Quads: 467A, 467B, 516D
 Habitat: CCFrs, Chprl / serpentinite
 Life Form: Annual herb
 Blooming: June-July

Polemoniaceae
 State/Fed. Status: CEQA

Navarretia setiloba Cov.

"Piute Mtns. navarretia"
 CNPS List: 1B R-E-D Code: 3-3-3
 Distribution: KRN, TUL
 Quads: 189A*, 238D, 239D*, 260C, 261B, 261D, 262D, 285C
 Habitat: CmWld, PJWld, VFGrs / clay or gravelly loam
 Life Form: Annual herb
 Blooming: April-June
 Notes: Known from fewer than twenty occurrences. Many historical occurrences have been searched without success. Threatened by residential development at Bodfish, KRN Co. See *Contributions from the U.S. National Herbarium* 4:153 (1893) for original description.
 Status Report: 1977

Polemoniaceae
 State/Fed. Status: /C1

Navarretia subuligera Greene

"awl-leaved navarretia"
 CNPS List: 4 R-E-D Code: 1-1-2
 Distribution: AMA, BUT, DNT, LAK, MEN, MOD, NAP?, SHA, TEH, OR
 Habitat: CmWld, LCFrs / rocky, mesic
 Life Form: Annual herb
 Blooming: May-August
 Notes: Does plant occur in NAP Co.?

Polemoniaceae
 State/Fed. Status: CEQA?

Nemacaulis denudata Nutt. var. *denudata*

"coast woolly-heads"
 CNPS List: 2 R-E-D Code: 2-2-1
 Distribution: LAX, ORA, SCT, SDG, BA
 Quads: 11A, 11B, 11D, 22B, 22C, 36A, 36B, 36D, 71B, 72A, 73A, 89C*, 90D*
 Habitat: CoDns
 Life Form: Annual herb
 Blooming: April-September
 Notes: Need quads for SCT Isl. Much reduced by development in coastal dunes. Intergrades with var. *gracilis* at some localities. See *Madroño* 27(2):101-109 (1980) and *Phytologia* 66(4):390-91 (1989) for taxonomic treatments.

Polygonaceae
 State/Fed. Status: CEQA

Nemacaulis denudata Nutt. var. *gracilis* Goodm. & Benson

"slender woolly-heads"
 CNPS List: 2 R-E-D Code: 2-2-1
 Distribution: RIV, SDG, AZ, BA, SO
 Quads: 11B, 11D, 65A, 83D
 Habitat: CoDns, DeDns, SDSscr
 Life Form: Annual herb
 Blooming: March-May
 Notes: Threatened by urbanization near Palm Springs (RIV Co.) and along coast. Intergrades with var. *denudata* at some coastal localities. See *Aliso* 4:89 (1958) for original description, and *Madroño* 27(2):101-109 (1980) and *Phytologia* 66(4):390-91 (1989) for taxonomic treatments.

Polygonaceae
 State/Fed. Status: CEQA

Nemacladus gracilis Eastw. *

"slender nemacladus"
 CNPS List: 4 R-E-D Code: 1-1-3
 Distribution: FRE, KNG, KRN, LAX, MER
 Habitat: CmWld, VFGrs
 Life Form: Annual herb
 Blooming: March-May

Campanulaceae
 State/Fed. Status: CEQA?

Nemacladus montanus

Considered but rejected: Too common

Nemacladus twisselmannii J. T. Howell

"Twisselmann's nemacladus"
 CNPS List: 1B R-E-D Code: 3-2-3
 Distribution: KRN, TUL
 Quads: 283B, 284C, 284D
 Habitat: UCFrs (sandy, granitic)
 Life Form: Annual herb
 Blooming: July
 Notes: Known from only two occurrences. See *Leaflets of Western Botany* 10(3-4):45-46 (1963) for original description.
 Status Report: 1979

Campanulaceae
 State/Fed. Status: CR/C2

Nemophila parviflora Benth. var. *quercifolia* (Eastw.) Chandl.

"oak-leaved nemophila"
 CNPS List: 4 R-E-D Code: 1-1-2
 Distribution: FRE, KRN, MAD, TUL, OR
 Habitat: CmWld, LCFrs
 Life Form: Annual herb
 Blooming: May-June

Hydrophyllaceae
 State/Fed. Status: CEQA?

Neostapfia colusana (Davy) Davy

"Colusa grass"
 CNPS List: 1B R-E-D Code: 1-3-3
 Distribution: COL*, MER, SOL, STA, YOL
 Quads: 401B*, 402A, 402B, 420C, 421A, 421C, 421D, 422C, 422D, 441A, 441B, 441C, 441D, 442A*, 459C, 460A, 481D, 497B, 498D, 562A*
 Habitat: VnPls
 Life Form: Annual herb
 Blooming: May-July
 Notes: Threatened by agriculture, overgrazing, flood control, and non-native plants. See *Erythraea* 6:110-113 (1898) for original description, and *Fremontia* 4(3):22-23 (1976) for species account and habitat information.
 Status Report: 1986

Poaceae
 State/Fed. Status: CE/PT

Neviusia cliftonii Shevock, Ertter & D.W. Taylor

"Shasta snow-wreath"
 CNPS List: 1B R-E-D Code: 3-2-3
 Distribution: SHA
 Quads: 664A, 664B, 664D
 Habitat: LCFrs (carbonate)
 Life Form: Shrub (deciduous)
 Blooming: May
 Notes: Known from fewer than ten occurrences near Lake Shasta. Potentially threatened by mining. See *Novon* 2(4):285-289 (1992) for original description, and *Fremontia* 22(3):3-13 (1993) for species account and information about discovery.

Rosaceae
 State/Fed. Status: CEQA

Perideridia gairdneri (H. & A.) Math. ssp. *gairdneri* *

"Gairdner's yampah" Apiaceae
 CNPS List: 4 R-E-D Code: 1-2-3 State/Fed. Status: /C2
 Distribution: DNT, HUM, KRN, LAS, LAX*, MEN, MNT,
 MOD, MRN, NAP, ORA*, SBT, SCL, SCR, SDG*, SIS, SLO,
 SMT(*?), SOL, SON, TRI
 Habitat: BUFRs, Chprl, VFGrs, VnPls / mesic
 Life Form: Perennial herb
 Blooming: June-October
 Notes: Endangered in the southern portion of its range; status of occurrences uncertain. Can be relatively common locally, especially in northern counties. Is plant extant in SMT Co.? Threatened by agriculture and urban development. See *University of California Publications in Botany* 55:1-74 (1969) for taxonomic treatment.

Perideridia leptocarpa Chuang & Const.

"narrow-seeded yampah" Apiaceae
 CNPS List: 4 R-E-D Code: 1-1-2 State/Fed. Status: /C3c
 Distribution: SIS, OR
 Habitat: LCFrs (serpentine)
 Life Form: Perennial herb
 Blooming: June-August
 Notes: Taxonomic questions; possibly belongs in *P. oregana*. See *University of California Publications in Botany* 55:51-54 (1969) for original description.
 Status Report: 1978

Perideridia parishii (Coulter & Rose) Nels. & Macbr.sp. *parishii*

"Parish's yampah" Apiaceae
 CNPS List: 2 R-E-D Code: 2-2-1 State/Fed. Status: CEQA
 Distribution: SBD, AZ, NM, NV
 Quads: 105A, 105B, 106A, 106B, 131C, 132C
 Habitat: LCFrs, Medws, UCFrs
 Life Form: Perennial herb
 Blooming: June-July
 Notes: See *Botanical Gazette* 12:157 (1887) for original description, and *University of California Publications in Botany* 55:1-74 (1969) for taxonomic treatment.
 Status Report: 1980

Perideridia pringlei (Coulter & Rose) Nels. & Macbr.

"adobe yampah" Apiaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: /C3c
 Distribution: KRN, LAX, MNT, NEV, SBA, SLO, TUL, VEN
 Habitat: Chprl, CmWld, CoScr / serpentine
 Life Form: Perennial herb
 Blooming: April-July

Perityle inyoensis (Ferris) Powell

"Inyo rock daisy" Asteraceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: /C2
 Distribution: INY
 Quads: 327C, 350D
 Habitat: PJWld (rocky)
 Life Form: Perennial herb
 Blooming: July-August
 Notes: Known from fewer than ten occurrences. Threatened by proposed mining at Cerro Gordo Mine.

Perityle megaloccephala var. *intricata*

Considered but rejected: A synonym of *P. megaloccephala* var. *oligophylla*, a common taxon

Perityle megaloccephala var. *oligophylla*

Considered but rejected: Too common

Perityle villosa (Blake) Shinnars

"Hanaupah rock daisy" Asteraceae
 CNPS List: 1B R-E-D Code: 3-1-3 State/Fed. Status: /C2
 Distribution: INY
 Quads: 302A(*?), 368B, 369B
 Habitat: PJWld (rocky)
 Life Form: Perennial herb
 Blooming: June
 Notes: Known from fewer than five extant occurrences. Has been searched for but not rediscovered in Hanaupah Cyn. Collected in 1980 on Mt. Palmer in the Grapevine Mtns.

Petalonyx gilmanii

See *Petalonyx thurberi* ssp. *gilmanii*

Petalonyx thurberi Grayssp. *gilmanii* (Munz) Davis & Thompson

"Death Valley sandpaper-plant" Loasaceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: /C2
 Distribution: INY
 Quads: 303A, 323C, 326B, 326C, 327D, 348A, 348D, 389C
 Habitat: DeDns, MDScr
 Life Form: Shrub (evergreen)
 Blooming: May-September
 Notes: Known from fewer than twenty occurrences. Distinctiveness from ssp. *thurberi* needs study.

Peteria thompsoniae Wats.

"spine-noded milk vetch" Fabaceae
 CNPS List: 2 R-E-D Code: 3-1-1 State/Fed. Status: /C3c
 Distribution: INY, AZ, ID, NV, UT+
 Quads: 274C
 Habitat: MDScr (bajadas)
 Life Form: Perennial herb
 Blooming: May-June
 Notes: Known in CA from only one occurrence in California Valley. Endangered in ID. See *Madroño* 34(4):381 (1987) for the CA record.

Petradoria discoidea

See *Chrysothamnus gramineus*

Petunia parviflora

Considered but rejected: Too common

Streptanthus morrisonii F.W. Hoffm.ssp. *hirtiflorus* F.W. Hoffm.

"Dorr's Cabin jewel-flower" Brassicaceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: /C1
 Distribution: SON
 Quads: 519D
 Habitat: Chprl, CCFrs / serpentinite
 Life Form: Perennial herb
 Blooming: June
 Notes: Known from only one small occurrence in The Cedars. See *Streptanthus morrisonii* in *The Jepson Manual*. See *Madroño* 11(6):228 (1952) for original description and 36(1):33-40 (1989) for additional information.
 Status Report: 1977

Streptanthus morrisonii F.W. Hoffm.ssp. *kruckebergii* Dolan & LaPre

"Kruckeberg's jewel-flower" Brassicaceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: /C2
 Distribution: LAK, NAP, SON
 Quads: 517B, 532C, 532D, 533C
 Habitat: CmWld (serpentinite)
 Life Form: Perennial herb
 Blooming: April-July
 Notes: Possibly threatened by gold mining activities. See *Streptanthus morrisonii* in *The Jepson Manual*. See *Madroño* 36(1):38 (1989) for original description.

Streptanthus morrisonii F.W. Hoffm. ssp. *morrisonii*

"Morrison's jewel-flower" Brassicaceae
 CNPS List: 1B R-E-D Code: 3-2-3 State/Fed. Status: /C2
 Distribution: SON
 Quads: 519C, 519D
 Habitat: Chprl (serpentinite)
 Life Form: Perennial herb
 Blooming: May-September
 Notes: See *Streptanthus morrisonii* in *The Jepson Manual*. See *Madroño* 11(6):225 (1952) for original description and 36(1):33-40 (1989) for additional information.

Streptanthus niger Greene

"Tiburon jewel-flower" Brassicaceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: CE/PE
 Distribution: MRN
 Quads: 466B
 Habitat: VFGrs (serpentinite)
 Life Form: Annual herb
 Blooming: May-June
 Notes: Known from only three occurrences. Threatened by road construction, foot traffic, and development on the Tiburon Peninsula. See *Bulletin of the Torrey Botanical Club* 13:141 (1886) for original description, and *Madroño* 14(7):217-227 (1958) for taxonomic treatment.
 Status Report: 1988

Streptanthus oliganthus Roll.

"Masonic Mtn. jewel-flower" Brassicaceae
 CNPS List: 1B R-E-D Code: 2-2-2 State/Fed. Status: /C2
 Distribution: INY, MNO, NV
 Quads: 412C, 469B, 470C, 487A, 487B, 487C, 487D, 488A, 488B
 Habitat: PJWld (volcanic or granitic)
 Life Form: Perennial herb
 Blooming: June-July
 Notes: Known in CA from fewer than twenty occurrences. Threatened by mining, grazing, and vehicles. On watch list in NV. See *Contributions from the Dudley Herbarium* 3:372 (1946) for original description.

Streptanthus tortuosus var. *suffrutescens*

Considered but rejected: Too common

Stylocline amphibola

See *Micropus amphibolus*

Stylocline citroleum Morefield *

"oil neststraw" Asteraceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: /C2
 Distribution: KRN, SDG*
 Quads: 216B*, 239A*, 239B*, 241C, 242C*, 242D*
 Habitat: ChScr, CoScr? / clay
 Life Form: Annual herb
 Blooming: April
 Notes: Collected only once (1988) since 1935; plant is poorly known. Now appears to be restricted to oil-producing areas in the southern San Joaquin Valley. Need historical quads for SDG Co. Threatened by energy development and urbanization. See *Madroño* 39(2):123 (1992) for original description.

Stylocline masonii Morefield *

"Mason neststraw" Asteraceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: /C2
 Distribution: KRN, LAX, MNT, SLO
 Quads: 136B, 240B, 245D, 260A, 260B, 292D, 294C, 295D
 Habitat: ChScr, PJWld / sandy
 Life Form: Annual herb
 Blooming: March-April
 Notes: Collected only once (1990) since 1971. Threatened by development and habitat disturbance. See *Madroño* 39(2):117 (1992) for original description.

Stylocline micropoides

Considered but rejected: Too common

Trichostema ovatum Curran *

"San Joaquin bluecurls" Lamiaceae
 CNPS List: 4 R-E-D Code: 1-2-3 State/Fed. Status: CEQA?
 Distribution: FRE, KNG, KRN, TUL
 Habitat: VFGrs
 Life Form: Annual herb
 Blooming: July-October

Trichostema rubisepalum Elmer

"Hernandez bluecurls" Lamiaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: CEQA?
 Distribution: MPA, NAP, SBT, TUO
 Habitat: BUFRs, Chprl, CmWld / volcanic or serpentinite
 Life Form: Annual herb
 Blooming: June-August

Tridens pilosus

See *Erioneuron pilosum*

Trientalis arctica Hook.

"arctic starflower" Primulaceae
 CNPS List: 2 R-E-D Code: 3-2-1 State/Fed. Status: CEQA
 Distribution: DNT, ID, OR, ++
 Quads: 723B, 740C
 Habitat: BgFns, Medws / coastal
 Life Form: Perennial herb
 Blooming: June-July
 Notes: Known in CA from only three occurrences. Threatened by cattle grazing and trampling. Sensitive in ID. See *Leaflets of Western Botany* 10:333 (1966) for first CA records.

Trifolium amoenum Greene

"showy Indian clover" Fabaceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Status: /C2*
 Distribution: ALA*, MEN*, MRN*, NAP*, SCL*, SOL*, SON
 Quads: 406D*, 445A*, 466B*, 467B*, 483A*, 484B*, 485C*, 485D*, 498C*, 500D*, 501A*, 501B*, 501C*, 502A*, 502B*, 502C*, 503A, 567B*, 567D*
 Habitat: VFGrs (sometimes serpentinite)
 Life Form: Annual herb
 Blooming: April-June
 Notes: Rediscovered in 1993 by P. Conners; only one plant found. Habitat lost to urbanization and agriculture. See *Flora Franciscana*, p. 27 (1891) by E. Greene for original description.
 Status Report: 1977

Trifolium andersonii ssp. *beatleyae*

Considered but rejected: A synonym of *T. andersonii* var. *beatleyae*, a common taxon

Trifolium bolanderi Gray

"Bolander's clover" Fabaceae
 CNPS List: 4 R-E-D Code: 1-1-3 State/Fed. Status: /C2
 Distribution: FRE, MAD, MPA
 Habitat: LCFrs, Medws, UCFrs / mesic
 Life Form: Perennial herb
 Blooming: June-August
 Notes: See *Proceedings of the American Academy of Arts and Sciences* 7:335 (1868) for original description.
 Status Report: 1979

Trifolium buckwestiorum Iseley

"Santa Cruz clover" Fabaceae
 CNPS List: 1B R-E-D Code: 3-3-3 State/Fed. Sta
 Distribution: SCR
 Quads: 407D, 408C, 409D
 Habitat: BUFRs, CoPrr / margins
 Life Form: Annual herb
 Blooming: May, Oct
 Notes: Known from about six very small occurrences; o- protected, others threatened by grazing, land clearing ing of non-native forage plants. See *Madroño* 39(2):90 original description.

Trifolium dedeckerae

See *Trifolium macilentum* var. *dedeckerae*

Trifolium gracilentum T. & G.var. *palmieri* (Wats.) L.F. McDermott

"southern island clover" Fabaceae
 CNPS List: 4 R-E-D Code: 1-2-2 State/Fed. Status
 Distribution: SBR, SCM, SCT, SNI, GU
 Habitat: CBScr, VFGrs
 Life Form: Annual herb
 Blooming: March-May
 Notes: Rediscovered on SCT and SNI islands in 1978. Co- SNI Isl. in 1993.

Trifolium grayi

Considered but rejected: A synonym of *T. barbigerum* var. *a* a common taxon

Trifolium howellii Wats.

"Howell's clover" Fabaceae
 CNPS List: 4 R-E-D Code: 1-1-1 State/Fed. Status: C
 Distribution: DNT, HUM, SIS, OR
 Habitat: LCFrs, Medws, UCFrs / mesic
 Life Form: Perennial herb
 Blooming: July-August

Trifolium lemmonii Wats.

"Lemmon's clover" Fabaceae
 CNPS List: 4 R-E-D Code: 1-1-2 State/Fed. Status: /
 Distribution: NEV, PLU, SIE, NV
 Habitat: GBScr, LCFrs
 Life Form: Perennial herb
 Blooming: May-June
 Notes: See *Proceedings of the American Academy of Arts and S* 11:127 (1876) for original description, *Canadian Journal of* 50:1975-2007 (1972) for taxonomic treatment, and *Four* 4:22-23 (1974) for discussion of rediscovery (1972).
 Status Report: 1977