

APPENDIX C
Biological Survey of Proposed “Western Connector”
Trail Alignment
Spring 2023
Envicom Corporation



September 8, 2023

City of Agoura Hills
3000 Ladyface Court
Agoura Hills, CA 91301

Attn: Ms. Denice Thomas, Community Development Director

Subj: Biological Survey of Proposed “Western Connector” Trail Alignment, Spring 2023
Agoura Hills Recreation Center Trail Project (*Envicom Project #2020-185-01*)

Dear Ms. Thomas,

This report provides the results of a biological survey conducted by Envicom Corporation in Spring 2023 for rare plants and other biological constraints for a segment of the proposed Agoura Hills Recreation Center Trail, referred to herein as the “Western Connector.” The project site is in the foothills of the Santa Monica Mountains approximately 1/8th mile south of the intersection of Agoura Road and Reyes Adobe Road in the City of Agoura Hills.

METHODS

In preparation for the survey, a literature review was performed that included relevant lists and databases pertaining to the status and known occurrences of rare plant species and other special-status and sensitive biological resources. The following sources were among those reviewed prior to the survey or during preparation of this report:

- *Biogeographic Information and Observation System (BIOS)*, California Department of Fish and Wildlife (CDFW), data as of April 26, 2023;
- *California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California* report for the 7.5’ USGS Thousand Oaks quadrangle and adjacent quadrangles, CNPS, data as of April 26, 2023;
- *California Natural Communities List*, CDFW, June 1, 2023;
- *California Natural Diversity Database (CNDDDB) Rarefind 5* report for the 7.5’ United States Geological Survey (USGS) Thousand Oaks quadrangle and adjacent quadrangles, CDFW, data as of April 26, 2023;
- *List of Special Vascular Plants, Bryophytes, and Lichens*, CDFW, April 2023;
- *National Wetlands Inventory*, USFWS, data as of April 26, 2023;
- *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities*, CDFW, March 10, 2018; and,
- *United States Fish and Wildlife Service Critical Habitat Mapper*, United States Fish and Wildlife Service (USFWS), data as of April 26, 2023.

The survey was conducted by Jim Anderson, Principal Biologist, on the following dates and times and in the following conditions:



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- April 27, 2023 between the hours of 1:45 p.m. and 6:00 p.m. in warm and fair conditions (mid to upper 70s °F) with winds of 5 to 10 m.p.h.;
- May 30, 2023 between the hours of 2:45 p.m. and 4:30 p.m. in warm and cloudy conditions (mid-60s °F) with winds of 5 to 10 m.p.h.; and,
- June 14, 2023 between the hours of 2:00 p.m. and 4:00 p.m. in warm and cloudy conditions (mid-60s °F) with no winds.

The survey area included the proposed Western Connector trail alignment and a 50-foot buffer. The proposed trail alignment and survey area are shown on **Figure 1, Biological Constraints**, which is attached to this report.

The biological survey was performed by slowly walking transects across the site, which resulted in a thorough investigation of all plant communities and habitats within the survey area. An inventory of vascular plants observed was recorded, and all species identified to the taxonomic level necessary to determine their status. Vascular plant species determinations were made using Baldwin et al. (2012)¹ and Prigge & Gibson (2013).² Rare and sensitive plant community determinations were made using the *Manual of California Vegetation Online*³ and the *California Natural Communities List* (June 1, 2023).⁴

The extent of potential Army Corps of Engineers (ACOE), Regional Water Quality Control Board (RWQCB), and CDFW jurisdiction over the three streams that cross the survey area was also delineated during the survey. The delineation focused on the outward limits of agency jurisdiction; determining the presence and extent of any potential wetlands within the stream banks was not within the scope of the survey.

The presence of species in the oak genus *Quercus* that may be protected under the City’s oak tree ordinance (City Municipal Code Article IX Chapter 6 Part 2 Division 7 Section 9657) was also documented during the survey. However, determining whether individual oak trees or scrub oaks meet the necessary size thresholds for protection under the ordinance was outside the scope of the survey.

RESULTS

The survey area contains naturally occurring native and non-native habitats growing on sloped terrain and on rocky, volcanic clay loam soils at elevations ranging from approximately 1,000 to 1,130 feet. The generalized habitats within the survey area include annual grassland, coastal scrub, chaparral, three streams, volcanic rock outcrops, oak trees, a managed fuel modification zone, and a landscaped slope. Photos of the habitats along the proposed trail alignment are provided on **Plate 1, Photos 1A – 1E**. During the survey a total of 116 vascular plant species were found, including three (3) ferns and fern allies, 92 dicots, and 21 monocots. Of these, 94 species were native and 22 were non-native. A list of the vascular plant species identified during the survey is attached to this report.

¹ Baldwin, B. G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. *The Jepson manual: vascular plants of California, second edition*. University of California Press, Berkeley.

² Prigge, B. A. & Gibson, A. C., 2013. *A Naturalist’s Flora of the Santa Monica Mountains and Simi Hills, California*. http://www.smmflowers.org/bloom/UCLA_PDFs_Web.htm

³ California Native Plant Society. *Manual of California Vegetation Online*. <https://vegetation.cnps.org/>

⁴ California Department of Fish and Wildlife. June 1, 2023. *California Natural Communities List*. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153398&inline>

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Rare, Threatened, and Endangered Plant Species

One plant species considered to be rare, threatened, or endangered was found at the site during the survey, Agoura Hills dudleya (*Dudleya cymosa* ssp. *agourensis*). Agoura Hills dudleya is a perennial succulent herb in the stonecrop family (Crassulaceae), which grows on rocky, volcanic substrates at a restricted number of sites in the western Santa Monica Mountains. It is listed as Threatened under the Federal Endangered Species Act. A map showing the locations of this species is attached to this report (Figure 1). The species occurs on the east to west running band of shallow volcanic outcrops on the north-facing slope just north of the proposed trail alignment. There are an estimated 350 Agoura Hills dudleya plants within the survey area. The species does not occur along the proposed western connector trail alignment, but some of the plants are close to it. Other plant species growing in the same habitat along with the Agoura Hills dudleya include native mosses, lichens, and spikemoss (*Selaginella bigelovii*); native shrubs and herbs such as California buckwheat (*Eriogonum fasciculatum*), California aster (*Corythogyne filaginifolia*), pygmy weed (*Crassula conata*), angel’s gilia (*Gilia angelensis*), and blue grass (*Poa secunda*); and, non-native herbs such as red brome (*Bromus rubens*), rattail fescue (*Festuca myuros*), red-stemmed filaree (*Erodium cicutarium*), and goldentop grass (*Lamarckia aurea*). A representative photo of the Agoura Hills dudleya and its habitat are shown in **Photo 1F**.

California Rare Plant Rank (CRPR) 4 Species

One CRPR 4 plant occurs at the site, Catalina mariposa lily (*Calochortus catalinae*) [CRPR 4.2]. Catalina mariposa lily is a perennial bulbiferous herb in the lily family (Liliaceae), which occurs in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland in parts of coastal southern California. Catalina mariposa lily was found in low numbers in herbaceous habitats as well as along the margins of the chaparral and coastal scrub at a few locations at the site. This species is relatively common in suitable habitats in the region. CRPR 4 plants are not rare, but rather are included on a “watch list” of species with limited distribution, and they do not meet criteria for listing as Threatened or Endangered under the California Endangered Species Act. There may be a small number of Catalina mariposa lilies along the proposed trail alignment, particularly in the open scrub and annual grassland habitats, but due to their unprotected status these plants were not mapped during the survey.

Rare and Sensitive Natural Communities

The only rare or sensitive natural community within the survey area is the Bushy Spikemoss Herbaceous Alliance (*Selaginella bigelovii*). This is an herbaceous community dominated by spikemoss that typically occurs on relatively gentle to moderately sloping slabs of rock where thin soils have accumulated. Within the survey area, it occurs on the east to west running band of shallow volcanic outcrops on the north-facing slope to the north of the proposed trail alignment. Other plants found in this community include those listed above as growing along with the Agoura Hills dudleya. Rare and sensitive natural communities are assigned status ranks that indicate they are vulnerable in the State of California due to a restricted range and relatively few populations (often 80 or fewer), recent and widespread declines, or other factors. The Bushy Spikemoss Herbaceous Alliance receives a G4S3 rank and is therefore apparently secure globally but considered vulnerable within the State. Approximately 40 feet of the proposed trail alignment intersects this natural community.

Jurisdictional Waters and Habitat

Three streams flow in a generally south to north direction through the survey area. These streams are under the regulatory jurisdiction of the ACOE, RWQCB, and CDFW as waters of the United States, waters of the State, and riparian habitat. The western and central stream are intermittent and support riparian habitat, while

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the eastern stream is smaller and may only flow ephemerally. The two intermittent streams contained flowing water during the survey. The beds and banks of all three streams are generally rocky, and riparian habitat where it occurs along the two intermittent streams generally does not extend beyond the stream banks. The riparian habitat within the banks of the two intermittent streams includes native shrubs and herbs such as mulefat (*Baccharis salicifolia*), mugwort (*Artemisia douglasiana*), chaparral mallow (*Malacothamnus fasciculatus*), blue elderberry (*Sambucus mexicana*), creek monkey flower (*Erythranthe guttata*), California fuschia (*Epilobium canum* ssp. *canum*), and black sage (*Salvia mellifera*), and non-native herbs such as riggut brome (*Bromus diandrus*) and Italian thistle (*Carduus pycnocephalus*). The central and eastern streams intersect the proposed trail alignment, while the eastern bank of the westernmost stream is near the proposed trail alignment.

Oak Trees and Scrub Oaks

There are several scrub oaks (*Quercus berberifolia*), six valley oaks (*Quercus lobata*), and two coast live oaks (*Quercus agrifolia*) within the survey area. Scrub oaks, valley oaks, and coast live oaks that meet established size thresholds are protected by the City's oak tree ordinance. The locations of these oak trees and shrubs are shown on Figure 1. The trail alignment intersects the canopies of at least two scrub oaks and it is near the canopies of additional scrub oaks as well as the canopies of two coast live oaks and three valley oak trees. As stated, determining whether the oak trees or scrub oaks meet size thresholds to be protected under the ordinance was not within the scope of the survey. An arborist survey would be necessary to determine which of the oak trees and scrub oaks are of ordinance size at the site.

If you have further questions, please contact me at Envicom Corporation at (818) 879-4700.

Sincerely,



Jim Anderson
Principal Biologist

Attachments:

- Vascular Plants Observed
- Figure 1, Biological Constraints
- Plate 1, Representative Photos of Survey Area

Vascular Plants Observed
Agoura Hills Recreation Center Trail
“Western Connector”
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* indicates a non-native or introduced species

GROUP Family <i>Scientific Name</i>	Common Name
FERNS AND ALLIES	
Pteridaceae (Brake Family)	
<i>Pellaea andromedifolia</i>	coffee fern
<i>Pentagramma triangularis</i>	goldback fern
Selaginellaceae (Spike-moss Family)	
<i>Selaginella bigelovii</i>	Bigelow’s spike moss
FLOWERING PLANTS-DICOTS	
Adoxaceae (Muskroot Family)	
<i>Sambucus mexicana</i>	blue elderberry
Anacardiaceae (Sumac or Cashew Family)	
<i>Malosma laurina</i>	laurel sumac
<i>Rhus ovata</i>	sugar bush
<i>Toxicodendron diversilobum</i>	poison oak
Apiaceae (Carrot Family)	
<i>Apiastrum angustifolium</i>	wild celery
<i>Sanicula crassicaulis</i>	Pacific sanicle
Apocynaceae (Dogbane Family)	
<i>Asclepias fascicularis</i>	narrowleaf milkweed
Asteraceae (Sunflower family)	
<i>Artemisia californica</i>	California sagebrush
<i>Artemisia douglasiana</i>	mugwort
<i>Baccharis salicifolia</i>	mulefat
* <i>Carduus pycnocephalus</i>	Italian thistle
* <i>Centaurea melitensis</i>	toocalote
<i>Corethrogyne filaginifolia</i>	California aster
<i>Erigeron foliosus</i> var. <i>foliosus</i>	fleabane aster
<i>Eriophyllum confertiflorum</i>	golden yarrow
* <i>Helminthotheca echioides</i>	bristly ox-tongue
* <i>Lactuca serriola</i>	prickly lettuce
<i>Lasthenia gracilis</i>	common goldfields
<i>Logfia filaginoides</i>	California filago
<i>Malacothrix saxatilis</i>	cliff aster
<i>Micropus californicus</i> var. <i>californicus</i>	slender cottonseed
<i>Pseudognaphalium californicum</i>	California everlasting
<i>Rafinesquia californica</i>	California chicory
* <i>Senecio vulgaris</i>	common groundsel
<i>Stebbinsoseris heterocarpa</i>	grassland silver puffs
<i>Stylocline gnaphaloides</i>	everlasting neststraw

GROUP Family Scientific Name	Common Name
<i>*Taraxacum officinale</i>	common dandelion
<i>Uropappus lindleyi</i>	silver puffs
Boraginaceae (Borage or Waterleaf Family)	
<i>Amsinckia intermedia</i>	common fiddleneck
<i>Cryptantha clevelandii</i>	white popcorn flower
<i>Eucrypta chrysanthemifolia</i>	common eucrypta
<i>Pectocarya linearis</i> ssp. <i>ferocula</i>	slender pectocarya
<i>Phacelia cicutaria</i> var. <i>hispida</i>	caterpillar phacelia
<i>Pholistoma auritum</i>	blue fiesta flower
Brassicaceae (Mustard Family)	
<i>*Brassica nigra</i>	black mustard
<i>*Hirschfeldia incana</i>	hoary mustard
<i>Lepidium</i> sp.	peppergrass
<i>Thysanocarpus laciniatus</i>	narrowleaf fringe-pod
Caprifoliaceae (Honeysuckle Family)	
<i>Lonicera subspicata</i> var. <i>denudata</i>	chaparral honeysuckle
Caryophyllaceae (Pink Family)	
<i>*Cerastium glomeratum</i>	mouse-eared chickweed
<i>*Silene gallica</i>	windmill pink
Chenopodiaceae (Goosefoot Family)	
<i>Chenopodium californicum</i>	California goosefoot
Convolvulaceae (Morning-glory Family)	
<i>Calystegia macrostegia</i> ssp. <i>intermedia</i>	South Coast false bindweed
Crassulaceae (Stonecrop Family)	
<i>Crassula connata</i>	pygmy weed
<i>Dudleya cymosa</i> ssp. <i>agourensis</i> [FT, CRPR 1B.2]	Agoura Hills dudleya
<i>Dudleya lanceolata</i>	lanceleaf live-forever
Cucurbitaceae (Gourd Family)	
<i>Marah macrocarpa</i>	wild cucumber
Euphorbiaceae (Spurge Family)	
<i>Croton setigerus</i>	turkey mullein
Fabaceae (Legume Family)	
<i>Acmispon americanus</i> var. <i>americanus</i>	Spanish clover
<i>Acmispon glaber</i>	deerweed
<i>Lupinus bicolor</i>	dove lupine
<i>*Medicago polymorpha</i>	common bur clover
<i>*Melilotus indicus</i>	yellow sweet clover
<i>Trifolium willdenovii</i>	tomcat clover
Fagaceae (Oak Family)	
<i>Quercus berberidifolia</i>	scrub oak
<i>Quercus lobata</i>	valley oak
Geraniaceae (Geranium Family)	
<i>*Erodium botrys</i>	long-beaked filaree
<i>*Erodium cicutarium</i>	red-stemmed filaree

GROUP Family Scientific Name	Common Name
Grossulariaceae (Gooseberry Family)	
<i>Ribes</i> sp.	current
Lamiaceae (Mint Family)	
<i>Salvia leucophylla</i>	purple sage
<i>Salvia mellifera</i>	black sage
<i>Stachys albens</i>	white hedge nettle
<i>Trichostema lanceolatum</i>	vinegar weed
Malvaceae (Mallow Family)	
<i>Malacothamnus fasciculatus</i>	bush mallow
Montiaceae (Miner's Lettuce Family)	
<i>Claytonia perfoliata</i>	miner's lettuce
Nyctaginaceae (Four o'clock Family)	
<i>Mirabilis laevis</i> var. <i>crassifolia</i>	wishbone bush
Onagraceae (Evening-Primrose Family)	
<i>Clarkia epilobioides</i>	willow herb clarkia
<i>Clarkia purpurea</i>	purple clarkia
<i>Clarkia unguiculata</i>	elegant clarkia
<i>Epilobium canum</i> ssp. <i>canum</i>	California fuchsia
Orobanchaceae (Broomrape Family)	
<i>Castilleja affinis</i> ssp. <i>affinis</i>	Indian paintbrush
Paeoniaceae (Peony Family)	
<i>Paeonia californica</i>	California peony
Phrymaceae (Lopseed Family)	
<i>Diplacus aurantiacus</i>	bush monkey flower
<i>Erythranthe guttata</i>	creek monkey flower
Plantaginaceae (Plantain Family)	
<i>Collinsia heterophylla</i>	Chinese houses
Platanaceae (Sycamore Family)	
<i>Platanus racemosa</i>	western sycamore
Polemoniaceae (Phlox Family)	
<i>Gilia angelensis</i>	angel's gilia
<i>Linanthus dianthiflorus</i>	ground pink
<i>Microsteris gracilis</i>	slender phlox
Polygonaceae (Buckwheat Family)	
<i>Eriogonum fasciculatum</i>	California buckwheat
<i>Pterostegia drymarioides</i>	thread stem
Ranunculaceae (Buttercup Family)	
<i>Delphinium parryi</i> ssp. <i>parryi</i>	Parry's larkspur
Rhamnaceae (Buckthorn Family)	
<i>Rhamnus ilicifolia</i>	hollyleaf redberry
Rosaceae (Rose Family)	
<i>Adenostoma fasciculatum</i>	chamise
<i>Cercocarpus betuloides</i> var. <i>betuloides</i>	birchleaf mountain mahogany
<i>Heteromeles arbutifolia</i>	toyon

GROUP Family Scientific Name	Common Name
Rubiaceae (Madder Family)	
<i>Galium angustifolium</i> ssp. <i>angustifolium</i>	narrowleaf bedstraw
<i>Galium aparine</i>	annual bedstraw
<i>Galium nuttallii</i>	climbing bedstraw
Salicaceae (Willow Family)	
<i>Populus fremontii</i> ssp. <i>fremontii</i>	Fremont cottonwood
Solanaceae (Nightshade family)	
<i>Solanum xanti</i>	purple nightshade
Urticaceae (Nettle Family)	
<i>Parietaria hespera</i>	pellitory
FLOWERING PLANTS-MONOCOTS	
Agavaceae (Century Plant Family)	
<i>Chlorogalum pomeridianum</i>	wavyleaf soapplant
<i>Hesperoyucca whipplei</i>	chaparral yucca
Liliaceae (Lily Family)	
<i>Calochortus catalinae</i> [CRPR 4.2]	Catalina mariposa lily
<i>Calochortus clavatus</i> var. <i>pallidus</i>	yellow mariposa lily
<i>Calochortus venustus</i>	butterfly mariposa lily
Poaceae (Grass Family)	
* <i>Avena barbata</i>	slender wild oat
* <i>Avena fatua</i>	common wild oat
<i>Bromus carinatus</i> var. <i>carinatus</i>	California brome
* <i>Bromus diandrus</i>	rippgut brome
* <i>Bromus hordeaceus</i>	soft chess
* <i>Bromus rubens</i>	red brome
* <i>Ehrharta erecta</i>	upright veldt grass
<i>Elymus glaucus</i>	blue wildrye
* <i>Festuca myuros</i>	rattail fescue
<i>Festuca octoflora</i>	sixweeks grass
* <i>Lamarckia aurea</i>	goldentop
<i>Melica imperfecta</i>	coast melic grass
<i>Poa secunda</i>	bluegrass
<i>Stipa pulchra</i>	purple needlegrass
Themidaceae (Brodiaea Family)	
<i>Brodiaea terrestris</i> ssp. <i>kernensis</i>	terrestrial brodiaea
<i>Dipterostemon capitatus</i>	blue-dicks
FT = plant that is listed as Threatened under Federal Endangered Species Act CRPR = California Rare Plant Rank CRPR 1B.2 = plants that are rare, threatened, or endangered in California and elsewhere. CRPR 4 = a "watch list" for plants that are of limited distribution in California.	



Legend

- Survey Area
- Western Connector Trail Alignment
- Agoura Hills Recreation Trail Alignment
- Photo Locations
- Rare and Sensitive Natural Communities
- Bushy Spikemoss Alliance (*Selaginella bigelovii*) / Rock Outcrops
- Rare Plants
 - Agoura Hills dudleya (*Dudleya cymosa* ssp. *agourensis*) [FT, CRPR 1B.2]
- Oak Trees and Scrub Oak Habitat
 - Coast Live Oak (*Quercus agrifolia*)
 - Scrub Oaks (*Quercus berberidifolia*)
 - Valley Oak (*Quercus lobata*)
- Jurisdictional Delineation
 - ACDFE Waters of the U.S. / RINOCB Waters of the State
 - CDFW Riparian

FT - Listed as Threatened under Federal Endangered Species Act, California Rare Plant Rank (CRPR) 1B.2 - Plant that is rare, threatened, or endangered in California and elsewhere.

Source: Velux Imagery Services; Hexagon Imagery Program (MVP), 2020.

AGOURA HILLS RECREATION TRAIL WESTERN CONNECTOR - BIOLOGICAL SURVEY REPORT

Biological Constraints



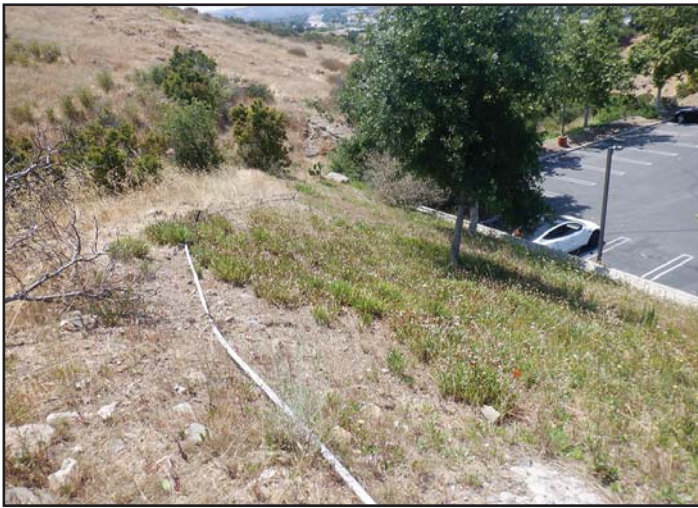


Photo 1A: View of the westernmost section of the proposed trail alignment. In this area the trail would run between native scrub habitats to the south and a landscaped slope to the north.



Photo 1B: The trail would run along the slope shown in this photo, which contains annual grassland subject to routine fuel reduction. The trail would then cross the intermittent stream in the center of the photo and climb the adjacent rocky slope.



Photo 1C: The trail would traverse the slope shown in this photo, which contains open chamise (*Adenostoma fasciculatum*) chaparral and annual grassland habitats, as well as areas of exposed volcanic bedrock.



Photo 1D: View of the location where the trail would cross an intermittent stream. The trail would pass through the more gradually sloped gap in the steep rocky bank of the stream. In this area, the stream supports some riparian habitat, such as mulefat (*Baccharis salicifolia*), mugwort (*Artemisia douglasiana*), and creek monkey flower (*Erythranthe guttata*).



Photo 1E: This photo shows the annual grassland habitat that occurs along much of the proposed trail alignment. The annual grassland is strongly dominated by non-native grasses such as wild oats (*Avena* spp.) and bromes (*Bromus* spp.), but it also contains a few native herbs. Scrub oak (*Quercus berberifolia*) habitat as well as a large valley oak (*Quercus lobata*) are also visible in the background.



Photo 1F: This photo is representative of the volcanic outcrops within the survey area that support a sensitive natural community with bushy spikemoss (*Selaginella bigelovii*) as well as other native and non-native herbs, including the federally Threatened Agoura Hills dudleya (*Dudleya cymosa* ssp. *agourensis*). A few blooming Agoura Hills dudleya plants, which have yellow flowers, are visible in the center of the photo.