

PLANT LIFE

Baldwin Hills Project

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by

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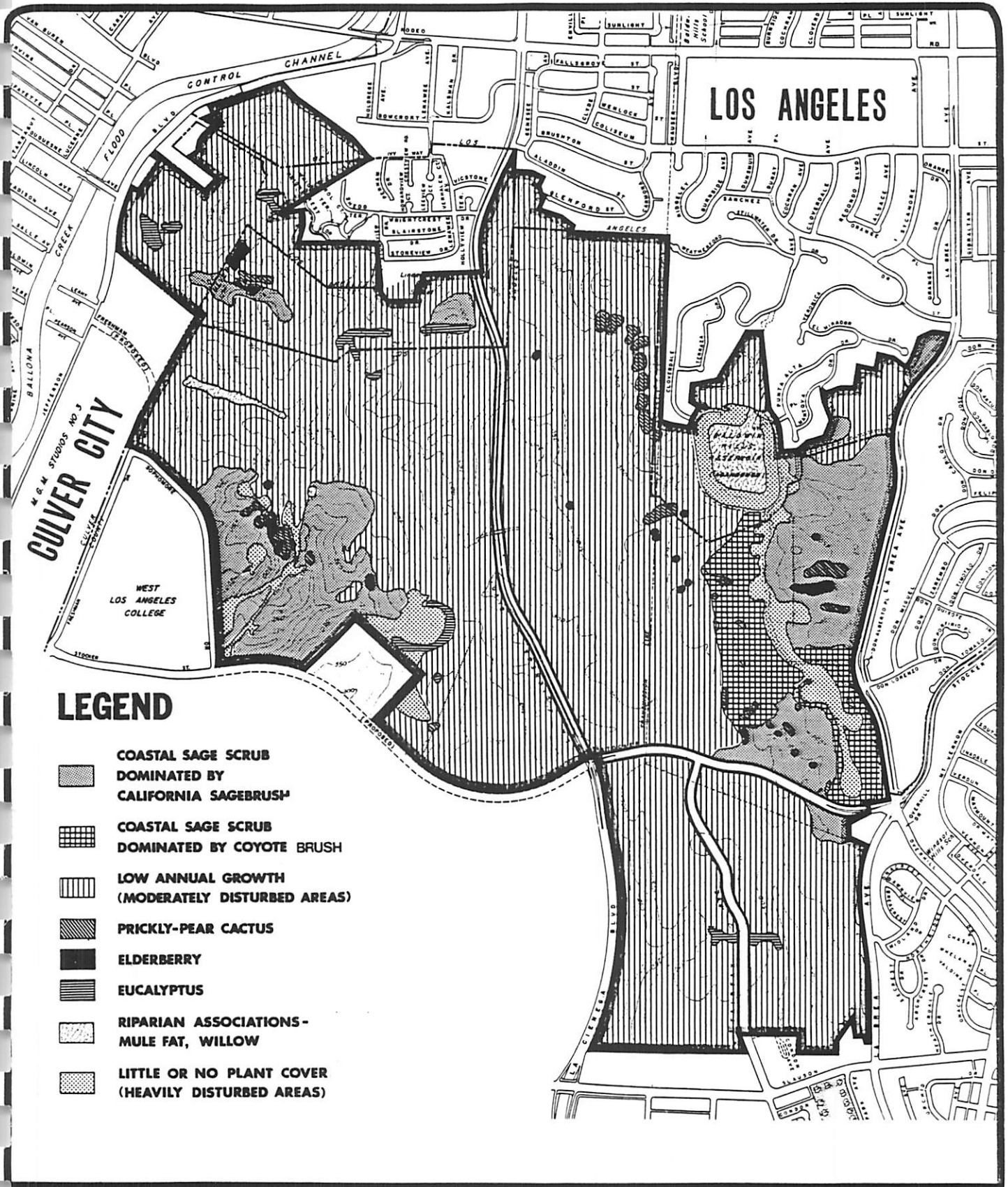
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


INTRODUCTION

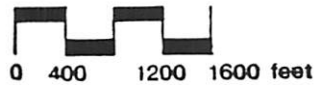
A list of individual plant species present in the Baldwin Hills was compiled by the biologists of Whittier Narrows Nature Center of the Los Angeles County Department of Parks and Recreation. The project area was studied by walking and driving all three areas. Many species samples were collected and taken into the lab for determination. This survey, conducted in later winter-early spring months (February through April 1977), added many annual species to the lists compiled in the previous surveys of January and August, 1975 (map VII-1).

To better understand the composition of the floral communities in the hills, plant transects were made in two areas: 1) the dense coastal sage scrub community of the eastern third of Site No. 2, and 2) the low annual grass-mustard habitat type of the more disturbed area in the western third of Site No. 1. These plant transect lines coincided with the mammal trapping lines to provide data useful in defining small mammal habitat preferences. The plant transects at Site No. 2 consisted of twenty individual 10-meter (33-foot) line transects set out at 90-degree angles to the mammal trapping line every ten paces along the line (see dotted line - "Vegetation" map for placement). Each 10-meter (33-foot) transect was placed on alternate sides of the main line. A single 10-meter (33-foot) transect was made on a firebreak within the scrub community. Each plant encountered was measured as the length of the plant covered by a vertical projection of the transect line. Measurements were made with metric tapes to the nearest centimeter.



LEGEND

-  COASTAL SAGE SCRUB DOMINATED BY CALIFORNIA SAGEBRUSH
-  COASTAL SAGE SCRUB DOMINATED BY COYOTE BRUSH
-  LOW ANNUAL GROWTH (MODERATELY DISTURBED AREAS)
-  PRICKLY-PEAR CACTUS
-  ELDERBERRY
-  EUCALYPTUS
-  RIPARIAN ASSOCIATIONS - MULE FAT, WILLOW
-  LITTLE OR NO PLANT COVER (HEAVILY DISTURBED AREAS)



VEGETATION

BALDWIN HILLS PROJECT

MAP VII-1

The transects made at Site No. 1 were conducted in identical fashion except that only ten transects of 10 meters (33 feet) each were made. Measurements were recorded on field data sheets and calculations made back in the lab to determine for each species: per plant, percent frequency, abundance, dominance, and total percent cover for the entire transect. All transects were carried out on March 22, 23 and 24, 1977.

Scientific names used throughout the report are from Munz (1974). Common names used are from Munz or Abrams (1960).

TERRESTRIAL FLORA

A total of 131 species of plants belonging to 50 families were identified from the Baldwin Hills during our surveys. Of these, 28 species belonging to 23 families are considered as ornamentals intentionally planted in the area. The remaining 103 species are native or naturalized introductions reproducing in the wild (table VII-1).

Communities

The floral communities in the Baldwin Hills are in a condition best described as a "disclimax", that is an unnatural plant community induced artificially by man and not a component of the natural successional changes characteristic of the area. The dominant natural vegetation remaining has elements of the coastal sage scrub community, more specifically, the maritime sage scrub community, as defined by Thorne (1976). Thorne describes this community as follows:

TABLE VII - 1 - CHECKLIST OF PLANTS - BALDWIN HILLS

Key to abundance: 1 = a dominant plant in several areas
 2 = a very common plant though not dominant
 3 = common but scattered throughout sites
 4 = uncommon; a few individuals present or found in few areas
 5 = rare; one or two plants present

ESTIMATED ABUNDANCE	SCIENTIFIC NAME	COMMON NAME	FAMILY	SITE		
				I	II	III
3	<u>Ambrosia psilostachya</u> var. <u>californica?</u>	western ragweed	ASTERACEAE	X	X	
4	<u>Anagalis arvensis</u>	pimpernel	PRIMULACEAE	X		
1	<u>Artemisia californica</u>	California sagebrush	ASTERACEAE	X	X	X
4	<u>Artemisia douglasiana</u>	mugwort	ASTERACEAE	X	X	X
4	<u>Astragalus</u> sp.	locoweed	FABACEAE		X	
4	<u>Atriplex semibaccata</u>	Australian saltbush	CHENOPODIACEAE	X		
3	<u>Avena fatua</u>	wild oat	POACEAE	X	X	
3	<u>Baccharis glutinosa</u>	mulefat	ASTERACEAE	X	X	X
1	<u>Baccharis pilularis</u> ssp. <u>consanguinea</u>	coyote brush	ASTERACEAE	X	X	X
1	<u>Brassica nigra</u>	black mustard	BRASSICACEAE	X	X	X
1	<u>Brassica rapa</u> ssp. <u>sylvestris</u>	field mustard	BRASSICACEAE	X	X	X
2	<u>Bromus diandrus</u>	ripgutgrass	POACEAE	X	X	
4	<u>Bromus mollis</u>	soft chess	POACEAE	X		
1	<u>Bromus rubens</u>	red brome	POACEAE	X	X	X
3	<u>Bromus</u> sp.	brome	POACEAE	X	X	
3	<u>Calystegia macrostegia?</u>	morning-glory	CONVOLVULACEAE	X	X	
4	<u>Camissonia bistorta</u>	sun cup	ONAGRACEAE	X		
2	<u>Centaurea melitensis</u>	star thistle	ASTERACEAE	X	X	
3	<u>Chenopodium</u> sp.	goosefoot	CHENOPODIACEAE	X	X	

ESTIMATED ABUNDANCE	SCIENTIFIC NAME	COMMON NAME	FAMILY	SITE		
				I	II	III
4	<u>Chloragalum pomeridianum</u>	soap plant	LILIACEAE		X	
3	<u>Conium maculatum</u>	poison hemlock	APIACEAE		X	
4	<u>Cotula coronopifolia</u>	brass buttons	ASTERACEAE		X	
2	<u>Crassula erecta</u>	pigmy weed	CRASSULACEAE	X	X	X
3	<u>Croton californicus</u>	croton	EUPHORBIACEAE	X	X	
4	<u>Cucurbita foetidissima</u>	calabazilla	CUCURBITACEAE	X	X	
4	<u>Datura meteloides</u>	jimsonweed	SOLANACEAE	X	X	
4	<u>Dichelostemma pulchella</u>	blue dicks	AMARYLLIDACEAE		X	
3	<u>Elymus condensatus</u>	giant rye grass	POACEAE	X	X	
1	<u>Encelia californica</u>	California encelia	ASTERACEAE	X	X	X
4	<u>Eremocarpus setigerus</u>	turkey mullein	EUPHORBIACEAE	X	X	X
3	<u>Erigeron foliosus?</u>	fleabane	ASTERACEAE	X	X	
3	<u>Eriogonum elongatum</u>	long-stemmed buckwheat	POLYGONACEAE	X	X	
4	<u>Eriogonum fasciculatum</u>	wild buckwheat	POLYGONACEAE	X		
1	<u>Erodium botrys</u>	long-beaked storksbill	GERANIACEAE	X	X	
1	<u>Erodium cicutarium</u>	filaree	GERANIACEAE	X	X	X
3	<u>Euphorbia albomarginata</u>	rattlesnake weed	EUPHORBIACEAE	X	X	X
4	<u>Euphorbia sp.</u>	spurge	EUPHORBIACEAE	X		
2	<u>Foeniculum vulgare</u>	sweet-fennel	APIACEAE	X	X	X
2	<u>Galium angustifolium?</u>	narrow-leaved bedstraw	RUBIACEAE		X	
4	<u>Galium aparine</u>	bedstraw, cleavers	RUBIACEAE		X	
3	<u>Gnaphalium bicolor</u>	Bioletti's cudweed	ASTERACEAE	X	X	X
3	<u>Gnaphalium sp.</u>	cudweed	ASTERACEAE	X	X	
4	<u>Haplopappus pinifolius</u>	pine goldenbush	ASTERACEAE	X	X	
4	<u>Haplopappus venetus ssp. vernonioides</u>	coastal goldenbush	ASTERACEAE	X		
3	<u>Helianthus annuus</u>	common sunflower	ASTERACEAE	X	X	X

TABLE VII - 1 - CHECKLIST OF PLANTS - CONTINUED

ESTIMATED ABUNDANCE	SCIENTIFIC NAME	COMMON NAME	FAMILY	SITE		
				I	II	III
2	<u>Hemizonia ramosissima</u>	slender tarweed	ASTERACEAE	X	X	X
4	<u>Heteromeles arbutifolia</u>	toyon	ROSACEAE	X	X	
2	<u>Heterotheca grandiflora</u>	telegraph weed	ASTERACEAE	X	X	X
3	<u>Hordeum leporinum</u>	hare barley	POACEAE	X	X	X
4	<u>Juglans californica</u>	California black walnut	JUGLANDACEAE		X	
4	<u>Lamarckia aurea</u>	goldentop	POACEAE	X		
4	<u>Lobularia maritima</u>	sweet alyssum	BRASSICACEAE	X	X	
3	<u>Lolium sp.</u>	annual ryegrass	POACEAE	X	X	
4	<u>Lotus purshianus</u>	Spanish clover	FABACEAE	X		
2	<u>Lotus scoparius</u>	deerweed	FABACEAE	X	X	
4	<u>Lotus strigosus</u>	strigose lotus	FABACEAE		X	
4	<u>Lupinus hirsutissimus</u>	nettle annual lupine	FABACEAE	X		
4	<u>Lupinus longifolius</u>	bush lupine	FABACEAE	X	X	
4	<u>Lupinus succulentus</u>	succulent annual lupine	FABACEAE	X		
2	<u>Malacothrix saxatilis</u> var. <u>tenuifolia</u>	cliff malacothrix	ASTERACEAE	X	X	X
3	<u>Marah macrocarpus</u>	bigroot	CUCURBITACEAE	X	X	
2	<u>Marrubium vulgare</u>	horehound	LAMIACEAE	X	X	X
4	<u>Melilotus sp.</u>	sweet-clover	FABACEAE	X	X	
4	<u>Mirabilis californica</u> var. <u>californica</u>	wishbone bush	NYCTAGINACEAE		X	
2	<u>Nicotiana glauca</u>	tree tobacco	SOLANACEAE	X	X	X
2	<u>Opuntia littoralis</u>	prickly-pear cactus	CACTACEAE	X	X	X
5	<u>Opuntia oricola?</u>	coast prickly-pear	CACTACEAE	X		
3	<u>Pennisetum setaceum</u>	fountaingrass	POACEAE	X	X	
3	<u>Phacelia ramosissima</u>	branching phacelia	HYDROPHYLLACEAE	X	X	
3	<u>Picris echioides</u>	ox-tongue	ASTERACEAE	X	X	X
4	<u>Pisum sativum</u>	garden pea	FABACEAE		X	

TABLE VII - 1 - CHECKLIST OF PLANTS - CONTINUED

ESTIMATED ABUNDANCE	SCIENTIFIC NAME	COMMON NAME	FAMILY	SITE		
				I	II	III
5	<u>Pityrogramma triangularis</u>	goldenback fern	PTERIDACEAE		X	
5	<u>Polypogon monspeliensis</u>	rabbitfoot grass	POACEAE		X	
5	<u>Populus fremontii</u>	Fremont cottonwood	SALICACEAE	X		
5	<u>Prunus lyonii</u>	catalina cherry	ROSACEAE		X	
5	<u>Quercus agrifolia</u>	coast live oak	FAGACEAE		X	
3	<u>Raphanus sativus</u>	wild radish	BRASSICACEAE	X	X	X
5	<u>Rhus laurina</u>	laurel sumac	ANACARDIACEAE	X		
5	<u>Rhus ovata</u>	sugar bush	ANACARDIACEAE	X		
2	<u>Ricinus communis</u>	castor bean	EUPHORBIACEAE	X	X	X
4	<u>Rosa californica?</u>	California wild rose	ROSACEAE	X		
5	<u>Rubus ursinus?</u>	wild blackberry	ROSACEAE	X		
4	<u>Rumex hymenosepalus</u>	canaigre, wild rhubarb	POLYGONACEAE	X	X	
5	<u>Salix hindsiana</u>	sandbar willow	SALICACEAE		X	
4	<u>Salix lasiolepis</u>	arroyo willow	SALICACEAE	X	X	X
3	<u>Salsola iberica</u>	Russian-thistle	CHENOPODIACEAE	X	X	X
5	<u>Salvia mellifera</u>	black sage	LAMIACEAE	X	X	
3	<u>Sambucus mexicana</u>	elderberry	CAPRIFOLIACEAE	X	X	
3	<u>Schismus barbatus</u>	schismus grass	POACEAE	X	X	X
4	<u>Silene gallica</u>	catchfly	CARYOPHYLLACEAE	X		
3	<u>Silybum marianum</u>	milk thistle	ASTERACEAE	X	X	
4	<u>Sisyrinchium bellum</u>	blue-eyed grass	IRIDACEAE	X		
5	<u>Solanum elaeagnifolium?</u>	silver-leaf-nettle	SOLANACEAE		X	
3	<u>Solanum douglasii</u>	Douglas nightshade	SOLANACEAE	X	X	
3	<u>Sonchus oleraceus</u>	sow-thistle	ASTERACEAE	X	X	X
4	<u>Stachys ajugoides</u>	hedge-nettle	LAMIACEAE		X	
4	<u>Toxicodendron diversilobum</u>	poison-oak	ANACARDIACEAE	X	X	

TABLE VII - 1 - CHECKLIST OF PLANTS - CONTINUED

ESTIMATED ABUNDANCE	SCIENTIFIC NAME	COMMON NAME	FAMILY	SITE		
				I	II	III
4	<u>Urtica holosericea</u>	stinging nettle	URTICACEAE		X	
3	<u>Verbascum thapsus</u>	common mullein	SCROPHULARIACEAE	X	X	
4	<u>Verbena ramosissima</u>	verbena	VERBENACEAE		X	
4	<u>Viola</u> sp.	violet	VIOLACEAE		X	
4	<u>Vitis girdiana</u>	wild grape	VITACEAE	X		
4	<u>Xanthium strumarium</u>	cocklebur	ASTERACEAE	X	X	X

Note: Several additional grasses (POACEAE) were not identified.

ORNAMENTALS

5	<u>Acacia</u> sp.	Acacia	FABACEAE	X		
5	<u>Aeonium</u> sp.	stonecrop	CRASSULACEAE	X		
4	<u>Agave</u> sp.	agave	AGAVACEAE	X		X
4	<u>Carpobrotus edulis</u>	hottentot-fig	AIZOACEAE	X	X	X
4	<u>Ceratonia siliqua</u>	carob tree	FABACEAE	X		
4	<u>Chrysanthemem coronarium</u>	garland chrysanthemum	ASTERACEAE	X	X	
5	<u>Citrus sinensis</u>	orange tree	RUTACEAE	X		
3	<u>Cortadera atacamensis</u>	pampasgrass	POACEAE	X	X	
5	<u>Crassula argentea</u>	jade plant	CRASSULACEAE	X	X	
5	<u>Cupressus</u> sp.	cypress	CUPRESSACEAE	X		
3	<u>Eucalyptus</u> sp.	eucalyptus	MYRTACEAE	X	X	X
5	<u>Hedera helix</u>	English ivy	ARALIACEAE	X		
5	<u>Hibiscus</u> sp.	hibiscus	MALVACEAE	X		X
5	<u>Lantana</u> sp.	lantana	VERBENACEAE	X		
5	<u>Ligustrum texanum</u>	privet	OLEACEAE	X		

ORNAMENTALS - Continued

<u>ESTIMATED ABUNDANCE</u>	<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>FAMILY</u>	<u>SITE</u>		
				<u>I</u>	<u>II</u>	<u>III</u>
4	<u>Nerium oleander</u>	oleander	APOCYNACEAE	X	X	X
4	<u>Oxalis pes-caprae</u>	Bermuda buttercup	OXALIDACEAE	X		
5	<u>Pelargonium sp.</u>	geranium	GERANIACEAE	X		X
5	<u>Persea americana</u>	avocado	LAURACEAE	X		
4	<u>Phoenix sp.</u>	fan palm	ARECACEAE	X		
4	<u>Pinus sp.</u>	pine	PINACEAE	X	X	X
5	<u>Portulaca sp.</u>	portulaca	PORTULACACEAE	X		
5	<u>Prunus persica</u>	peach tree	ROSACEAE	X		
5	<u>Rosa sp.</u>	rose	ROSACEAE	X		
5	<u>Senecio angulatus</u>	Kennelworth ivy	ASTERACEAE	X	X	
5	<u>Solandra hartwegii</u>	cup-o-gold bush	SOLANACEAE	X		
5	<u>Spartium junceum</u>	Spanish broom	FABACEAE		X	
4	<u>Tropaeolum majus</u>	garden nasturtium	TROPAEOLACEAE		X	

"Probably richest in species because most favorable in environmental conditions is the coastal sage scrub on the islands and along the immediate coast covering hills tops and slopes." The more common or characteristic shrubs are listed below with an asterisk by those found in the Baldwin Hills: California sagebrush (Artemisia californica)*, crossosoma (Crossosoma californica), bush monkeyflower (Displacus (=Mimulus) sp.)*, California encelia (Encelia californica)*, California buckwheat (Eriogonum fasciculatum fasciculatum)*, bedstraw (Galium sp.)*, Haplopappus (Haplopappus sp.)*, Helianthemum, deerweed (Lotus sp.)*, lupine (Lupinus sp.)*, bush mallow (Malacothamnus sp.), prickly-pear (Opuntia spp.)*, laurel sumac (Lalosma (=Rhus) laurina)*, lemonadeberry (Rhus integrifolia), sage (Salvia sp.)*, groundsel (Senecio sp.), nightshade (Solanum sp.)*, poison-oak (Toxicodendron diversilobum)*, big-root (Marah macrocarpus)*, morning-glory (Calystegia macrostegia)*, and many rather showy herbs like species of paintbrush (Castilleja), Haplopappus, deerwood, lupine, California fuchsia (Zauschneriasp.)*, and golden yarrow (Eriophyllum confertiflorum).

Many of the indicator plants for the maritime sage scrub community are present in very low numbers or in very few places in the hills. Examples would be California buckwheat, which is limited to a few stands, particularly on the west-facing slopes of Site No. 1; laurel sumac, present as a few plants, mainly at the northeast corner of Site No. 1 bordering La Cienega Blvd.; Haplopappus, found as a few shrubs of coastal goldenbush (Haplopappus venetus ssp.

vernonioides) and pine goldenbush (Haplopappus pinifolius) widely scattered in Sites No. 1 and 2.

On the other hand, those stands of shrubs on the slopes in the western third of Site No. 2 and a few places in Site No. 1, with the heaviest cover and appearing the least disturbed, are actually dominated by one or two species, namely California sagebrush and coyote brush (Baccharis pilularis var. consanguinea).

One other plant community, riparian woodland, has elements in the Baldwin Hills and should be considered a minor community. Riparian woodland was probably much more extensive in the past before human disturbance. Currently this community is limited to a few of the deeper, more shady canyon bottoms, usually on west-facing slopes, where rainfall runoff supports some arroyo willows (Salix lasiolepis), mulefat (Baccharis glutinosa), a single Fremont cottonwood (Populus fremontii), California blackberry (Rubus ursinus), and poison-oak. Toyon (Heteromeles arbutifolia) and elderberry (Sambucus mexicana) seem to associate with these canyons or slopes above them, but both are uncommon, with toyon restricted to several individuals in Sites No. 1 and 2.

Site No. 1: The northwestern portion of the hills, is dominated by the low shrubs which are now common through most of the Baldwin Hills where oil well operations and roads have not cleared away all vegetation. The slopes and ridges are covered with California sagebrush, coyote brush, California encelia, and prickly-pear cactus. The canyon bottoms have been invaded in many areas by such

introduced "weeds" as castor bean (Ricinus communis), milk thistle (Silybum marianum) and tree tobacco (Nicotiana glauca).

One area in the northwest corner of Site No. 1 contains several native plants which were not found anywhere else during the surveys. This small area consists mainly of one canyon and ridge. This canyon and one or two others contain a few remnant plants of riparian woodland community along the canyon bottoms. Areas in the immediate vicinity of oil wells and roads (actually much of the total area of Site No. 1) support only those introduced species which favor heavily disturbed soil. These are: tree tobacco, horehound (Marrubium vulgare), field mustard (Brassica rapa ssp. sylvestris), Russian-thistle (Salsola iberica) and castor bean.

Site No. 2: The northeastern portion of the hills, contains much of the same topography and plant types as Site No. 1, though the diversity of species is slightly lower. Oil operations and roads cover much of the southern half of the site and a large motorcycle area covering the northwest third of the site (between La Cienega and Baldwin Hills Reservoir) adds disturbance. These two areas reflect this heavy use in the low diversity of plants and the dominance of the same introduced "weedy" species as found in Site No. 1.

The eastern third of Site No. 2, consisting of canyons and ridges sloping eastward to La Brea Avenue, is dominated by low shrubs

of California sagebrush, coyote brush, California encelia, and prickly-pear cactus, with scattered plants of numerous species represented as subdominants. Several clumps of elderberry occur on the shadier north-facing slopes. This section appears to have sustained the least recent disturbance by man and, though dominated by dense cover of only a few shrub species, may be the most important wildlife and plant habitat in the Baldwin Hills.

Site No. 3: The most heavily-impacted by oil operations of the three sites surveyed. The very low diversity of plants found is directly illustrated by the plant list (table VII-1) for Site No. 3. This area contains little cover in the form of shrubs and many of the introduced plants such as castor bean, tree tobacco, milk thistle and field mustard.

Community Dynamics

A total of 310 meters (1,017 feet) in length of plant transects were made to determine the importance of plant species within each community. Transect 1 was made in the heavy growth of shrubs earlier labeled maritime sage shrub" along the east-facing slopes in the eastern third of Site No. 2 (map VII-1). Twenty transects of 10-meters (33-feet) each were made for a total of 200 meters (656 feet) measured. Results are presented in table VII-2. Seventeen species of plants were encountered in the transects in addition to several grasses combined for convenience. By far the dominant plant in this series of transects was California sagebrush with 79.5 percent cover. The next four plants in order of percent cover are: black mustard (Brassica nigra), 13.3%; giant rye grass

TABLE VII-2 - PLANT TRANSECT DATA FOR BALDWIN HILLS

Transect 1, Site II							
SPECIES	No. of individuals	Absolute cover (cm)	Percent cover	Average cover per plant or stand	Percent frequency	Abundance	Dominance
California sagebrush - <u>Artemisia californica</u>	176	15903	79.5	90.4	95	9.3	.795
black mustard - <u>Brassica nigra</u>	32	2655	13.3	83.0	65	2.5	.133
giant rye grass - <u>Elymus condensatus</u>	8	1603	8.0	200.4	30	1.3	.080
"grasses" - other stands	16	1530	7.7	95.6	40	2.0	.077
red brome - <u>Bromus rubens</u>	4	1019	5.1	254.8	10	2.0	.051
coyote brush - <u>Baccharis pilularis</u>	4	918	4.6	229.5	15	1.3	.046
narrow-leaved bedstraw - <u>Galium angustifolium</u>	13	525	2.6	40.4	30	2.2	.026
black sage - <u>Salvia mellifera</u>	1	417	2.1	----	--	----	----
prickly-pear cactus - <u>Opuntia littoralis</u>	4	223	1.1	55.8	5	4.0	.011
cliff malacothrix - <u>Malacothrix saxatilis</u>	6	210	1.1	35.0	20	1.5	.011
soap plant - <u>Chloragalum pomeridianum</u>	3	124	0.6	41.3	10	1.5	.006
star thistle - <u>Centaurea melitensis</u>	8	76	0.4	9.5	5	8.0	.004
sweet fennel - <u>Foeniculum vulgare</u>	1	36	0.2	---	--	---	----
filaree - <u>Erodium cicutarium</u>	7	34	0.2	4.9	10	3.5	.002
wild radish - <u>Raphanus sativus</u>	1	29	0.2	---	--	---	----
goosefoot - <u>Chenopodium</u> sp.	1	17	0.1	---	--	---	----
hedge-nettle - <u>Stachys adjugoides</u>	1	9	0.1	---	--	---	----
California fuchsia - <u>Zauschneria</u> sp.	1	4	0.02	---	--	---	----
			126.9				

Transect 2, Site II

SPECIES	No. of individuals	Absolute cover (cm)	Percent cover	Average cover per plant or stand	Percent frequency	Abundance	Dominance
red brome - <u>Bromus rubens</u>	19	373	37.3	19.6	--	---	.373
slender tarweed - <u>Hemizonia ramosissima</u>	44	159	15.9	3.6	--	---	.159
filaree - <u>Erodium cicutarium</u>	20	61	6.1	3.1	--	---	.061
schismus grass - <u>Schismus barbatus</u>	9	43	4.3	4.8	--	---	.043
black mustard - <u>Brassica nigra</u>	1	16	1.6	---	--	---	.016
pigmy weed - <u>Crassula erecta</u> (stand)	1	4	0.4	---	--	---	.004
			65.6				

Transect 3, Site I

wild oat - <u>Avena fatua</u> (stands)	11	1255	12.6	114.1	50	2.2	.126
black mustard - <u>Brassica nigra</u>	69	1148	11.5	16.6	70	9.9	.115
"grasses" - other stands	21	648	6.5	30.9	60	3.5	.065
sweet fennel - <u>Foeniculum vulgare</u> (stands)	12	543	5.4	45.3	40	3.0	.054
star thistle - <u>Centaurea melitensis</u>	35	345	3.5	9.9	40	8.8	.035
long-beaked storksbill - <u>Erodium botrys</u>	26	345	3.5	13.3	50	5.2	.035
red brome - <u>Bromus rubens</u> (stands)	8	300	3.0	37.5	30	2.7	.030
sow-thistle - <u>Sonchus oleraceus</u>	8	169	1.7	21.1	50	1.6	.017
California sagebrush - <u>Artemisia californica</u>	1	159	1.6	----	--	---	.016
cliff malacothrix - <u>Malacothrix saxatilis</u>	8	137	1.4	17.1	40	2.0	.014
ox-tongue - <u>Picris echioides</u>	10	70	0.7	7.0	60	1.7	.007
croton - <u>Croton californicus</u>	5	70	0.7	14.0	20	2.5	.007
Russian-thistle - <u>Salsola iberica</u>	11	66	0.7	6.0	20	5.5	.007
Douglas nightshade - <u>Solanum douglasii</u>	2	61	0.6	30.5	20	1.0	.006

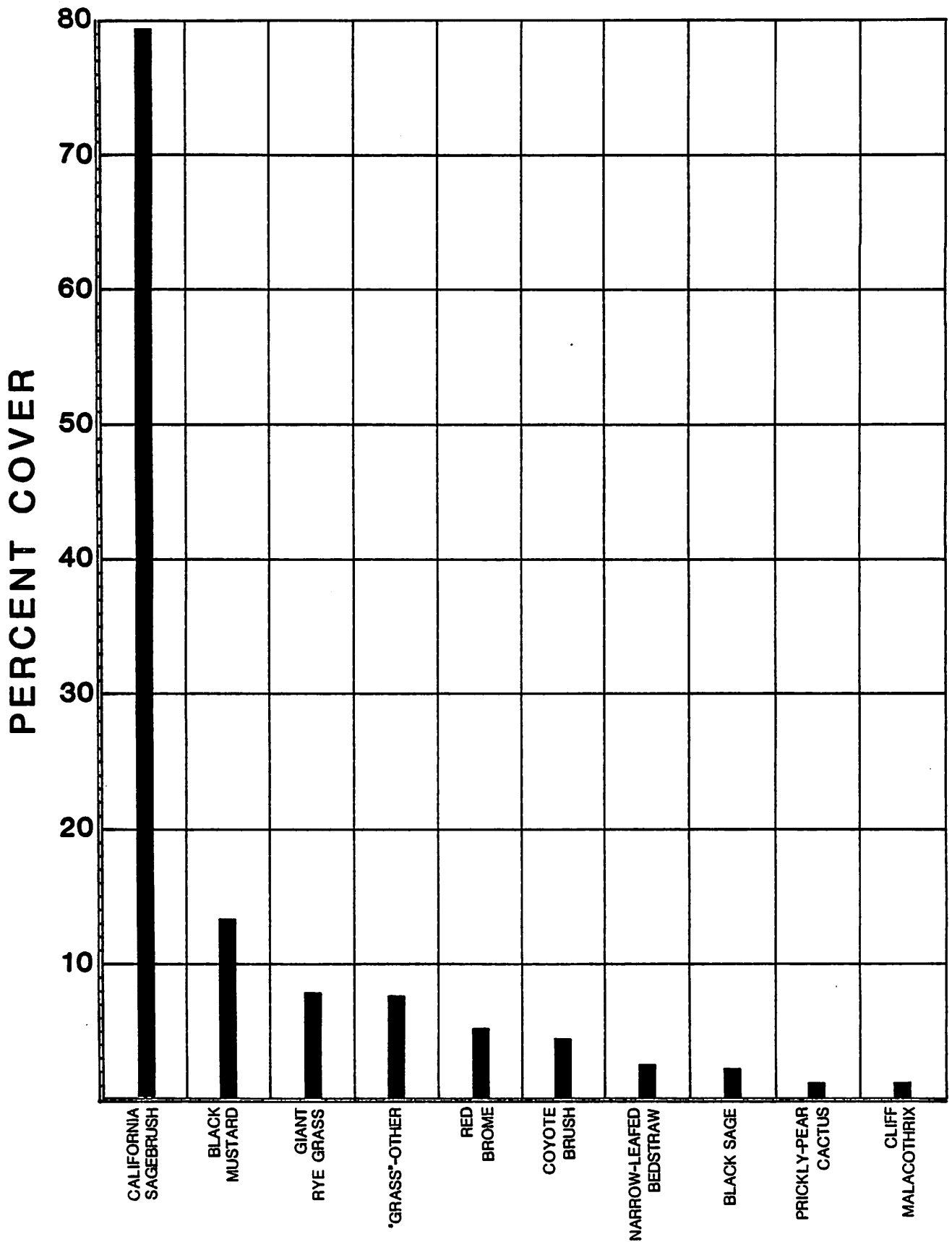
TABLE VII-2 - CONTINUED

Transect 3 - Site I (continued)								
SPECIES	No. of individuals	Absolute cover (cm)	Percent cover	Average cover per plant or stand	Percent frequency	Abundance	Dominance	
cocklebur - <u>Xanthium strumarium</u>	1	49	0.5	---	--	---	.005	
slender tarweed - <u>Hemizonia ramosissima</u>	12	32	0.3	2.7	20	6.0	.003	
coastal goldenbush - <u>Haplopappus venetus</u>	1	30	0.3	---	--	---	.003	
filaree - <u>Erodium cicutarium</u>	4	23	0.2	5.8	40	1.0	.002	
pimpernel - <u>Anagalis arvensis</u>	4	21	0.2	5.3	10	4.0	.002	
spurge - <u>Euphorbia</u> sp.	2	13	0.13	6.5	10	---	.001	
turkey mullein - <u>Eremocarpus setigerus</u>	1	10	0.10	---	--	---	.001	
goosefoot - <u>Chenopodium</u> sp.	1	6	0.06	---	--	---	.001	
catchfly - <u>Silene gallica</u>	1	4	0.04	---	--	---	.001	
sweet-clover - <u>Melilotus</u> sp.	1	3	0.03	---	--	---	.001	
			55.3					

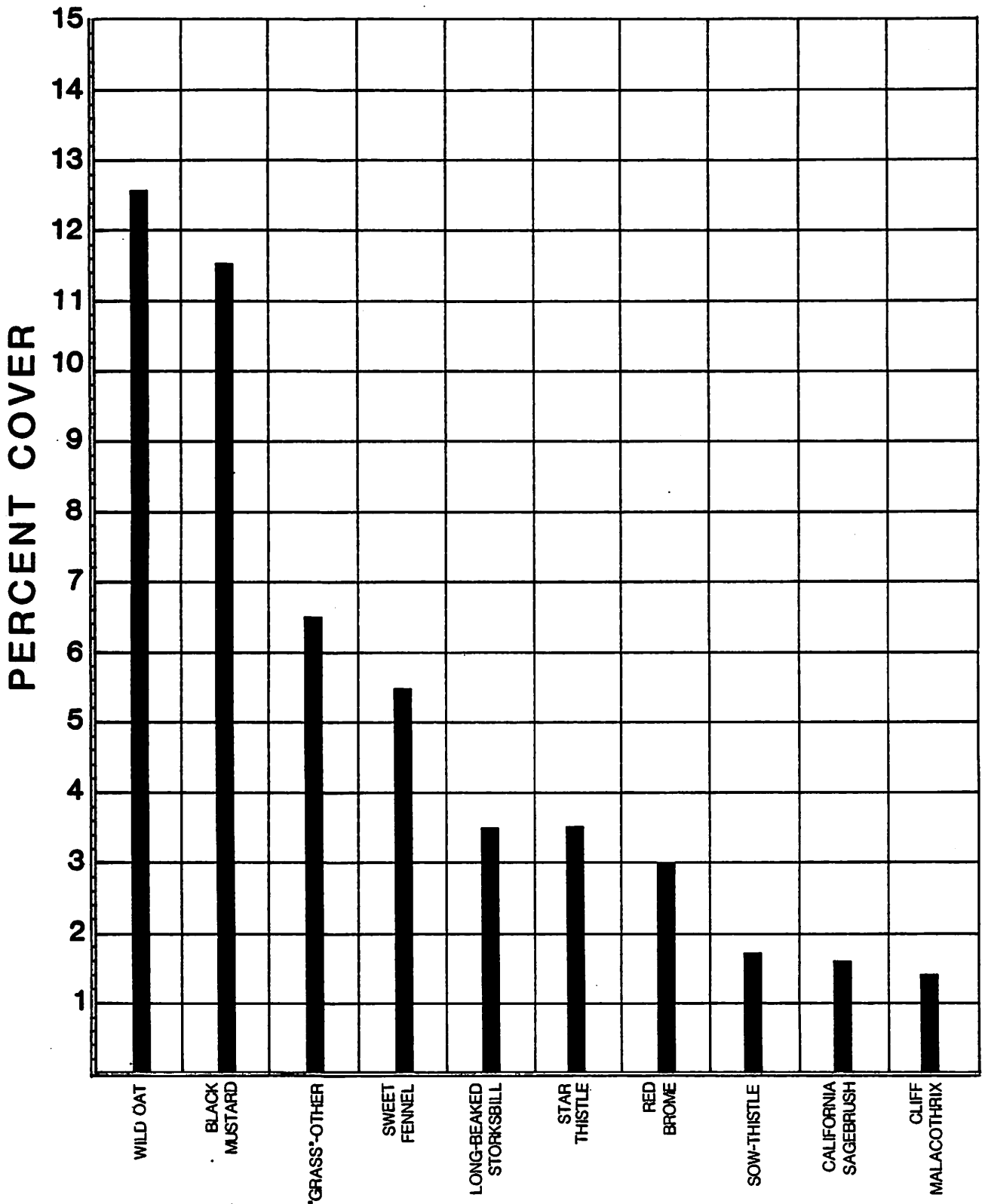
(Elymus condensatus), 8.0%; "grasses" -other, 7.7%; and red brome (Bromus rubens), 5.1%. The ten most dominant plants in terms of percent cover (including the above five) were plotted on a bar graph for comparison (graph VII-1). The total percent cover of vegetation for this community was 126.9%, indicating the dense and overlapping nature of the shrubs.

A single 10-meter (33-foot) transect fell entirely within a fire-break which bisected the scrub habitat, and though not an adequate sample quantitatively, was considered separately to indicate the unique association of plants in this modified zone. The results are presented in table VII-2 under "Transect 2", with six species recorded and shown as the dominant plant red brome with 37.3 percent cover. Total percent coverage of vegetation for the fire-break was 65.6%.

Transect 3 was made along the gentle west-facing slopes of the west side of Site No. 1, in habitat best described as "annual grass-black mustard" type which had been moderately disturbed. (map VII-1). Twenty-three species of plant plus additional immature grasses - combined as such - were recorded. Two introduced species dominate this habitat; wild oat (Avena fatua), 12.6 percent cover, and black mustard, 11.5 percent cover. The ten most dominant plants in terms of percent cover are plotted in graph VII-2. The total percent coverage of vegetation for this community was 55.3%.



GRAPH VII-1
MOUNTAIN SAGE SCRUB COMMUNITY
PERCENT COVERAGE OF 10 MOST DOMINANT PLANTS
(Transect 1, Site No. 2)



GRAPH VII-2
ANNUAL GRASS/BLACK MUSTARD COMMUNITY
PERCENT COVERAGE OF 10 MOST DOMINANT PLANTS
(Transect 3, Site 1)

Fire History:

There has been little documentation of the fire history of the project area. The lack of diversity in plant species and the almost impenetrable cover of California sagebrush and coyote brush in some areas. Quite a number of old and dead shrubs were noted. These may indicate the exclusion of natural fires. The fire suppression is desirable from an oil field operations standpoint. This lack of occasional fires, a natural occurrence in the pre-european history of coastal sage scrub and chaparral plant communities, may have allowed the remaining stands of scrub in the Baldwin Hills to become over-mature. As in many other areas in Southern California this over-growth of native chaparral increases the fire potential of an area. There is evidence of several recent spot brush fires, the latest of which occurred in September, 1982.

Historical Influences - Pristine Flora

The scarcity of several main indicator shrubs and dominance by only a few others strongly suggests that the entire Baldwin Hills area has been altered by human influence. The presence of many introduced "weedy" species throughout the three sites is a further indicator of plant community changes and soil disturbance. The more obvious disturbances are bulldozing for grading and fill connected with the oil operations in the past and present.

Rare and Endangered Plants

There are no federally listed rare or endangered plant species recorded for the Baldwin Hills. The California Native Plant Society has inventoried rare and endangered plants statewide (Powell,

1974). The plants listed below are all considered "Very Rare and Rare and Endangered" on this list and, while not found in the Baldwin Hills during the surveys, have ranges and habitat requirements which may include the Baldwin Hills.

- Braunton's locoweed (Astragalus brauntonii)
- Lyon's chaetopappa (Chaetopappa lyonii)
- Slender-horned chorizantho (Chorizantho leptoceras)
- San Fernando Valley chorizantho (Chorizantho parryi fernandina)
- Many-stemmed dudleya (Dudleya multicaulis)
- Los Angeles sunflower (Helianthus nuttallii ssp. parishii)
- California orcuttia (Orcuttia californica var. californica)
- Ballona cinquefoil (Potentilla multijuga) ("originally in brackist meadows, coastal sage scrub near Ballona, Los Angeles Co." Munz, 1974)

RECOMMENDATIONS

It is certain that additional surveys carried out over a period of several years would add some species to this list. This is particularly true for several grasses and for annuals present in low numbers. The three survey periods to date, however, including the months of January, February, March, April and August have covered the main growing and flowering season for the majority of the plants.

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