Historic Biological Reports
Scan Control Sheet

County Project Number(s): CUP-3141

Report Type (check one):
- ☐ Initial Study
- ☒ Species Inventory/Survey
- ☐ Focused Study
- ☐ EIR
- ☐ Draft EIR
- ☐ EIS
- ☐ ND
- ☐ MND
- ☐ Other

Report Date (Month/Day/Year): 10/01/1997

Check if the following apply to the report:

- ☐ Wetland and/or aquatic habitat
- ☐ Within designated Coastal Zone
- ☐ Potential movement corridor for fish and/or wildlife

Lynne Kada

Ventura Regional Sanitation District

Ventura, California

ENSR®

Report for CUP 3141 Modification Number 3, Biological Resource Protection Program

ENSR Consulting and Engineering

October 1997

Document Number 7021-001-100

Report for CUP 3141 Modification Number 3
Biological Resource Protection Program

ENSR Document No. 7021-001-100
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Prepared for

Ventura Regional Sanitation District
Ventura, California

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1.0 INTRODUCTION

This report has been prepared to provide compliance with conditions in the Biological Resource Protection Program (Condition #82) in the Conditional Use Permit 3141 Modification #3 for the Toland Road Landfill. This report contains five main sections that in combination address many of the identified conditions in Section A. Site Operational/Phase Closure Period. These sections are as follows:

2.0 *Map Scalebroom Scrub and Coastal Sage Scrub Habitats*
3.0 Inventory Nonvascular Plants
4.0 Inventory Invertebrates
5.0 *Determine Presence and Project Effects on Los Angeles Pocket Mouse and Desert Woodrat*
6.0 Develop an Invasive Exotic Plant Control Program

These sections correspond to the initial scope of work submitted to the Ventura Regional Sanitation District.

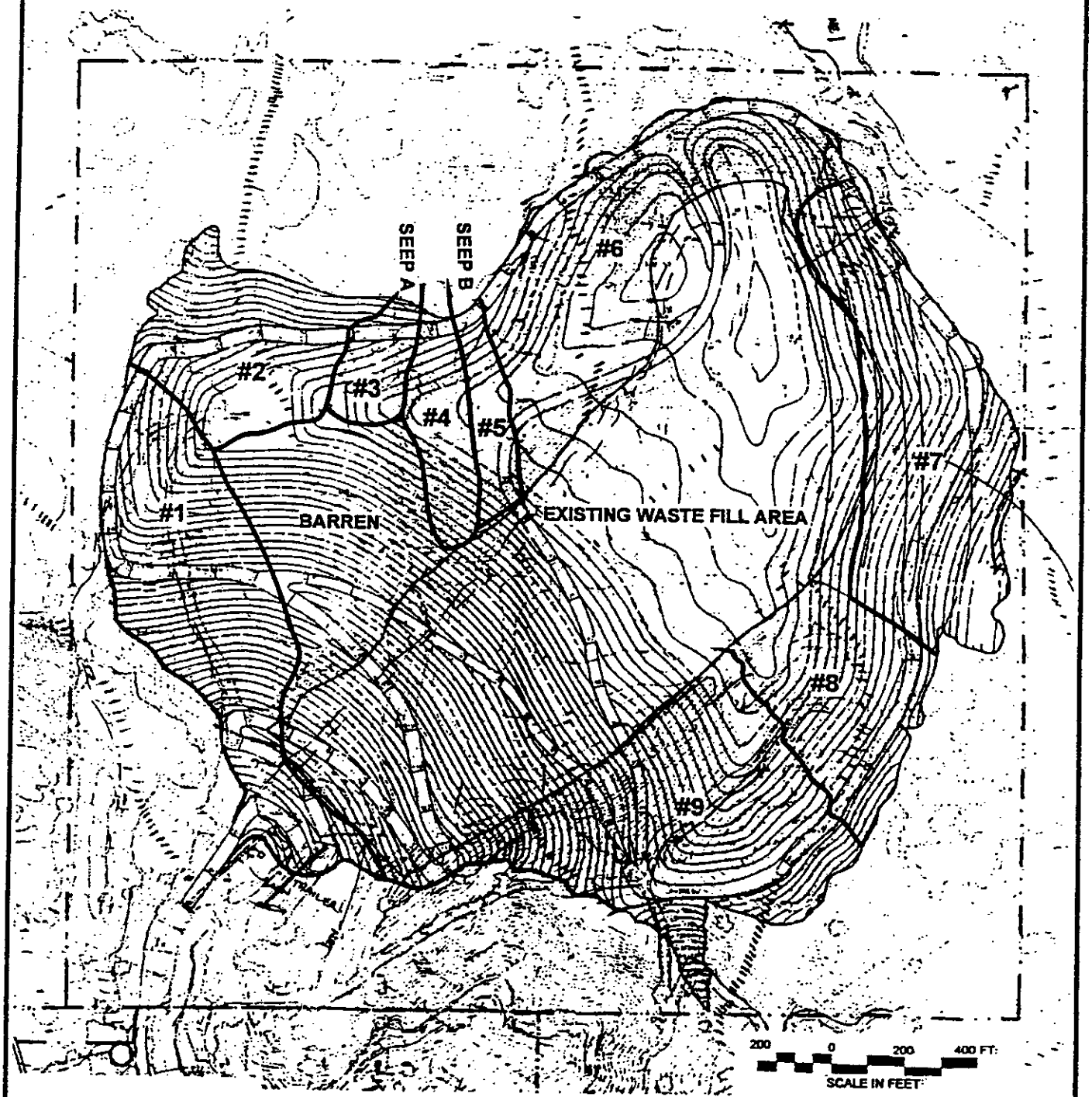
2.0 MAP SCALEBROOM SCRUB AND COASTAL SAGE SCRUB HABITATS

2.1 Introduction

Coastal sage scrub has recently been recognized by local botanists as a sensitive and declining plant community. Scalebroom scrub is often included as an association within the coastal sage scrub habitat. To protect these communities, a more detailed mapping of the occurrence of these habitats was completed.

2.2 Discussion

On July 20, July 21, and July 23, the Toland Road Landfill was mapped for Coastal Sage Scrub and Scalebroom Scrub habitat. In some cases where the plants did not fit into a specific vegetation series, they were put into the series that seemed most appropriate. The majority of the undisturbed portions of the site was vegetated by coastal sage scrub. Scalebroom scrub did not occur in areas to be disturbed by grading on the project site. It was noted only along O'Leary Creek floodplain, outside of the project impact area. Figure 2-1 is a map of the landfill with the



SERIES

#1 Purple Sage
#2 Mixed Saltbush
#3 Sandbar Willow
#4 Purple Sage
#5 Mule Fat
#6 Mixed Saltbush
#7 California Sagebrush-California Buckwheat
#8 Sumac
#9 Purple Sage

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FIGURE 1

VEGETATION COMMUNITIES

Toland Road Landfill
Santa Paula, California

Drawn by: M. Scop	Date: 8/4/97	Project number 7021-001-100
Figure Name: 7021001a.ds4	Checked by:	

associated vegetation series designated by numbers. Except for the two series associated with the seeps, e.g. #3 and #5, the other series are associations within the coastal sage scrub habitat. Table 2-1 presents the species composition of each of the numbered areas.

2.3 Conclusions and Recommendations

In the absence of scalebroom scrub within the footprint of the landfill, no specific measures are required to protect this vegetation association. Because coastal sage scrub habitats do occur within the landfill's footprint as noted on Figure 2-1, specific approval for disturbing this habitat will be required by the Planning Director prior to disturbance. Further, a site specific Revegetation, Restoration, and Wildlife Habitat Enhancement Plan should be prepared in combination with an invasive exotic plant control program. Such measures are discussed in Section 6.0.

3.0 INVENTORY OF NONVASCULAR PLANTS

3.1 Introduction

Many plants that play key roles in the ecology of a region are small and not readily recognized. Plants such as mosses and lichens are obscure and easily overlooked since they do not contain the same physical structures and, thus, cannot attain the size that the large, common plants have. To protect these non-vascular species, a survey was completed to determine whether they occur at the site and if so, whether those that do occur are rare or otherwise sensitive species.

3.2 Discussion

A meandering pedestrian survey was completed by Dr. Barbara Collins on July 20, July 21, and July 23, 1997. The results of the survey are presented below. The location numbers correspond to the positions identified on Figure 2-1.

3.2.1 Bryophytes

Three species of moss were found on the slope at Location #1.

Weisia controversa - common
Funaria hygrometrica - occasional
Bryum argentea - in a few spots

TABLE 2-1

Vegetation Series within the Coastal Sage Scrub

#1	**West of landfill and close to entrance**		**Purple sage series**
Purple sage	*Salvia leucophylla*	California sagebrush	*Artemisia californica*
Mule fat	*Baccharis glutinosa*	Giant wild rye	*Elymus condensatus*
Sawtooth goldenbush	*Haplopappus squarrosus*	Star thistle	*Centaurea melitensis*
Wild mustard	*Brassica nigra, B. geniculata*	Red brome	*Bromus rubens*
Coyote brush	*Baccharis pilularis*	Russian thistle	*Salsola iberica*
Verbena	*Verbena lasiostachys*	Saltbush	*Atriplex lentiformis*
	These additional species were noted at a higher elevation on the hill		
Bristly ox tongue	*Picris echioides*	White chicory	*Malacothrix saxatilis*
Tree tobacco	*Nicotiana glauca*	Horseweed	*Conyza canadensis*
Prickly lettuce	*Lactuca scariola*	Lupine	*Lupinus* sp.
Milk thistle	*Silybum marianum*	Wild cucumber	*Marah macrocarpa*
Locoweed	*Astragalus trichopodus*	Dock	*Rumex crispus*

#2	**South facing slope**		**Mixed saltbush series**
Big saltbush	*Atriplex lentiformis*	Australian saltbush	*Atriplex semibaccata*
Sea blite	*Suaeda fruticosa*	Russian thistle	*Salsola iberica*
Pigweed	*Chenopodium album*	Wild oats	*Avena fatua*
Ripgut grass	*Bromus rigidus*	Red brome	*Bromus rubens*
Sawtooth goldenbush	*Haplopappus squarrosus*	Giant wild rye	*Elymus condensatus*
Wild mustard	*Brassica nigra, B. geniculata*		

#3	**Seep area**		**Sandbar willow series**
Sandbar willow	*Salix hindsiana*	Western sycamore	*Platanus racemosa*
Mule fat	*Baccharis glutinosa*	Leather root	*Psoralea macrostachya*
Cat-tail	*Typha latifolia*	California loosestrife	*Lythrum californicum*
Rabbit's foot grass	*Polypogon monspeliensis*	Poison oak	*Toxicodendron diversilobum*
Annual sunflower	*Helianthus annuus*		

#4	**Area between the two seeps**		**Purple sage series**
Purple sage	*Salvia leucophylla*	California sagebrush	*Artemisia californica*
Mule fat	*Baccharis glutinosa*	Giant wild rye	*Elymus condensatus*
Saw toothed goldenbush	*Haplopappus squarrosus*	Lupine	*Lupinus succulentus*
Coyote bush	*Baccharis pilularis*	Big saltbush	*Atriplex lentiformis*
Star thistle	*Centaurea melitensis*	Wild mustard	*Brassica nigra*
Tree tobacco	*Nicotiana glauca*	Horseweed	*Conyza canadensis*
Red brome	*Bromus rubens*	Wild morning glory	*Calystegia macrostegia*
Prickly sow thistle	*Sonchus oleraceus*		

TABLE 2-1 (cont)

Vegetation Series within the Coastal Sage Scrub

#5	Seep Area		Mule fat series
Mule fat	*Baccharis glutinosa*	California sagebrush	*Artemisia californica*
Cocklebur	*Xanthium strumarium*	Giant wild rye	*Elymus condensatus*
Rabbit's foot grass	*Polypogon monspeliensis*	White nightshade	*Solanum douglasii*
Verbena	*Verbena lasiostachys*	Western ragweed	*Ambrosia psilostachya* var. *californica*
Sawtooth goldenbush	*Haplopappus squarrosus*	Purple sage	*Salvia leucophylla*
Prickly lettuce	*Lactuca scariola*	Wild oats	*Avena fatua*
Big saltbush	*Atriplex lentiformis*	Coyote brush	*Baccharis pilularis*
Stephanomeria	*Stephanomeria virgata*	Wild morning glory	*Calystegia macrostegia*
Tree tobacco	*Nicotiana glauca*	Lupine	*Lupinus succulentus*
Yellow sweet clover	*Melilotus indicus*	Dock	*Rumex crispus*
Russian thistle	*Salsola iberica*	Sea blite	*Suaeda fruticosa*
Locoweed	*Astragalus trichopodus*	Star thistle	*Centaurea melitensis*
Italian thistle	*Carduus pycnocephalus*	Horseweed	*Conyza canadensis*
	Seep Area B - above the road (Water was actually dripping here)		
White nightshade	*Solanum douglasii*	Scarlet monkey flower	*Mimulus cardinalis*
Sticky phacelia	*Phacelia viscida*	California loosestrife	*Lythrum californicum*
Cudweed	*Gnaphalium palustre*	Leather root	*Psoralea macrostachya*

#6	Steep slope - northern end of the landfill		Mixed saltbush series
Big saltbush	*Atriplex lentiformis*	Australian saltbush	*Atriplex semibaccata*
Sea blite	*Suaeda fruticosa*	Russian thistle	*Salsola iberica*
Pigweed	*Chenopodium album*	White chicory	*Malacothrix saxatilis*
Zauschneria	*Zauschneria californica*	Evening primrose	*Camissonia boothii* ssp. *decorticans* tr.

#7	Top of Hill, northeast end of landfill		California sagebrush/ California buckwheat series
California sagebrush	*Artemisia californica*	Wild buckwheat	*Eriogonum fasciculatum*
Giant wild rye	*Elymus condensatus*	Stephanomeria	Stephanomeria virgata
Saw toothed goldenbush	*Haplopappus squarrosus*	Wild mustard	*Brassica nigra*
Caterpillar phacelia	*Phacelia cicutaria*	Purple sage	*Salvia leucophylla*
Deerweed	*Lotus scoparius*	White sage	*Salvia apiana*
Laurel sumac	*Rhus laurina*	Star thistle	*Centaurea melitensis*
Red brome	*Bromus rubens*	Russian thistle	*Salsola iberica*
Poison oak	*Toxicodendron diversilobum*	Senecio	*Senecio douglasii*
Indian pink	*Silene laciniata*	Turkey mullein	*Eremocarpus setigerus*
Pigweed	*Chenopodium album*	California everlasting	*Gnaphalium californicum*
Tree tobacco	*Nicotiana glauca*	Wild morning glory	*Calystegia macrostegia*
Cocklebur	*Xanthium strumarium* var. *canadense*		

#8	Hill to the east of the landfill - Northwest facing slope		Sumac series
Laurel sumac	*Rhus laurina*	Coyote brush	*Baccharis pilularis*
Mule fat	*Baccharis glutinosa*	Giant wild rye	*Elymus condensatus*
Saw toothed goldenbush	*Haplopappus squarrosus*	Locoweed	*Astragalus trichopodus*
White sweet clover	*Melilotus albus*		

TABLE 2-1 (cont)

Vegetation Series within the Coastal Sage Scrub

#9	North facing slope - southeastern end		Purple sage series
Purple sage	*Salvia leucophylla*	Laurel sumac	*Rhus laurina*
Giant wild rye	*Elymus condensatus*	Toyon	*Heteromeles arbutifolia*
California sagebrush	*Artemisia californica*	Coyote brush	*Baccharis pilularis*
Saw toothed goldenbush	*Haplopappus squarrosus*	Deerweed	*Lotus scoparius*
Poison oak	*Toxicodendron diversilobum*	Mule fat	*Baccharis glutinosa*
Bush monkey flower	*Mimulus longiflorus*	Stephanomeria	*Stephanomeria virgata*
Tree tobacco	*Nicotiana glauca*	Smilo grass	*Oryzopsis miliacea*
Wild elderberry	*Sambucus mexicana*	Brickelbush	*Brickellia californica*
White flowered currant	*Ribes indecorum*	Wild buckwheat	*Eriogonum fasciculatum*
White sweet clover	*Melilotus albus*	Indian paintbrush	*Castilleja affinis*
Wild oats	*Avena fatua*	Bedstraw	*Galium angustifolium*
California everlasting	*Gnaphalium californicum*	Everlasting	*Gnaphalium microcephalum*
Star thistle	*Centaurea melitensis*	Telegraph weed	*Heterotheca grandiflora*
Pigweed	*Chenopodium album*	Horseweed	*Conyza canadensis*
Yucca	*Yucca whipplei*	Italian thistle	*Carduus pycnocephala*
Horehound	*Marrubium vulgare*		

The moss was found on hard packed clay under the shrubs and in the shade. Remnants of sporophytes were visible but all capsules were gone - only the setas remained. The moss was never abundant and took some scrutiny to find. Although there were small clusters of pure *Weisia*, the *Funaria* and *Bryum* were only found in small amounts, mixed in with the *Weisia*. *Bryum* was rather easy to spot since the upper portion of the leafy moss plant contains no chlorophyll.

Several collections of moss were made on the slope at Location #9. In all cases, the moss was on the hard packed clay soil, in the shade, under the shrubs, or on a shaded bank. Sporophytes of *Weisia* and *Tortula* were observed in one spot.

Weisia controversa - the dominant species
Tortula mucronifolia - trace amounts
Tortula brevipes - small amounts - with sporophytes

3.2.2 Lichens

No lichens were observed in the areas studied. The north facing slope (#8 and #9) that would most likely have contained some lichens had been rather recently burned. All the dust in the area might not have been conducive to lichen growth, either.

3.3 Conclusions and Recommendations

Because the majority of the site does not contain suitable habitat for non-vascular plants, they are not common at the site. No special status or sensitive species were identified on the site. Based on their rarity on general, the absence of special status species, and the minimal potential for impacting overall populations of the species occurring at the site, no special mitigation measures are recommended for this resource at the site.

4.0 INVENTORY OF INVERTEBRATES

4.1 Introduction

Invertebrates can play important roles in the cycling of materials, pollination of plants, food supplies for other animals, and a myriad of other ways. Invertebrates typically recognized by the lay observer are insects and other arthropods.

Insects have great value in conservation biology because their highly specific adaptations allow them access to a wide range of habitats and niches. However, many insects are also quite sensitive to destructive events at small scales. The sensitivity of some species to pollution and contamination of various sorts, make them excellent biodiversity indices, since they can be collected cheaply and rapidly in statistically significant numbers, and many groups can be easily identified (e.g. butterflies, dragon- and damsel-flies, and many moths, beetles, and larger flies).

The inventory and associated recommendations for protecting sensitive taxa were prepared by Dr. Rudi Mattoni and associates of Agresearch, Inc.

4.2 Discussion

Three data collecting methods were employed to sample insects at the Toland Road Landfill

- sight identification,
- sweeping, and
- pitfall trapping.

The first two methods were applied across the entire habitat where conditions indicated habitat values would support viable arthropod communities. Pitfall traps were set in plant associations that are representative of the region.

Native plant communities were only found beyond the boundaries of the existing active landfill. Two sets of two traps each were placed in the sandy alluvium of the canyon floor. Traps 1 and 2 were set among deerweed (*Lotus scoparius*) and coyote bush (*Baccharis glutinosa*) that are the dominant subshrubs. This association is found on the east just behind the site office. Traps 3 and 4 were set among the coastal sage subshrubs of the east slope.

Pitfall traps consist of one quart cottage cheese containers filled with about 200 ml of non-toxic anti-freeze and buried in the soil such that the rim of the container is at ground level. Any ground dwelling arthropods falling into the traps are preserved for routine pick up. The method provides non-biased quantitative samples of this community of ground dwelling species that are valuable for comparing temporal and geographic changes in populations.

The traps were set out on June 7 with samples collected on July 2 and July 26. On these three dates sweep and visual determinations were also made. Voucher specimens of all pitfall traps are retained as are the sweep collected specimens.

Maximum species richness of many insects of interest would be expected to occur in two peaks, one in spring (March to early April) and second during late May to mid July. For insects, the Santa Clara drainage and its associated mountain ranges are poorly collected areas relative to the larger Southern California region.

Collection efforts were concentrated on butterfly populations because general information on butterflies is the most thorough of any animal group. In addition, larger flying insects were collected as were ground dwelling arthropods. An extensive census data set for the latter from a number of localities that would allow the detection of unusual patterns of insect occurrences at the Toland Road facility should such an anomaly occur.

The predominant nectar sources at which butterflies and other nectar seeking insects were taken were common buckwheat (*Eriogonum fasciculatum*) and toyon (*Heteromeles arbutifolium*). No coast live oak occur on the site and only a few willow and mule fat were noted in the wet areas. The scarcity of the latter severely limits a usually rich insect community. Likewise, the almost complete coverage of the lower alluvium by the exotic Indian tobacco implies a highly disturbed habitat which also limits insect populations.

4.2.1 Butterflies and Skippers (Lepidoptera, Papilionoidea and Hesperoidea)

Table 4-1 presents a list of species of butterflies and skippers observed or expected to occur at the site. Species observed during the survey are listed and identified in a numbered sequence. Species expected or that should have occurred in the past and are now probably extirpated from the vicinity are included for completeness and are also identified. Food plants

TABLE 4-1

Butterflies and Skippers Observed or Expected to Occur at Subject Site

Family/Common name	Genus species subspecies	Observed	Occurence	Distribution	Residential habitat type	Relative Abundance	Dispersal Range	Vitinism	Adult flight times	Diapause Stage	Larval food plant range
PAPILIONIDAE											
1. Anise swallowtail	Papilio zelicaon		G	WS	U	A	2	M	Jan-Dec	P	P
2. Western tiger swallowtaiL	Papilio rutulus rutulus		G	WS	U	A	2	M	Feb-Oct	P	P
3. Pale swallowtail	Papilio eurymedon			NA	U	A	2	M	Feb-Oct	P	O
PIERIDAE											
4. Cabbage butterfly	Pieris rapae	X	G	WS	U	C	2/3	M	Jan-Dec	P?	P,
5. Becker's white	Pieris beckerii			NA	U	R	2/3	M	Feb-Aug	P	M
6. Common white	Pieris protodice	X	G	WS	U	A	2/3	M	Jan-Dec	P	P
7. Sara orange tip	Anthocharis sara sara			NA	U	A	1	D	Feb-Apr	P	O,
8. Alfalfa butterfly	Colias eurytheme	X	G	WS	U	C	2/3	M	Jan-Dec	LL	O
9. Harford's sulfur	Colias alexandra hardfordi	X	*	NA	S/C	O	2	D	Mar-Sep	LL	O?
10. California dogface	Zerene eurydice		*	NA	C/O	O	2	D	Mar-Sep	A	M
11. *Cloudless sulfur*	Phoebis sennae marcellina		G (i)	WS	U	O	3	M	Mar-Oct	-	O,
12. Nicippe sulfur	Eurema nicippe		G (i)	WS	U	O	2/3	M	Feb-Nov	-	O
NYMPHALIDAE,											
13. Striated queen	Danaus gilippus strigosus			RM	U	O	3	M	Mar-Nov	A	M
14. Monarch	Danaus plexippus	X	G	WS	U	A/Ax	3	M	Jan-Dec	A	M
15. California ringlet	Coenonympha tullia california		*	NA	U	A	1	M	Feb-Sep	P	O?,
16. Sylvan satyr	Cercyonis sthenele silvestris		*	NA	U	C	1	S	May-Aug	L1	O?,
17. Gulf fritillary	*Agraulis vanillae* incarnata		G	WS	U	C	2-3?				
18. Chalcedona checkerspot	Euphydryas chalcedona *chalcedona*			LO	C/O	C	1	S	May-June	L2	O
19. Gabb's checkerspot	Chlosyne gabbii gabbii		*	LO	U	A	0-1	S	Mar-June	L	O
20. Red admiral	Vanessa atalanta rubria		G	WS	U	O	3	M	Mar-Nov	A	P
20. Painted lady	Vanessa cardui		G	WS	U	O	3	M	Feb-Nov	A	P
22. West coast lady	Vanessa carye anabella	X	G	WS	U	O	3	M	Jan-Dec	A	P,
23. American lady	Vanessa virginiensis		G	WS	U	O	3	M	Jan-Dec	A	P.
24. Mourning cloak	Nymphalis antiopa		G	WS	U	O	3	M	Jan-Dec	A	P.
25. California tortoiseshell	Nymphalis californica			UM	NA	O	3	?	?	A	M
26. Satyr anglewing	Polygonia satyrus satyrus		*	LO	R	R	1	S	Jun-Apr	A	M
27. Buckeye	Precis coenia	X	G	WS	U	A	1!	M	Mar-Nov	A?	P,
28. Lorquin's admiral	Liminitis lorquini lorquini		*	LO	R	O	1	D	Apr-Sep	L	P,

TABLE 4-1 (cont'd)

Butterflies and Skippers Observed or Expected to Occur at Subject Site

Family/Common name	Genus species subspecies	Observed	Occurence	Distribution	Residential habitat type	Relative Abundance	Dispersal Range	Vitinism	Adult flight times	Diapause Stage	Larval food plant range
29. California sister	Adelpha bredowii californica			LO	O	O	1/2	D	Mar-Oct	L	P
LYCAENIDAE.											
30. Behr's metalmark	Apodemia mormo virgulti			LO	S/C/D	C	1!	D	Mar-Oct	E	M
31. Dusky metalmark	Calephelis nemesis	X		LO	S/C	O	1	M	Feb-Oct	L	O.
32. Great purple hairstreak	Atlides halesus corcorani			NA	/C/OV	?		M	Mar-Oct	P	M
33. Common hairstreak	Strymon melinus pudica	X	G	WS	U	A	2	M	Feb-Nov	P	P.
34. Sylvan hairstreak	Satyrium sylvinus dryope		**	LO	R	O	1	S	May-Jul	E	M
35. Nut brown hairstreak	Satyrium auretorum spadix		**	LO	C	R	1	S	May-Jul	E	M
36. Grey hairstreak	Satyrium tetra			NA	C	O	1	S	May-Jul	E	M
37. Buckthorn hairstreak	Satyrium saepium saepium	X		NA	C	A	1	S	May-Jul	E	M.
38 Western elfin	Callophrys augustus iroides			NA	U	O	1	S	Feb-Jun	P	P.
39. California green hairstreak	Callophrys affinis perplexa			NA	C/S/D	A	1	S	Mar-Apr	P	P.
40. Arota copper	Lycaena arota arota			LO	C/O	A	1	S	May-Jul	E	M
41 Gorgon Copper	Lycaena gorgon		*?	LO	C	O	1	S	May-Jun	E	M.
42. Purplish copper	Lycaena helloides		**?	LO	R	A	1	M	Apr-Oct	L	O
43. Pigmy blue	Brephidium exilis	X		NA	U	A	2	S	Feb-Nov	P	P
44. Marina blue	Leptotes marina	X	G	WS	U	C	2/3	M	Jan-Dec	P	P.
45. Western tailed blue	Everes amyntula		*	LO	S/C/D	O	1	M	Feb-Sep	L	M.
46. Acmon blue	Plebejus acmon acmon			NA	U/C	A	1	M	Feb-Nov	L	P.
47. Southern blue	Glaucopsyche lygdamus australis			LO	U	A	0-1	S	Feb-Apr	P	O.
48. Bernardino blue	Euphilotes bernardino bernardino			LO	S/C/D	C	0-1	S	Apr-Jul	P	M.
49. Echo blue	Celastrina argiolus echo			NA	U	O	1	S	Feb-Jun	P	M
HESPERIDAE											
50. Fiery skipper	Hylephila phyleus	X	G	WS	U	C	3	M	Jan-Dec	L	
51. Leussler's skipper	Hesperia comma leussleri		*	LO	S/C	R	1/2?	S	May-Aug		
52. Columbia skipper	Hesperia columbia		*	LO	S/C R	R	?	D	Mar-May, Aug-Oct	L	O
53. Sandhill skipper	Polites sabuleti sabuleti		*	LO	S/C/D	O	1	M	Apr-Sep	L	O?,
54. Field skipper	Atalopetes campestris			NA	U	A	3	M	Apr-Nov	L	O?.
55. Woodland skipper	Ochlodes sylvanoides sylvanoides			NA	C/O	A	1	S	Jul-Sept	L	O?,

TABLE 4-1 (cont'd)

Butterflies and Skippers Observed or Expected to Occur at Subject Site

Family/Common name	Genus species subspecies	Observed	Occurence	Distribution	Residential habitat type	Relative Abundance	Dispersal Range	Viltinism	Adult flight times	Diapause Stage	Larval food plant range
56. Rural skipper	Ochlodes agricola agricola			NA	U	A	1	S	Apr-Jul	L	O?,
57. Umber skipper	Paratrytone melane			NA	S/R	A	2-3?	D	Apr-Sep	L	O,
58. Western oak duskywing	Erynnis propterius propterius			NA	O	R	?	S	Mar-May	L	M
59. Funereal duskywing	Erynnis zarucco funeralis	X		NA	U	A	?	M	Feb-Oct	L	O
60. Western checkered skipper	Pyrgus communis albescens	X		NA	U	A	1-2?	M	Feb-Oct	L	O,
61. Large white skipper	Heliopetes ericetorum			NA	S/C	R	1-2?	M	Apr-Oct	L	O

Key:

Observed: "X" = Species was observed at the site during the survey period.

Occurrence: (G) indicates species found in all habitats including gardens in all urban areas.

Distribution: WS, widespread, found everywhere. NA, widespread but only in undisturbed habitat. LO, localized in colonies. RM, regular migrants usually found every year. SM, sporadic or rare migrants.

Resident habitat type: U, universal in all habitats. S, coastal sage, C, chaparral, O, oak woodland or savannah. G, grassland. R, riparian. D, coastal dunes. M, saltwater marsh.

Relative abundance of adults (relative abundance as maximum number on an optimal day during the mid-flight period): V. very rare, none or one. R, rare, 2-4. O, occasional, 5-9. A, abundant, 10-49. C, common, over 50.

Dispersal range: 0, moves less than 100 m. 1, moves 100-1000 m. 2, moves 1-50 km. 3, moves over 50 km.

Voltinism: S, single brooded. D, double brooded. M, more than two broods per year.

Adult flight times: Months seen in field.

Diapause stage: E, egg. L, larva (instar in parenthesis). P, pupa. A, adult.

Larval foodplant range: M, monophagous, feeds only plants within a genus. O, oligophagous, feeds on plants within a family. P, polyphagous, feeds on two or more families.

Notes on Table 4-1

7. Sara orange tip unquestionably present, but early flier
8. Alfalfa butterfly FP many legumes. Larva found on Astragalus leucopsis..
9. Harford's sulfur FP Astragalus leucopsis not found on site but nearby
10. California dogface FP not on site, but should fly through
11 Cloudless sulfur FP Cassia, ornamental
12. Nicippe sulfur FP Cassia, ornamental
16. Sylvan satyr FP Stipa and Melica.
17. Gulf fritillaryFP. ornamental passion flower
19. Gabb's checkerspot Decreasing everywhere near disturbance. FP Corethrogyne and Encelia on site. Most likely previously present recently known from many localities in the Santa Clara region.
20. Red admiral FP Urtica This species is widespread
20. Painted lady FP polyphagous This species is widespread
22. West coast lady FP many mallows This species is widespread
23. American lady FP Gnaphalium spp. This species is widespread
24. Mourning cloak FP Salix, Populus. Unquestionably occurs This species is widespread
25. California tortoiseshell FP. Ceanothis, Should be found as migrant during spring migrations when large numbers can be observed.
26. Satyr anglewing FP Urtica. Should occur along all riparian areas
28. Lorquin's admiral FP Salix. riparian reaches with arroyo willow abundant
29. California sister FP. Quercus spp. Not seen but may wander from oaks
30. Behr's metalmark FP Eriogonum fasciculatum
31. Dusky metalmark FP Encelia californica, Baccharis glutinosa
32. Great purple hairstreak FP mistletoe. Occurs nearby
33. Common hairstreak FP polyphagou
34. Sylvan hairstreak FP Salix. Riparian species, not seen but occurs in riparian along S. Clara river. Flies in May here,
35. Nut brown hairstreak FP probably Quercus dumosa or other scrub oaks There were no specimens collected in this study, but probably occurs or did occur. The species should be investigated as the subspecies may, but unlikely, be fumosumosus.
36. Grey hairstreak FP. Cercocarpus
37. Buckthorn hairstreak FP. Ceanothus. ,Satyrium saepium saepium
38 Western elfin FP many.
39. California green hairstreak Unquestionably occurs but flies in spring
40. Arota copper likely occurs nearby but flies earlier. The nominotypical subspecies occurs in the Santa Susanna mountains. Subspecies nubila, from the Santa Monica range could be of special concern as it becomes limited to that range.
41 Gorgon Copper FP Eriogonum elongatum.
42. Purplish copper FP Polygonum and Rumex. Formerly common along most watercourses, as Los Angeles River. No records from the S. Clara river riparian, but must have occured and may still be found. Little FP at this site. Also not now found at the river itself although there is suitable habitat and the date is correct. May be extirpated.
43. Pigmy blue FP many Chenopods. Common
44. Marina blue FP polyphagous
45. Western tailed blue FP Astragalus leucopsis,
46. Acmon blue FP Eriogonum spp and Lotus scoparius
47. Southern blue FP Lotus scoparius. Unquestionably occurs, earlier flight
48. Bernardino blue FP. Eriogonum fasciculatum. Unquestionably occurs earlier.
49. Echo blue FP polyphagous. Unquestionably occurs earlier.
50. Fiery skipper FP grasses.
51. Leussler's skipper FP grasses. ??
52. Columbia skipper FP grasses
53. Sandhill skipper FP grasses. Unquestionably occurs

only occurs rarely. The species was not found nor was it expected at the Toland Road Landfill site.

The only other butterfly species of more than usual interest is number 19, Gabb's checkerspot. This was formerly a common butterfly and is still found scattered throughout the Santa Clara drainage. Decline of the species may indicate sensitivity to some unspecified disturbance, as its food plants remain common and widespread in many localities where the butterfly has disappeared, including Toland Road Landfill.

4.2.2 Beeflies (Diptera: Bombyliidae)

Recent studies by a small group of entomologists is expanding our knowledge of this family of flies across southern California. Because of their role in natural community structure as predators, parasitoids, or hyperparasitoids in their larval stages; their adult role in pollination, ease of identification of the larger species in the field, and of their diversity; beeflies should have a larger role in biota assessment. Most species of southern California are now described, although distributions and life histories are incompletely known and nectar resources are only now being recorded.

Table 4-2 presents a listing of beefly species positively confirmed for the Santa Clara River drainage. Despite special attention to Bombyliid flies (beeflies) specimens of only one species were collected. At least six additional species were expected to occur at this time of year based on data from nearby high quality coastal sage habitat.

4.2.3 Other Diptera

Sweeping and observation produced only one additional species, the asilid fly *Diocitra* sp. At least five species of asilids at this time of year would have been expected to occur based on collections from adjacent area. The only other diptera were trapped in pitfalls (see Table 4-3). The poor showing was largely because of limited nectar sources available at this time of year.

4.3 Conclusions and Recommendations

Besides the few Diptera and Lepidoptera that were sweep collected, the only other insects taken were: Hymenoptera, *Bombus vosnesenskii, Anthophorus urbanica,* and *Osmia sp.*; Orthoptera, *Trimerotropis sp.* (grasshopper); Odonata, *Pantala hymenaea*; Neuroptera, *Chrysopa sp.,* and *Brachynemurus sp.*

The overall pattern of insect occurrence is one of an extremely depauperate arthropod fauna. Not only is species richness low, but densities are low as well. Prior work in the upper Santa

TABLE 4-2

Toland Canyon Ground Dwelling Arthropods Found in Pitfall Traps Summarized for Two Traps Set out at Two Stations in 1997

	Stations 1, 2		Stations 3, 4		Total
Date	July 2	July 26	July 2	July 26	
COLEOPTERA **Tenebrionidae** Coniotus sp	1	3			4
Eleodes acuticauda		2			2
Genus sp. 1 (small sp)	1				1
Carabidae Carabus ruficolis	3	1			4
Amara maculicolla	2				2
Pterostichuis sp.				1	1
Scarabidae Serica sp.	2				2
Ptiniidae Ptinus fur	2				2
Elateridae Genus, sp. 1 (Small)	1	1			2
Curculionidae Trigonoscuta sp. 1				1	1
Staphylinidae Genus sp. 1 micro	1			1	2
DIPTERA, Sarcophagidae Genus sp. 1 small	1	7		1	9
Genus sp. 2 medium	3	5		3	11
Genus sp. 3 large	1	2		1	4

TABLE 4-2

Toland Canyon Ground Dwelling Arthropods Found in Pitfall Traps Summarized for Two Traps Set out at Two Stations in 1997

	Station	1, 2	Station	3, 4	Total
Calliphoridae		1			1
Phalenicia sp					
Anthomyidae	2	8	14	9	33
Genus sp. 1 yellow wbd base					
Therevidae				1	1
Theriva sp. 1					
HYMENOPTERA Formicidae	18	36			54
Camponotis sp.					
	12		6	2	20
Formica sp.					
	2	3		3	8
Pheidole sp.					
			3	3	6
Crematogaster sp.					
	121	161	72	40	394
Conomyrmex sp.					
			1	1	2
Monomorium sp.					
Chrysididae		1	1	1	3
Genus sp. very small					
Mutillidae			1	2	3
Sphaeropthalma sp 1					
		2	3	2	7
Sphaeropthalma sp 2					
Halictidae				2	2
Lasioglossum sp.					
Pompiliidae			1	1	2
Genus sp. 1 large black					
			1		1
Genus sp. 2 small black					
Vespidae				2	2
Vespula sp.					

TABLE 4-2

Toland Canyon Ground Dwelling Arthropods Found in Pitfall Traps Summarized for Two Traps Set out at Two Stations in 1997

	Station	1, 2	Station	3, 4	Total
DERMAPTERA, Forficulidae Forficula	5				5
ORTHOPTERA, Gryllidae Gryllus sp. 1large	1	2	6	4	13
Myrmecophilus sp		1			1
Stenopalmatidae Stenopalmatus sp.			1		1
Rhaphidophorida Ceuthophilus sp.	6	2	5	4	17
HEMIPTERA, Geocoris sp	1			1	2
Pryyhoceridae Largus sp	1	2	1	8	12
Largidae Largus sp				1	1
Lygaeidae Lygaeus sp				1	1
HOMOPTERA, Cicadellidae Genus sp. 1 fat, light brown	1				1
Genus sp. 2 med, dark		1			1
THYSANURA, Machildae Genus sp.		2			2
ARACHNIDA SOLFUGIDA Eremobates sp	8	6	1	1	16
ARANAE Paractonus silvastrii		1		1	2
Thomasidae Xysticus sp.	1			1	2
Lycosidae Lycosa sp	1		4	2	7
Clubionidae Genus sp. red abdomen	1				11

TABLE 4-2

Toland Canyon Ground Dwelling Arthropods Found in Pitfall Traps Summarized for Two Traps Set out at Two Stations in 1997

	Station	1, 2	Station	3, 4	Total
Pholcidae			1	2	3
Gnaphosidae				1	1
ACARI Trombididae Genus sp. 1 red long legs		3		39	42
***CRUSTACEA* ISOPODA** Armadillidium vulgare.	1	1			2
Porcillio laevis	1				1
Alloniscus sp	1		1		2
***CHILOPODA*Geophilomorphidae** Genus sp.				2	2

Table 5-1

Trap Results for Toland Road Landfill, 11-14 June 1997

Trap Line Location	Number of Traps	Results
Burned (1996) non-native grassland, grading into rocky coastal sage scrub vegetation 200 feet north of the northern boundary of the landfill property	20 traps	12 June - no captures 13 June - no captures 14 June - no captures
Disturbed rocky ravine containing burned (1996) coastal sage scrub along each side of landfill	19 traps	12 June - *Neotoma lepida* (1 adult female; 1 adult male) 13 June - 0 14 June - *Neotoma lepida* (1 adult female, recapture)
Burned (1976) coastal sage scrub/grassland adjacent to dirt access road along southeast side of landfill	20 traps	12 June - *Peromyscus maniculatus* (1 subad. male) 13 June - no captures 14 June - no captures
Unburned coastal sage scrub adjacent to dirt access road along west side of landfill	20 traps	12 June - no captures 13 June - *Neotoma lepida* (1 adult female) 14 June - *Neotoma lepida* (1 subad female)
Total	79 traps (237 trap-nights)	5 captures (2.1% trap-success)

San Diego desert woodrats were found in two traplines. No little pocket mice were found. Trap results are summarized in Table 5-1. The low trap results may be related either to the hot weather or to the 1996 fire which burned a large area, including most of the landfill site.

5.2.2 Los Angeles little pocket mouse. The Los Angeles little pocket mouse (*Perognathus longimembris brevinasus*) is a U.S. Fish and Wildlife Service Species of Concern (former Category 2 Candidate Species) (USFWS, 1991; 1996) and California Department of Fish and Game State Species of Special Concern (CDFG, 1991). Williams (1986) assigned this subspecies the highest priority of protection due to the destruction of most of its habitat in the Los Angeles Basin. Historically, this subspecies of the little pocket mouse was restricted to lower elevation grasslands and coastal sage scrub in the Los Angeles Basin from about San Fernando east to Hemet and Aguana, and probably south to the Hollywood Hills (Williams, 1986). Suitable habitat occurs throughout the Santa Clara River watershed and Simi Valley, however this subspecies has not been collected or observed west of San Fernando in the San Fernando Valley (1932 LACM specimen record.).

There is almost no information regarding the natural history of this subspecies. Grinnel (1933) suggested that the habitat requirement of *P. l. brevinasus* included open ground with soils composed of fine sands. This taxon likely inhabits open coastal sage scrub, grassland, and ruderal vegetation in areas with relatively loose soils for burrowing. Studies of other subspecies of the little pocket mouse have revealed a breeding season from April through June with most young being born during late spring and early summer, and an apparent period of surface inactivity extending from December through February (Erickson, 1992).

The project area contains suitable open coastal sage scrub and grassland habitat for this subspecies, especially since the fire in 1996 burned most of the site and opened up these scrub habitats. Soils within the main portions of the site may be limiting, as these tend to be dense, with a high proportion of silts and clays. O'Leary Canyon and its associated watershed, as well as the unnamed watershed south of the present landfill and east of the main access road, contain abundant coarse sands derived from eroding sandstone bedrock, as well as suitable vegetation. However, to date this species has not been found outside of the Los Angeles Basin and San Fernando Valley.

5.2.3 Other Sensitive Species

Although they were not found during the earlier field surveys, four other sensitive species have a moderate to high potential for occurring at the project site because of the presence of suitable habitat and their known occurrence in the vicinity of the site. These taxa have the same degree of protection under the California Department of Fish and Game and U.S. Fish and Wildlife regulations as the San Diego desert woodrat, and include:

- silvery legless lizard (*Anniella pulchra pulchra*)
- coastal western whiptail (*Cnemidophorus tigris multiscutatus*)
- coast patch-nosed snake (*Salvadora hexalepis virgultea*)

- San Diego black-tailed jackrabbit (*Lepus californicus bennetti*)

All these species have habitat requirements similar to the San Diego woodrat: coastal sage scrub, scalebroom scrub, and rocky grassland. As a consequence, steps proposed above for protection of the woodrat habitat should reduce impacts to these species as well.

5.3 Conclusions and Recommendations

Based on the results of the survey and historical evidence, it is unlikely that the project site provides habitat for the Los Angeles little pocket mouse. Alternatively, the trapping has demonstrated the presence of the desert woodrat. Impacts could include both direct and indirect mortality. Direct mortality could occur during land clearing activities while indirect mortality could result from the elimination of coastal sage scrub and rocky grassland habitat.

Measures to offset these impacts should include:

- habitat preservation and enhancement of degraded scrub habitats along the western portions of the landfill property, including O'Leary Canyon and the unnamed drainage that occupies the southern portion of the site.

- protection and enhancement of the small springs/seeps that occur on the steep south-facing slopes along the north side of the landfill.

The details of habitat preservation and enhancement would be included in the Revegetation, Restoration, and Wildlife Habitat Enhancement Plan discussed in Section 2.3.

6.0 INVASIVE EXOTIC PLANT CONTROL PROGRAM

6.1 Introduction

The re-establishment of native plants is often strongly inhibited by competition with invasive exotic (non-native) plants. The "exotics" can eliminate "natives" by being better able to exploit the disturbed areas characteristic of the project site.

6.2 Discussion

To facilitate the re-establishment of native plants and to inhibit the take over of invasive, exotic species, the eradication/control plan outlined in Table 6-1 should be implemented.

Table 6-1
Invasive, Exotic Plant Control Plan

Plant	Method	Timing
Giant reed (*Arundo donax*) Caster bean (*Ricinus communis*) Tree tobacco (*nicotinana glauca*)	Cut to height of 12 inches, apply Roundup to cut surfaces	Anytime
Sweet fennel (*Foeniculum vulgare*)	Cut seed-bearing stems prior to seed maturation, or if seeds are mature, the heads should be *bagged then cut for off-site* disposal, apply Roundup to cut surfaces	Anytime, early spring before seed maturation is best.
Russian thistle (*Salsola* spp.) Star thistle (*Centaurea solstitialis*) Italian thistle (*C. pycnocephalus*) other thistles, mustards (*Brassica* spp.) and other invasive herbaceous species	Apply Roundup to the entire plant	Early summer, prior to seed development

In addition, to facilitate the re-establishment of the native communities, a comprehensive Revegetation, Restoration, and Wildlife Habitat Enhancement Plan should be prepared by a wildlife biologist in collaboration with a qualified botanist. The plan should include specific instruction for restoration and Revegetation of the landfill sites as they are filled and closed, as well as a detailed plan for the enhancement of existing wildlife habitat. This enhancement would include the elimination and control of non-native, invasive vegetation as discussed in Table 6-1 and the planting of native tree and shrub species. Wildlife habitat surrounding the boarders of the existing and expanded landfill site, as well as the undisturbed habitats associated with the O'Leary Canyon watershed west and south of the landfill, can provide mitigation targets to offset impacts caused by landfill activities.

6.3 Conclusions and Recommendations

With the implementation of the exotic plant controls and the development of a detailed Revegetation, Restoration, and Wildlife Habitat Enhancement Plan, the re-establishment of native vegetation disturbed by the landfill activities should be maximized and the long-term impact to the ecology of the area should be minimized.

7.0 LITERATURE CITED

Aspen Environmental Group. 1993. Pacific Pipeline Project: Biological Assessment, Proposed Coastal Route, Tech. Appendix 1. Prepared for the California Public Utilities Commission, Sacramento.

Ballmer and Pratt, 1992. Quantification of ant attendance of Lycaenid larvae. Jr. Res. Lepid. 30:95-112

CDFG (California Department of Fish and Game). 1991. California Department of Fish and Game Natural Diversity Data Base (NDDB). Special Animals, August 1991.

Erickson, R.A. 1992. Pacific pocket mouse (*Perognathus longimembris pacificus*). In: Rodent Specialist Group of the Special Survival Commission/IUCN.IUCH, Gland, Switzerland.

Grinnel, J. 1933. Review of the recent mammal fauna of California. Univ. Calif. Publ. Zoology, 40:71-284.

Hall, E.R. 1981. Mammals of North America. 2 vols. Roland Press, New York.

MacMillen, R.E. 1964. Population ecology, water relations, and social behavior of the southern California semi-desert rodent fauna. Univ. Calif. Publ. Zoology, 17:1-66.

Meserve, P.L. 1974. Ecological relationships of two sympatric woodrats in a California coastal sage scrub community. J. Mammalogy 55(2):442-447.

Schwartz, O.A. and V.C. Bleich. 1975. Comparative growth in two species of woodrats, *Neotoma lepida intermedia* and *Neotoma albigula venusta*. J. Mammalogy 56(3):653-666.

USFWS (U.S. Fish and Wildlife Service). 1991. Endangered and threatened Wildlife and Plants; Animal Candidate review for listing as Endangered or Threatened species, Proposed Rule. 50 CFR, part 17. Federal Register 56(225):58804-58836.

Williams, D. 1986. Mammalian Species of Special Concern in California. California Department of Fish and Game, Wildlife Div. Admin. Rept., 86-1,112pp.