



APPENDICES



APPENDIX A GPS LOCATIONS

Appendix A.1. Sensitive Plant Locations

Species	Location (Lat/Long)	Population Size	Notes	Date
<i>Acanthomintha ilicifolia</i>	N32°50.322', W116°52.160'	17		6/2/2010
<i>Artemisia palmeri</i>	N32°49.236', W116°52.650'	3		4/9/2010
<i>Artemisia palmeri</i>	N32°50.361', W116°51.020'	1		4/15/2010
<i>Artemisia palmeri</i>	N32°50.364', W116°51.024'	1		4/15/2010
<i>Artemisia palmeri</i>	N32°50.360', W116°51.025'	1		4/15/2010
<i>Artemisia palmeri</i>	N32°50.357', W116°51.024'	1		4/15/2010
<i>Bloomeria clevelandii</i>	N32°51.062', W116°49.478'	112		5/20/2010
<i>Bloomeria clevelandii</i>	N32°51.074', W116°49.483'	272	direct count	5/20/2010
<i>Bloomeria clevelandii</i>	N32°51.076', W116°49.471'	4	direct count	5/20/2010
<i>Bloomeria clevelandii</i>	N32°51.093', W116°49.443'	390	direct count	5/20/2010
<i>Bloomeria clevelandii</i>	N32°51.198', W116°49.470'	860	population estimate	5/20/2010
<i>Bloomeria clevelandii</i>	N32°51.236', W116°49.499'	70	population estimate	5/20/2010
<i>Bloomeria clevelandii</i>	N32°51.219', W116°49.487'	30	direct count	5/20/2010
<i>Bloomeria clevelandii</i>	N32°51.200', W116°49.470'	2550	direct count	5/20/2010
<i>Bloomeria clevelandii</i>	N32°51.181', W116°49.444'	100	population estimate	5/25/2010
<i>Bloomeria clevelandii</i>	N32°51.173', W116°49.415'	3000	population estimate	5/25/2010
			population estimate	
<i>Ceanothus cyaneus</i>	N32°50.185', W116°50.898'			5/6/2010
<i>Clarkia delicata</i>	N32°49.695', W116°51.524'	100+		4/15/2010
<i>Clarkia delicata</i>	N32°49.697', W116°51.524'	150	population estimate	4/15/2010
<i>Clarkia delicata</i>	N32°49.693', W116°51.514'	23	population estimate	4/15/2010
<i>Clarkia delicata</i>	N32°49.701', W116°51.526'	250	direct count	4/15/2010
			population estimate	
<i>Harpagonella palmeri</i>	N32°50.324', W116°52.116'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.327', W116°52.144'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.331', W116°52.148'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.344', W116°52.142'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.388', W116°52.061'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.397', W116°52.067'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.426', W116°52.199'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.429', W116°52.152'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.429', W116°52.196'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.434', W116°52.197'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.446', W116°52.204'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.452', W116°52.163'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.455', W116°52.158'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.455', W116°52.158'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.457', W116°52.160'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.461', W116°52.175'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.480', W116°52.141'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.483', W116°52.152'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.492', W116°52.162'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.494', W116°52.146'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.502', W116°52.134'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.517', W116°52.055'			4/7/2010

Appendix A.1. Sensitive Plant Locations

Species	Location (Lat/Long)	Population Size	Notes	Date
<i>Harpagonella palmeri</i>	N32°50.518', W116°52.041'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.538', W116°52.102'			4/7/2010
<i>Harpagonella palmeri</i>	N32°50.397'/W116°52.053'			4/14/2010
<i>Harpagonella palmeri</i>	N32°50.353'/W116°52.105'		dense	4/14/2010
<i>Harpagonella palmeri</i>	N32°50.354'/W116°52.104'		dense	4/14/2010
<i>Harpagonella palmeri</i>	N32°50.383'/W116°52.065'		dense	4/14/2010
<i>Harpagonella palmeri</i>	N32°50.440'/W116°51.924'		dense	4/14/2010
			scattered, southwest-facing slope	
<i>Harpagonella palmeri</i>	N32°50.397', W116°52.052'			5/5/2010
<i>Harpagonella palmeri</i>	N32°50.422', W116°51.923'	>100		5/5/2010
			population estimate	

Appendix A.2 - Invasive Plant Locations

Species	Location (Lat/Long)	Population Size	Notes	Date
<i>Arundo donax</i>	N32°50.571', W116°52.433'		Off site?	6/7/2010
<i>Brachypodium distachyon</i>	N32°50.391'/W116°52.052'	dense	Dense cover upslope of this point	4/14/2010
<i>Brachypodium distachyon</i>	N32°50.350', W116°52.022'	dense		5/12/2010
<i>Brachypodium distachyon</i>	N32°50.347', W116°52.013'	dense		5/12/2010
<i>Brachypodium distachyon</i>	N32°50.406', W116°51.872'			6/7/2010
<i>Erharta longiflora</i>	N32°51.253', W116°49.517'		Several large clumps	5/20/2010
<i>Erharta longiflora</i>	N32°51.180', W116°49.444'			5/20/2010
<i>Pennisetum setaceum</i>	N32°50.485', W116°52.012'	2		4/7/2010
<i>Pennisetum setaceum</i>	N32°50.416', W116°52.097'		15-20 plants above GPS point; dense on slope below GPS point	4/7/2010
<i>Pennisetum setaceum</i>	N32°50.435', W116°52.162'	7		4/7/2010
<i>Pennisetum setaceum</i>	N32°50.441'/W116°52.012'	7 to 10	Dense	4/14/2010
<i>Pennisetum setaceum</i>	N32°50.422'/W116°52.939'	ca. 25	Dense	4/14/2010
<i>Pennisetum setaceum</i>	N32°50.437'/W116°51.937'	1	Dense	4/14/2010
<i>Pennisetum setaceum</i>	N32°50.447'/W116°52.940'	25 to 30	Dense	4/14/2010
<i>Pennisetum setaceum</i>	N32°50.416'/W116°52.040'	16	Scattered, southwest-facing slope	4/14/2010
<i>Pennisetum setaceum</i>	N32°50.326', W116°52.096'	50-75		5/12/2010
<i>Pennisetum setaceum</i>	N32°50.441'/W116°52.012'	1		
<i>Pennisetum setaceum</i>	N32°50.356', W116°51.925'	6		
<i>Picris echioides</i>	N32°50.450', W116°52.042'		Small patch	4/7/2010
<i>Ricinus communis</i>	N32°50.571', W116°52.433'		Offsite?	6/7/2010

Appendix A.3 - Photomonitoring Point Locations

Species	Photomonitoring Point	Monument Marker Location	Landmark Point Location	Landmark Description
<i>Acanthomintha ilicifolia</i>	ACIL-1	N32°50.322', W116°52.160'	N32°50.306', W116°52.206'	<i>Artemisia californica</i> along fenceline between private property and the reserve (base of slope)
<i>Artemisia palmeri</i>	ARPA-1	N32°49.236', W116°52.647'		
<i>Artemisia palmeri</i>	ARPA-2	N32°49.315', W116°52.971'	N32°49.321', W116°52.984'	Oak
<i>Artemisia palmeri</i>	ARPA-3	N32°49.309', W116°52.944'	N32°49.312', W116°52.946'	Trail edge
			N32°49.304', W116°52.943'	Fence post
<i>Ceanothus cyaneus</i>	CECY-1	N32°50.294', W116°50.889'	N32°50.286', W116°50.907'	<i>Eriogonum fasciculatum</i>
			N32°50.293', W116°50.900'	<i>Sambucus mexicana</i>
			N32°50.292', W116°W50.891'	Small boulder
<i>Ceanothus cyaneus</i>	CECY-2	N32°50.347', W116°50.960'	N32°50.343', W116°50.979'	<i>Baccharis sarothroides</i>
			N32°50.344', W116°50.973'	<i>Sambucus mexicana</i>
<i>Ceanothus cyaneus</i>	CECY-3	N32°50.361', W116°51.022'	N32°50.362', W116°51.020'	Trail
			N32°50.366', W116°51.022'	<i>Malosma laurina</i>
			N32°50.367', W116°51.023'	<i>Rumex crispus</i>
<i>Ceanothus cyaneus</i>	CECY-4	N32°50.439', W116°51.359'	N32°50.431', W116°51.365'	<i>Rhus ovata</i>
			N32°50.432', W116°51.363'	Small boulder
<i>Ceanothus cyaneus</i>	CECY-5	N32°50.763', W116°50.080'	N32°50.762', W116°50.079'	Trail
<i>Ceanothus cyaneus</i>	CECY-6	N32°50.806', W116°50.270'	N32°50.795', W116°50.250'	Flat boulder
			N32°50.803', W116°50.251'	<i>Sambucus mexicana</i>
<i>Ceanothus cyaneus</i>	CECY-7	N32°50.762', W116°50.341'	N32°50.760', W116°50.347'	Trail edge
			N32°50.758', W116°50.344'	Boulder
<i>Ceanothus cyaneus</i>	CECY-8	N32°51.057', W116°49.359'	N32°51.053, W116°49.373'	Road edge
			N32°51.050', W116°49.379	Lichen-covered rock
<i>Horkelia truncata</i>	HOTR-1	N32°50.760', W116°50.347'	N32°50.758', W116°50.344'	Boulder



APPENDIX B CNDDDB FORMS

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 06/02/2010

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Acanthomintha ilicifolia*

Common Name: San Diego thornmint

Species Found? ☒ Yes ☐ No If not, why? _____

Total No. Individuals 17 Subsequent Visit? ☐ yes ☐ no

Is this an existing NDDDB occurrence? ☐ no ☒ unk.
Yes, Occ. # _____

Collection? If yes: _____
Number Museum / Herbarium

Reporter: Patricia Gordon-Reedy

Address: 10830 Woodstream Point
San Diego, CA 92131

E-mail Address: pgordonreedy@consbio.org

Phone: (858) 547-9801

Plant Information

Phenology: 20% vegetative 80% flowering _____% fruiting

Animal Information

adults # juveniles # larvae # egg masses # unknown
☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

Crestridge Ecological Reserve, west-facing slope directly west of Rios Canyon Road ('Thornmint Hill') and opposite Ruis Road.

County: San Diego Landowner / Mgr.: CDFG/Endangered Habitats Conservancy

Quad Name: Alpine Elevation: ca. 1,000'

T 15 S R 1 E Sec 27, SE 1/4 of NW 1/4, Meridian: H ☐ M ☐ S ☐ Source of Coordinates (GPS, topo. map & type): GPS, topo

T _____ R _____ Sec _____, _____ 1/4 of _____ 1/4, Meridian: H ☐ M ☐ S ☐ GPS Make & Model Earthmate GPS PN-20

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☒ Horizontal Accuracy + or - 10 m meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☒ OR Geographic (Latitude & Longitude) ☐

Coordinates: N32°50.322', W116°52.160'

Habitat Description (plants & animals) plant communities, dominants, associates, substrates/soils, aspects/slope:

Animal Behavior (Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):

Open area in Diegan coastal sage scrub; associated species = *Bromus madritensis*, *Deinandra fasciculata*, *Centaurea melitensis*, *Plantago virginica*, *Calystegia macrostegia* (seedling); dominant shrubs adjacent to opening = *Malosma laurina*, *Salvia apiana*, *Artemisia californica*, *Rhamnus crocea*, *Eriogonum fasciculatum*; soil = clay loam; aspect/slope = west-facing slope, ca. 40-45°.
Thornmint-occupied habitat is ca. 1 m wide (north-south) & 1.8 m long (east-west) in open area. Plants are in bloom, but not all buds are open; plants are 2-4 inches (5-10 cm) high.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☒ Fair ☐ Poor

Immediate AND surrounding land use: Little-used trail skirts the population; homes and Rios Elementary School are directly west and nw of site.

Visible disturbances: Some soil surface disturbance; nonnative species.

Threats: Direct disturbance (trail), nonnative species, fire.

Comments: Site burned in 2003 Cedar Fire; this locality represents the 1st observation of thornmint on CER since 2003. *Brachypodium distachyon* has spread in extent since 2003 and dominates thornmint habitat upslope, but has not yet invaded at this location.

Determination: (check one or more, and fill in blanks)

- ☒ Keyed (cite reference): The Jepson Manual
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☒ Other: Familiarity with species

Photographs: (check one or more)

	Slide	Print	Digital
Plant / animal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Habitat	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Diagnostic feature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

May we obtain duplicates at our expense? yes ☒ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811

Fax: (916) 324-0475 email: CNDDDB@dfg.ca.gov

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 05/20/2010

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Bloomeria clevelandii*

Common Name: San Diego goldenstar

Species Found? ☒ Yes ☐ No If not, why? _____

Total No. Individuals ca. 2,000* Subsequent Visit? ☐ yes ☐ no

Is this an existing NDDDB occurrence? ☐ no ☐ unk.
Yes, Occ. # _____

Collection? If yes: _____
Number _____ Museum / Herbarium _____

Reporter: Patricia Gordon-Reedy

Address: 10830 Woodstream Point
San Diego, CA 92131

E-mail Address: pgordonreedy@consbio.org

Phone: (858) 547-9801

Plant Information

Phenology: _____% vegetative 25% flowering 75% fruiting

Animal Information

adults ☐ # juveniles ☐ # larvae ☐ # egg masses ☐ # unknown ☐
wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other ☐

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

Crestridge Ecological Reserve; east end of reserve, west of Bullard Road. Note: population also extends offsite to the east and southeast.

County: San Diego Landowner / Mgr.: CDFG/Endangered Habitats Conservancy; private

Quad Name: Alpine Elevation: ca. 1410'

T 15S R 2E Sec 24, SE ¼ of NE ¼, Meridian: ☐ H ☐ M ☐ S ☐ Source of Coordinates (GPS, topo. map & type): GPS, topo

T 15S R 2E Sec 19, NW ¼ of SW ¼, Meridian: ☐ H ☐ M ☐ S ☐ GPS Make & Model Earthmate GPS PN-20

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☒ Horizontal Accuracy + or - 10 m meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☒ OR Geographic (Latitude & Longitude) ☐

Coordinates: N32°51.173, W116°49.415
Also, T15S, R2E, Section 19, SW 1/4 of NW1/4

Habitat Description (plants & animals) plant communities, dominants, associates, substrates/soils, aspects/slope:

Animal Behavior (Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):

Nonnative grassland with scattered *Quercus engelmannii*. Associated species: *Deinandra fasciculata*, *Nassella pulchra*, *Brodiaea jolonensis*, *Calycadenia tenella*, *Sidalcea malvaeflora*, *Clarkia purpurea*, *Eriodinium botrys*, *Silene gallica*, *Vulpia myuros*, *Bromus diandrus*, *Bromus mollis*, *Anagallis arvensis*, *Avena* sp., *Lolium* sp. Relatively level terrain with a slightly northeasterly aspect.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☒ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Adjacent to dirt road and abandoned structures; rural residential development to southeast.

Visible disturbances: Evidence of past grazing, although no cattle are currently present.

Threats: Nonnative species.

Comments: *2,000 plants noted above were on the reserve. It is estimated that another 7,000-8,000 plants occur just offsite, in open chaparral at the base of slopes and east of the north-south oriented dirt road.

Determination: (check one or more, and fill in blanks)

- ☒ Keyed (cite reference): The Jepson Manual
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☒ Other: familiarity with species

Photographs: (check one or more)

Slide ☐ Print ☐ Digital ☐
Plant / animal ☐ ☐ ☐
Habitat ☐ ☐ ☐
Diagnostic feature ☐ ☐ ☐

May we obtain duplicates at our expense? yes ☐ no ☐



APPENDIX C

PHOTOMONITORING LOGS

- Appendix C.1 - *Acanthomintha ilicifolia*
- Appendix C.2 - *Artemisia palmeri*
- Appendix C.3 - *Ceanothus cyaneus*
- Appendix C.4 - *Horkelia truncata*



Photograph Log Crestridge Ecological Reserve

Observer(s): Patricia Gordon-Reedy/Janet McDonald		Date of Observation: 06/02/2010	
Species: <i>Acanthomintha ilicifolia</i> (ACIL-1)		Camera: Canon Powershot G-5	Lens: unless otherwise noted, lens height is 1.37 m from ground
<p>Monument marker: <u>General location:</u> West-facing slope (lower slope of 'Thornmint Hill') directly west of Rios Canyon Road and opposite Ruis Road; direction from marker to rusty cattle feeder in yard below is 269°SW; Direction from marker to Eucalyptus tree and green treehouse is 231°SW.</p> <p><u>Specific location description:</u> Monument marker is at base of small rock with patch of lime green lichen on the top. <i>Salvia apiana</i> directly west of population; flat rock outcrop to south; <i>Malosma laurina</i> (flagged with blue flagging), <i>Artemisia californica</i>, and <i>Salvia apiana</i> to east; and <i>Rhamnus crocea</i> and several <i>Malosma laurina</i> to north.</p> <p><u>GPS coordinates (marker):</u> N32°50.322', W116°52.160'</p>			
<p>Landmark points:</p> <ol style="list-style-type: none"> 1) <i>Artemisia californica</i> along fenceline between private property and the reserve (base of slope); location = N32°50.306', W116°52.206'; direction from Landmark 1 to Landmark 2 (<i>Malosma laurina</i>) = 73°NE (no distance recorded) 2) <i>Malosma laurina</i> (blue flagging), located southeast of Monument Marker. Distance and direction from landmark (Mala) to marker is 2 m and 280°NW. Distance and direction from landmark to base of rock outcrop is 4.3 m and 200°SW; distance from landmark to <i>Salvia apiana</i> at west end of ACIL stand is 4.6 m and 244°SW. 			
Photo Number	From:	Toward:	Description:
1.1	NE of Landmark 1; Landmark 1 is ca. 3 m and 195°SW of photopoint	Landmark 1	<i>Artemisia californica</i> (Landmark 1) with fenceline and cattle feeder in background
1.2	Landmark 1	Landmark 2	General location of Landmark 2 and ACIL stand on slope
1.3	Photopoint is SW of Monument Marker; photopoint location = N32°50.315', W116°52.165'; direction to marker is 41°NE and ___ m	Monument Marker	Monument Marker and clipboard; ACIL habitat on left side of photo



1.4	Same photo location as 3, above	Monument Marker	Close up of Photo 3
1.5	Above Monument Marker	Monument Marker	Close up of Monument Marker and rock
1.6	Same photo location as 3, above; photo direction = 4°NE	ACIL	ACIL to left of pencil; ACIL habitat
1.7	Directly southwest of ACIL; photo direction is 31°NE	ACIL	ACIL and habitat; ACIL is in center of photo
1.8	Directly southwest of ACIL; photo direction is 31°NE	ACIL	Close up of ACIL
1.9	Directly southwest of ACIL; photo direction is 31°NE	ACIL	Close up of ACIL
1.10	Directly southwest of ACIL; photo direction is 31°NE	ACIL	Close up of ACIL
1.11	Directly southwest of ACIL; photo direction is 31°NE	ACIL	Close up of ACIL
1.12	Southwest of ACIL; photo direction is 36°NE	ACIL	ACIL stand is in opening to left of field assistant and above backpack
1.13	Aerial image, overhead	ACIL	Google map, showing approximate location of stand of ACIL

Additional Notes:

ACIL occupied habitat is ca. 1 m wide (north-south) and 1.8 m long (east-west) in open area. Plants are in bloom, but not all buds are open (est. about 80% flowering, 20% in bud, 0% in fruit; 2-4 inches high; 17 plants observed).

Associated species = *Bromus madritensis*, *Deinandra fasciculata*, *Centaurea melitensis*, *Plantago virginica*, *Calystegia macrostegia* (seedling), with bare ground.



ACIL-1.1. Landmark #1 (*Artemisia californica* along fenceline with cattle feeder in background).



ACIL-1.2. View from Landmark #1 to Landmark #2 (*Malsoma laurina* on hillside, just below darkest green shrub at top of hill).



ACIL-1.3. Monument Marker and clipboard, with ACIL occupied habitat in grassy area on left side of photo.



ACIL-1.4. Close up of clipboard (Monument Marker present at base of clipboard but not visible in photo).



ACIL-1.5. Close up of Monument Marker and lichen-covered rock.



ACIL-1.6. ACIL to left of pencil.



ACIL-1.7. Patch of ACIL in center of photo; Monument Marker (w/o rings) in bottom right-hand corner.



ACIL-1.8. ACIL (with *Bromus madritensis*, *Deinandra fasciculata*, and *Calystegia macrostegia*).



ACIL-1.9. Close up, ACIL (with *Bromus madritensis*, *Deinandra fasciculata*).



ACIL-1.10. Close up, ACIL (with *Bromus madritensis*, *Calystegia macrostegia*).



ACIL-1.11. Close up of ACIL (and ACIL-1.10).



ACIL-1.12. ACIL habitat in opening to left of field assistant and above black backpack. Landmark #2 (*Malosma laurina*) is in upper right-hand corner of photo.



ACIL-1.13. Location of ACIL stand on 2010 Google imagery.



Photograph Log Crestridge Ecological Reserve

Observer(s): Patricia Gordon-Reedy/Janet McDonald		Date of Observation: 4/9/2010	
Species: <i>Artemisia palmeri</i> (ARPA-1)		Camera: Canon Powershot G-5	Lens: unless otherwise noted, lens height is 1.37 m from ground
Monument marker: <u>General location:</u> Northeast of t-intersection of trails <u>Specific location description:</u> North of and at base of mulefat (<i>Baccharis glutinosa</i>) <u>GPS coordinates (marker):</u> N32°49.236 W116°52.647			
Landmark points: None			
Photo Number	From:	Toward:	Description:
ARPA-1.1	North of and adjacent to Monument Marker	Monument Marker	Close up of Monument Marker at base of <i>Baccharis glutinosa</i> (horizontal)
ARPA-1.2	Monument Marker	Monument Marker	Close up of Monument Marker
ARPA-1.3	North of Monument Marker	Monument Marker and trail intersection	Relationship of Monument Marker to trail intersection
ARPA-1.4	Photo location is 5 m, 228°SW from marker. Compass direction of photo is 32°NE from photo location.	<i>Artemisia palmeri</i>	Eroded trail; <i>Artemisia palmeri</i> to right in photo (lower, lighter green subshrubs in front of mulefat in drainage)
ARPA-1.5	Same photo location as 4; compass direction of photo is 10°NE from photo location.	<i>Artemisia palmeri</i>	Eroded trail; <i>Artemisia palmeri</i> to right in photo (lower, lighter green subshrubs in front of mulefat in drainage)
ARPA-1.6	Same photo location as 4; compass direction of photo is 30°NE from photo location.	<i>Artemisia palmeri</i>	Eroded trail; <i>Artemisia palmeri</i> to right in photo (lower, lighter green subshrubs in front



			of mulefat in drainage)
Additional Notes: Three additional plants were noted NE of 'T' intersection. GPS location = N32°49.236'; W116°52.650. These plants are away from the trail and drainage, so are not directly threatened by recreational activities or erosion. Not included in photos at ARPA-1 photo monitoring location.			



ARPA-1.1. Monument Marker at base of *Baccharis glutinosa*.



ARPA-1.2. Close-up of Monument Marker.



ARPA-1.3. Relationship of Monument Marker to trail intersection.



ARPA-1.4. *Artemisia palmeri* in middle of photo (to the right of eroded trail).



ARPA-1.5. *Artemisia palmeri* along right-center edge of photo.



ARPA-1.6. *Artemisia palmeri* in middle of photo.



Photograph Log Crestridge Ecological Reserve

Observer(s): Patricia Gordon-Reedy/Janet McDonald		Date of Observation: 4/9/2010	
Species: <i>Artemisia palmeri</i> (ARPA-2)		Camera: Canon Powershot G-5	Lens: unless otherwise noted, lens height is 1.37 m from ground
Monument marker: <u>General location:</u> North of trail on raised, grassy area; directly across from single stem coast live oak (<i>Quercus agrifolia</i>), which is on south side of trail; marker is 1.38 m from northern trail edge; direction from trail to marker is 65°NE. <u>Specific location description:</u> Disturbed, bowl-shaped grassy area north of trail. Associated species: <i>Bromus diandrus</i> , <i>Picris echinoides</i> , <i>Claytonia perfoliata</i> , <i>Amaranthus</i> sp.; adjacent shrubs: <i>Malosma laurina</i> , <i>Toxicodendron diversilobum</i> , <i>Ceanothus leucodermis</i> . Small boulders surround grassy area. <u>GPS coordinates (marker):</u> N32°49.315 W116°52.971			
Landmark points: Direction from marker to single stem coast live oak (which is directly across from marker on south side of trail) is 50°NE; distance from marker to oak is 61 m; GPS location of oak is N32°49.321 W116°52.984			
Photo Number	From:	Toward:	Description:
ARPA-2.1	Oak; compass direction of photo is 63°NE	Monument Marker	View of 'grassy' bowl-shaped area north of trail where Monument Marker is located
ARPA-2.2	Marker	Monument Marker	Closeup of Monument Marker sign
ARPA-2.3	Marker	Monument Marker	Close up of Monument Marker
ARPA-2.4	Trail (adjacent to oak) – compass direction of photo is 115°SE	Up (east) trail	<i>Artemisia palmeri</i> at right side of photo, along trail edge



ARPA-2.5	Trail (adjacent to oak) – compass direction of photo is 311°NW	Down (west) trail	<i>Artemisia palmeri</i> at left side of photo, along trail edge
ARPA-2.6	Marker; compass direction of photo is 142°SE from marker	<i>Artemisia palmeri</i> across the trail and southeast of marker	<i>Artemisia palmeri</i> at trail edge
ARPA-2.7	18.34 m from marker; GPS location = N32°49.350; W116°52.987 Compass direction of photo is 296°NW	Looking down trail	<i>Artemisia palmeri</i> to left in photo, at base of burned oak
ARPA-2.8	Marker; compass direction of photo is 296°SW from marker	<i>Artemisia palmeri</i> across the trail and southwest of marker	<i>Artemisia palmeri</i> at trail edge; closeup of Photo 7
ARPA-2.9	Photo location in #9; compass direction of photo is 270°W	<i>Artemisia palmeri</i> at trail edge	South side of trail
ARPA-2.10	Photo location in #9; compass direction of photo is 197°SW	<i>Artemisia palmeri</i> at trail edge and under <i>Malosma laurina</i> .	South side of trail
Additional Notes: None			



ARPA -2.1. Monument Marker.



ARPA -2.2. Monument Marker (close up).



ARPA-2.3. Monument Marker (close up).



ARPA-2.4. *Artemisia palmeri* along edge of trail, right side of photo.



ARPA-2.5. *Artemisia palmeri* along edge of trail, left side of photo.



ARPA-2.6. *Artemisia palmeri* at trail edge.



ARPA-2.7. *Artemisia palmeri* along edge of trail, left and left-center side of photo.



ARPA-2.8. Close up of photo 2.7; *Artemisia palmeri* along edge of trail and surrounding burned oak, left and left-center side of photo.



ARPA-2.9. *Artemisia palmeri* at edge of trail, south side of trail.



ARPA-2.10. *Artemisia palmeri* at edge of trail and under *Malosma laurina*, south side of trail.



Photograph Log Crestridge Ecological Reserve

Observer(s): Patricia Gordon-Reedy/Janet McDonald		Date of Observation: 4/9/2010	
Species: <i>Artemisia palmeri</i> (ARPA-3)		Camera: Canon Powershot G-5	Lens: unless otherwise noted, lens height is 1.37 m from ground
Monument marker: <u>General location:</u> Monument marker is located ca. 22.25 m west (down trail) from last oak tree (north of trail) in large oak grove and located in the raised grassy area north of the trail. <u>Specific location description:</u> Marker is located between large and small flat boulders and 2.15 m southeast of large boulder. Associated species = <i>Avena</i> sp., <i>Bromus mollis</i> , <i>Vulpia myuros</i> , <i>Dichelostemma pulchella</i> , and <i>Amsinckia</i> sp., with <i>Malosma laurina</i> and <i>Scrophularia californica</i> on adjacent rocks. <u>GPS coordinates (marker):</u> N32°49.309 W116°52.944			
Landmark points: 1) From edge of trail to marker: trail location is N32°49.312, W116°52.946; distance from trail point to marker is 3.25 m; direction from trail point to marker is 38°NE. 2) From rusty fence post to marker: fence post location is N32°49.304, W116°52.943; distance from fence post to marker is 2.73 m; direction from fence post to marker is 85°NE.			
Photo Number	From:	Toward:	Description:
ARPA-3.1	Monument Marker	Monument Marker	Close up of Monument Marker
ARPA-3.2	Marker	Monument Marker	Close up of Monument Marker
ARPA-3.3	Marker; compass direction of photo is 258° SW	<i>Artemisia palmeri</i>	<i>Artemisia palmeri</i> along south side of trail
ARPA-3.4	Marker; compass direction of photo is 170° SE	<i>Artemisia palmeri</i>	<i>Artemisia palmeri</i> under scrub oak along trail
ARPA-3.5	NE of marker; Photo taken 2.15 m from marker and 1.1 m off the ground; compass direction of photo is 265°SW	Monument Marker	Relationship of Monument Marker to fence post



ARPA-3.1. Monument Marker.



ARPA-3.2. Monument Marker (close up).



ARPA-3.3. *Artemisia palmeri*, along trail edge (south side of trail).



ARPA-3.4. *Artemisia palmeri* under scrub oak (*Quercus berberidifolia*), south side of trail.



ARPA-3.5. Relationship of Monument Marker to fencepost (for reference purposes).



Photograph Log Crestridge Ecological Reserve

Observer(s):		Date of Observation:	
Patricia Gordon-Reedy/Janet McDonald		04/15/10 (plots); 5/6/10 (photos)	
Species:		Camera:	Lens: unless otherwise noted, lens height is 1.37 m from ground
<i>Ceanothus cyaneus</i> (CECY-1)		Canon Powershot G-5	
Monument marker:			
<u>General location:</u> Base of west-facing slope and east of and above 'racetrack'; just west of CECY-1 population.			
<u>Specific location description:</u> Bare area between 2 boulders; <i>Adenostoma fasciculatum</i> adjacent to marker to the south (blue flag); <i>Calystegia macrostegia</i> between boulders to the north. West boulder is 7 dm and 287° NE of marker; east boulder is 4 cm and 117° NE of marker.			
<u>GPS coordinates (marker):</u> N32°50.294, W116°50.889			
Landmark points:			
<ol style="list-style-type: none"> 1) <i>Eriogonum fasciculatum</i> (blue flagging) at trail edge (eastern side of racetrack (N32°50.286, W116°50.907); 2) <i>Eriogonum fasciculatum</i> at edge of trail to <i>Sambucus mexicana</i>*: 14.3 m and 41°NE; 3) <i>Sambucus mexicana</i> (N32°50.293, W116°50.900; blue flagging on east side of <i>Sambucus</i>) to marker* = 23.3 m and 72°NE; 4) SE corner of small boulder face with horizontal and vertical fractures (N32°50.292, W116°W50.891) to marker = 5.5 m and 88°NE. 			
Blue flag and green flag at base of <i>Adenostoma fasciculatum</i> adjacent to marker; 1.3 dm and 34°NE from flag to marker			
*Note: distances measured from flagging to flagging			
Photo Number	From:	Toward:	Description:
CECY-1.1	NE of Monument Marker; Marker is 1.4 m and 224° SW of photo point	Monument Marker	Close up of Monument Marker and clipboard; vegetation pulled away to show marker
CECY-1.2	NE of Monument Marker; Marker is 1.4 m and 224° SW of photo point	Monument Marker	Close up of Monument Marker and clipboard; vegetation not pulled away
CECY-1.3	Monument Marker; photo direction is 14°N	<i>Ceanothus cyaneus</i>	CECY in middle of photo and on slopes in



			background
CECY-1.4	Monument Marker; Photo direction is 69°NE	<i>Ceanothus cyaneus</i>	Band of CECY in middle of photo
CECY-1.5	Monument Marker; Photo direction is 180°S	<i>Ceanothus cyaneus</i>	One individual (CECY) in foreground; no CECY in the rest of the photo
CECY-1.6	Monument Marker; Photo direction is 295°NW	<i>Ceanothus cyaneus</i>	One individual (CECY) at lower left corner of photo and another at right-center of photo; several CECY scattered in distance
CECY-1.7	Monument Marker; Photo direction is 257°SW	<i>Sambucus mexicana</i>	<i>Sambucus</i> in photo is same individual used as a landmark point (see #2 and 3, above)
CECY-1.8	New photo location (N32°50.297, W116°50.872); photo direction is 5°NE from photo location; distance from photo location to photo is 3 m	<i>Ceanothus cyaneus</i>	Field assistant in photo for height reference (f.a. is 5'7.5" tall).
CECY-1.9	No photo point		Close up of CECY in photo 7, above
Additional Notes: On 5/6/10: CECY phenology is about 65% flowering, 35% vegetative.			



CECY-1.1. Monument Marker.





CECY-1.3. *Ceanothus cyaneus* in middle of photo and on slopes in background.



CECY-1.4. *Ceanothus cyaneus* in middle of photo.



CECY-1.5. *Ceanothus cyaneus* at left edge of photo only.



CECY-1.6. *Ceanothus cyaneus* at left and right-center of photo and scattered on slopes in the background.



CECY-1.7. *Ceanothus cyaneus* in right-center of photo; landmark *Sambucus mexicana* at left-center.



CECY-1.8. Field Assistant (5'7.5") for height reference.



CECY-1.9. Close up of *Ceanothus cyaneus* in photo CECY-1.7, above.



Photograph Log Crestridge Ecological Reserve

Observer(s): Patricia Gordon-Reedy/Janet McDonald		Date of Observation: 04/15/10 (plots); 05/06/10 (photos)	
Species: <i>Ceanothus cyaneus</i> (CECY-2)		Camera: Canon Powershot G-5	Lens: unless otherwise noted, lens height is 1.37 m from ground
Monument marker: <u>General location:</u> Base of west-facing slope and east of and above 'racetrack'; east of top of large, west-facing boulder/rock face on disturbed bench (<i>Erodium cicutarium</i> , <i>Microseris</i> sp., <i>Lupinus bicolor</i> , <i>Filago</i> sp., <i>Bromus mollis</i> , <i>Bromus madritensis</i> ssp. <i>rubens</i>) <u>Specific location description:</u> <i>Mirabilis laevis</i> (southeast corner [top] of rock to marker = 0.35 dm and 23°NE) <u>GPS coordinates (marker):</u> N32°50.347, W116°50.960			
Landmark points 1) <i>Baccharis sarothroides</i> (along trail on east side of racetrack) (N32°50.343, W116°50.979); 2) <i>Baccharis sarothroides</i> to <i>Sambucus mexicana</i> * = 9.7 m and 115°SE; 3) <i>Sambucus mexicana</i> (N32°50.344, W116°50.973; blue flag on east side) to marker = 28.2 m and 52° NE. *Note: distances measured from flagging to flagging			
Photo Number	From:	Toward:	Description:
CECY-2.1	NE of Monument Marker; Marker is 1.3 m and 216°SW of photo point	Monument Marker	Close up of Monument Marker and clipboard
CECY-2.2	Monument Marker; Photo direction is 235°SW from marker	<i>Ceanothus cyaneus</i>	CECY in foreground and background; <i>Sambucus mexicana</i> in center of photo (landmark point 3, above)
CECY-2.3	Monument Marker; Photo direction is 295°NW from marker	<i>Ceanothus cyaneus</i>	CECY in foreground
CECY-2.4	Monument Marker;	<i>Ceanothus cyaneus</i>	CECY behind rock



	Photo direction is 326°NW from marker		outcrop (middle of photo) and on slopes in background
CECY-2.5	New photo location: 2.7 m and 305m NW of Monument Marker; Photo direction is 9°NE from new location	<i>Ceanothus cyaneus</i>	CECY in middle of photo and on slopes in background
CECY-2.6	New photo location (see 4, above); photo direction is 66°NE	<i>Ceanothus cyaneus</i>	CECY in middle of photo and scattered on slopes in background
CECY-2.7	New photo location (see 4, above); Photo direction is 126°SE from new location	<i>Ceanothus cyaneus</i>	Chamise (<i>Adenostoma fasciculatum</i>) in foreground and middle of photo; CECY on slopes in background
CECY-2.8	New photo location (see 4, above); Photo direction is 156°SE from new location	<i>Ceanothus cyaneus</i>	One CECY near middle of photo; one at lower right edge of photo
<p>Additional Notes:</p> <p>Backup marker: N32°50.352, W116°50.953; Backup marker <u>to</u> original marker = 9 m and 258°SW</p> <p><i>Erharta longiflora</i> eradication needed at this site; <i>Erharta</i> is on and around rock outcrop (pulled some and bagged and removed; but needs more effort)</p> <p>*Large swarm of bees passed directly overhead just before noon (04/15/10)</p> <p>On 5/6/10: CECY phenology is about 65% flowering, 35% vegetative.</p>			



CECY-2.1. Monument Marker.



CECY-2.2. *Ceanothus cyaneus* in foreground and scattered in background.



CECY-2.3. *Ceanothus cyaneus* in foreground.



CECY-2.4. *Ceanothus cyaneus* on slopes in middle of photo and in background.



CECY-2.5. *Ceanothus cyaneus* in middle of photo and in background.



CECY-2.6. *Ceanothus cyaneus* in middle of photo and scattered in background.



CECY-2.7. *Ceanothus cyaneus* on slopes in background.



CECY-2.8. *Ceanothus cyaneus* (1) in middle of photo and at lower right edge (1).



Photograph Log Crestridge Ecological Reserve

Observer(s):		Date of Observation:	
Patricia Gordon-Reedy/Janet McDonald		04/15/10 (plots); 05/06/10 (photos)	
Species:		Camera:	Lens: unless otherwise noted, lens height is 1.37 m from ground
<i>Ceanothus cyaneus</i> (CECY-3)		Canon Powershot G-5	
Monument marker:			
<p><u>General location:</u> Southwest of racetrack trail that trends towards the northwest; at base of an <i>Artemisia palmeri</i> (ARPA) located 2.25 m and 217°SW of trail (Trail location at this spot = N32°50.362, W116°51.020); blue flag on <i>Malosma laurina</i> directly southwest of the ARPA.</p> <p><u>Specific location description:</u> Marker is on the northeast side and at base of ARPA. To the SE: <i>Malosma laurina</i>, <i>Sambucus mexicana</i>, <i>Lonicera subspicata</i> var. <i>denudata</i>, and a standing dead tree; SW: scattered ARPA, <i>Malosma laurina</i>; NW: scattered <i>Eriogonum fasciculatum</i> with a grassy understory; N: <i>Erodium cicutarium</i>, <i>Bromus rubens</i>, <i>Centuarea melitensis</i>, <i>Corethrogyne filaginifolia</i>.</p> <p><u>GPS coordinates (marker):</u> N32°50.361, W116°51.022</p>			
Landmark points			
<ol style="list-style-type: none"> 1) Trail (N32°50.362, W116°51.020) 2) <i>Malosma laurina</i> (N32°50.366, W116°51.022) = 4 m and 56°NE to marker 3) <i>Rumex crispus</i> (N32°50.367, W116°51.023) = 9.3 m and 160°SE to marker 			
Photo Number	From:	Toward:	Description:
CECY-3.1	NE of Monument Marker at edge of trail; Marker is 3.2 m and 202°SW of photo location	Monument Marker	Monument Marker (not visible) and clipboard at base of mature <i>Artemisia palmeri</i>
CECY-3.2	Monument marker; Photo direction is 43°NE from marker	CECY-3	CECY scattered in chamise chaparral in middle of photo and on slopes in background
CECY-3.3	Monument marker; Photo direction is 60°NE from marker	CECY	CECY scattered in chamise chaparral in middle of photo and on slopes in background
CECY-3.4	Monument marker;	CECY	CECY predominant in



	Photo direction is 86°NE from marker		band across middle of photo; dark green patches on upper slopes in background
CECY-3.5	Monument marker; Photo direction is 310°NW from marker	Northwest along trail	No CECY visible in photo; included for reference purposes

Additional Notes:

Additional locations for *Artemisia palmeri* (ARPA) that may not have been mapped in 2009 (check – all individual occurrences):

N32°50.361, W116°51.020

N32°50.364, W116°51.024

N32°50.360, W116°51.025

N32°50.357, W116°51.024

N32°50.357, W116°51.009 (previously mapped)

*2nd large swarm of bees (for the day) passed directly overhead at noon (04/15/10)

*3rd (smaller) swarm of bees passed overhead at 12.42 p.m. (04/15/10) (N32°50.429, W116°51.298)

On 5/6/10, phenology is 50% flowering; 50% vegetative.



CECY-3.1. Monument Marker location (at base of *Artemisia palmeri*).



CECY-3.2. *Ceanothus cyaneus* in middle of photo and scattered on slopes in background.



CECY-3.3. *Ceanothus cyaneus* in middle of photo (base of slope) and scattered on slopes in background.



CECY-3.4. *Ceanothus cyaneus* in middle of photo (base of slope) and scattered on slopes in background.



CECY-3.5. Northwest along trail from Monument Marker (no *Ceanothus cyaneus* visible).



Photograph Log Crestridge Ecological Reserve

Observer(s):		Date of Observation:	
Patricia Gordon-Reedy/Janet McDonald		04/15/10 (plots); 05/06/10 (photos)	
Species:		Camera:	Lens: unless otherwise noted, lens height is 1.37 m from ground
<i>Ceanothus cyaneus</i> (CECY-4)		Canon Powershot G-5	
Monument marker:			
<p><u>General location:</u> West of 'racetrack' area and east of trail heading into Rios Canyon; at base of southwest-facing slope.</p> <p><u>Specific location description:</u> Marker is under <i>Adenostoma fasciculatum</i> and <i>Helianthemum scoparium</i>; in a stand of chamise with burned, standing material</p> <p>1) Trail location = N32°50.436, W116°51.362;</p> <p>2) 3.26 m and 60°NE from edge of trail (see location above) to marker;</p> <p>3) Marker is due north of a small rock with a crack in it and <i>Chlorogalum</i> sp.</p> <p><u>GPS coordinates (marker):</u> N32°50.439, W116°51.359</p>			
Landmark points			
<p>4) <i>Rhus ovata</i> (sugarbush), northeast side of trail (N32°50.431, W116°51.365) = 5.35 m and 328°NW to marker</p> <p>5) Small boulder, east side of trail edge (N32°50.432, W116°51.363) = 6.3 m and 333°NW to marker (note: 1.45 m and 64°NE from boulder (2) to sugarbush (1).</p>			
Photo Number	From:	Toward:	Description:
CECY-4.1	SW of Monument Marker; Marker is 1.6 m and 73°NE of photo location	Monument Marker	Monument Marker and clipboard; vegetation pulled back
CECY-4.2	Monument Marker; Photo direction is 317°NW	CECY-4	CECY scattered in foreground; El Cajon in background
CECY-4.3	Monument Marker; Photo direction is 12°NE	CECY-4	CECY in middle of photo and scattered on slopes in the background
CECY-4.4	Monument Marker; Photo direction is 56°NE	CECY-4	Chamise (<i>Adenostoma fasciculatum</i>) in foreground; CECY scattered near ridgeline



CECY-4.5	New photo location: 4 m and 244°SW from marker to trail); Photo direction is 131°SE from new photo point	Up trail (to south)	1 CECY near upper right corner of photo, but photo is primarily for reference purposes
CECY-4.6	New photo location: 4 m and 244°SW from marker to trail); Photo direction is 315°SE from new photo point	Down trail (to north; El Cajon in distance)	1 CECY along right edge of photo, but photo is primarily for reference purposes

Additional Notes:

Placed a blue flag on a *Malosma laurina* on the west side of trail, directly opposite the marker.

On 5/6/10: phenology is 80% vegetative; 20% flowering.



CECY-4.1. Monument Marker and clipboard; vegetation pulled back.



CECY-4.2. *Ceanothus cyaneus* scattered in foreground; El Cajon in background.



CECY-4.3. *Ceanothus cyaneus* in middle of photo and scattered on slopes in background.



CECY-4.4. Chamise (*Adenostoma fasciculatum*) in foreground; *Ceanothus cyaneus* along ridge (background).



CECY-4.5. Reference photo, up trail (to south); 1 *Ceanothus cyaneus* near upper right edge of photo.



CECY-4.6. Reference photo; down trail (to north); *Ceanothus cyaneus* in lower right side of photo.



Photograph Log Crestridge Ecological Reserve

Observer(s): Patricia Gordon-Reedy/Janet McDonald		Date of Observation: 5/26/10	
Species: <i>Ceanothus cyaneus</i> (CECY-5) (note: corresponds to general location of CECY-5 & CECY-6 from 2009 surveys)		Camera: Canon Powershot G-5	Lens: unless otherwise noted, lens height is 1.37 m from ground
Monument marker: <u>General location:</u> East-central (east-west oriented) trail, about 0.25 miles west of cattle gate on Gibson property, north side of trail. <u>Specific location description:</u> Open area between three rocks; adjacent to <i>Adenostoma fasciculatum</i> . <i>Hesperoyucca whipplei</i> next to largest rock. <u>GPS coordinates (marker):</u> N32°50.763', W116°50.080'			
Landmark points: 1) Edge of trail (north side) (N32°50.762, W116°50.079'); from this spot to monument marker = 4 m and 341°NW. Note: no flagging used.			
Photo Number	From:	Toward:	Description:
CECY-5.1	Landmark #1; Photo direction is 13°NE	Monument Marker	Location of Monument Marker (in front of tape)
CECY-5.2	Photopoint is 1.9 m and 180°S of Monument Marker	Monument Marker	Close up of Monument Marker (in front of tape) and clipboard.
CECY-5.3	Monument Marker; photo direction is 9°NE	<i>Quercus wislizeni</i> var. <i>frutescens</i>	Dark green, rounded shrub in middle of photo
CECY-5.4	Monument Marker; Photo direction is 65°NE	<i>Ceanothus cyaneus</i>	CECY in middle of photo
CECY-5.5	Monument Marker; Photo direction is 300°NW	Open chaparral	Reference only; no CECY in photo
Additional Notes: CECY phenology is about 80% flowering, 20% vegetative.			



CECY-5.1. Location of Monument Marker (in front of tape).



CECY-5.2. Monument Marker (in front of tape).



CECY-5.3. View to northeast; *Quercus wislizeni* var. *frutescens* in middle of photo.



CECY-5.4. View to northeast; *Ceanothus cyaneus* in middle of photo.



CECY-5.5. View to northwest; no *Ceanothus cyaneus* in photo.



Photograph Log Crestridge Ecological Reserve

Observer(s): Patricia Gordon-Reedy/Janet McDonald		Date of Observation: 5/26/10	
Species: <i>Ceanothus cyaneus</i> (CECY-6) (note: corresponds to general location of CECY-5 & CECY-6 from 2009 surveys)		Camera: Canon Powershot G-5	Lens: unless otherwise noted, lens height is 1.37 m from ground
Monument marker: <u>General location:</u> East-central (east-west oriented) trail, about 0.44 miles west of cattle gate on Gibson property, north side of trail. <u>Specific location description:</u> North side of trail; northeast edge of huge rock outcrop ('Whale Rock') that comes down to trail. <u>GPS coordinates (marker):</u> N32°50.806', W116°50.270'			
Landmark points: 2) Located east of 'Whale Rock;' first flat boulder as you approach Whale Rock, along north side of trail; GPS location = N32°50.795', W116°50.250'; 3) <i>Sambucus mexicana</i> on north side of trail, behind rock outcrop (not 'Whale Rock') (N32°50.803, W116°50.251'); from this spot to monument marker = 30.75 m and 297°NW.			
Photo Number	From:	Toward:	Description:
CECY-6.1	Landmark #2 (<i>Sambucus mexicana</i>); Photo direction is 297°NW	Monument Marker	Monument Marker is to the right of boulder in photo
CECY-6.2	Photo location is 2.2 m NE of Monument Marker; direction from photo to marker is 210°SW	Monument Marker	Monument Marker and clipboard; marker is to right of clipboard
CECY-6.3	Photopoint established 16 m and 183°SW of Monument Marker; photodirection is 16°NE	<i>Ceanothus cyaneus</i>	CECY in background below ridgeline (in bloom); <i>Ceanothus tomentosus</i> in foreground (not in bloom)
CECY-6.4	Same photopoint as in	<i>Ceanothus cyaneus</i> ;	CECY in foreground;



	CECY-6.3; photodirection is 70°NE	<i>Sambucus mexicana</i>	<i>Sambucus mexicana</i> (Landmark #2) in center of photo, just left of rock outcrop
CECY-6.5	Same photopoint as in CECY-6.3; Photo direction is 117°SE	<i>Ceanothus cyaneus</i>	CECY in left foreground and scattered on slope in background
CECY-6.6	Same photopoint as in CECY-6.3; Photodirection is 158°SE	<i>Ceanothus cyaneus</i>	CECY in center of photo and at lower right edge
CECY-6.7	Same photopoint as in CECY-6.3; Photo direction is 210°SW	<i>Ceanothus cyaneus</i>	CECY in foreground
CECY-6.8	Same photopoint as in CECY-6.3; Photo direction is 210°SW	<i>Ceanothus cyaneus</i>	CECY in foreground
CECY-6.9	Same photopoint as in CECY-6.3; Photo direction is 240°SW	<i>Ceanothus cyaneus</i>	CECY in foreground
CECY-6.10	Same photopoint as in CECY-6.3; Photo direction is 276°NW	<i>Ceanothus cyaneus</i>	CECY in foreground (on left) and on slopes in background
CECY-11	Photopoint is Landmark #1; Photo direction is 285°NW	<i>Ceanothus cyaneus</i>	CECY in middle of photo along east side of 'Whale Rock'
CECY-12	Photopoint is Landmark #1; Photo direction is 250°SW	<i>Ceanothus cyaneus</i>	CECY in center of photo, just left of 'Whale Rock'
CECY-13	New photopoint is 12.2 m and 224°SW of Landmark #1 is in the trail, just left of barely exposed bedrock in center of trail; Photo direction is 260°SW	<i>Ceanothus cyaneus</i> and <i>Horkelia</i> <i>truncata</i>	CECY in center of photo, to left of 'Whale Rock' and scattered HOTR north of trail (difficult to spot in photo)

Additional Notes:

CECY phenology is about 80% flowering, 20% vegetative.

Photopoint for CECY-6.3-6.10 is on top of large boulder/outcrop ('Whale Rock' – largest rock in vicinity);

Photopoint for CECY-6.11-6.12 is Landmark #1 (edge of trail);

Photopoint for photo CECY-6.13 is in trail, 12.2 m and 224°SW of Landmark #1.



CECY-6.1. Location of Monument Marker (at far end of tape and right of 'Whale Rock').



CECY-6.2. Monument Marker (to right of clipboard and yellow/orange pencil).



CECY-6.3. View to northeast; *Ceanothus cyaneus* in background below ridgeline.



CECY-6.4. View to northeast; *Ceanothus cyaneus* in foreground and *Sambucus mexicana* (Landmark #2) in center of photo, just left and behind flat outcrops.



CECY-6.5. View to southeast; *Ceanothus cyaneus* in left foreground and scattered on slopes in background.



CECY-6.6. View to southeast; *Ceanothus cyaneus* in center of photo and at lower right edge.



CECY-6.7. View to southwest; *Ceanothus cyaneus* in foreground of photo.



CECY-6.8. View to southwest; *Ceanothus cyaneus* in foreground, trail in center background.



CECY-6.9. View to southwest; *Ceanothus cyaneus* in foreground.



CECY-6.10. View to northwest; *Ceanothus cyaneus* in foreground and on slopes in background.



CECY-6.11. View to northwest (from Landmark #1); *Ceanothus cyaneus* in middle of photo along east side of 'Whale Rock.'



CECY-6.12. View to southwest (from Landmark #1); *Ceanothus cyaneus* in middle of photo, just left of 'Whale Rock.'



CECY-6.13. View to southwest (from trail); *Ceanothus cyaneus* in center of photo, to left of 'Whale Rock,' and scattered *Horkelia truncata* north of trail near center of photo (difficult to spot in photo).



Photograph Log Crestridge Ecological Reserve

Observer(s): Patricia Gordon-Reedy/Janet McDonald		Date of Observation: 5/26/10	
Species: <i>Ceanothus cyaneus</i> (CECY-7) (note: corresponds to general location of CECY-5 & CECY-6 from 2009 surveys)		Camera: Canon Powershot G-5	Lens: unless otherwise noted, lens height is 1.37 m from ground
Monument marker: <u>General location:</u> East-central (east-west oriented) trail, about 0.52 miles west of cattle gate on Gibson property; south side of trail <u>Specific location description:</u> Relatively open area surrounded by medium-sized boulders in a stand of burned and unburned <i>Adenostoma fasciculatum</i> and <i>Ceanothus cyaneus</i> ; blue flag on burned <i>Adenostoma fasciculatum</i> branch; distance and direction from flagging to marker is 1.45 m and 222°SW; marker is located at base of <i>Helianthemum scoparium</i> . <u>GPS coordinates (marker):</u> N32°50.762', W116°50.341'			
Landmark points: 4) Trail edge (south side of trail) = N32°50.760', W116°50.347'; 5) Boulder south of trail (N32°50.758', W116°50.344'). Boulder is located 2.3 m and 155°SE from Landmark #1. Distance and direction from boulder (Landmark #2) to Monument Marker is 11.6 m and 126°SE.			
Photo Number	From:	Toward:	Description:
CECY-7.1	Photo location is 1.3 m NW of Monument Marker; direction from photo to marker is 171°SE	Monument Marker	Monument Marker and clipboard; marker is in front of clipboard
CECY-7.2	Photo location is 1.3 m NW of Monument Marker; direction from photo to marker is 171°SE	Monument Marker	Monument Marker and clipboard; closeup
CECY-7.3	Photo location is Landmark #1	Landmark #2 (boulder)	Clipboard and tape with boulder (Landmark #2) in background
CECY-7.4	Monument Marker;	<i>Ceanothus cyaneus</i>	CECY scattered in



	photodirection is 0°N		foreground and on slopes in background; Other dominant species are <i>Adenostoma fasciculatum</i> , <i>Eriodictyon crassifolium</i> , and <i>Heliantheum scoparium</i>
CECY-7.5	Monument Marker; Photo direction is 37°NE	<i>Ceanothus cyaneus</i>	CECY scattered in left-middle of photo and on slopes in background
CECY-7.6	Monument Marker; Photo direction is 102°SE	<i>Ceanothus cyaneus</i>	CECY on slopes in background
CECY-7.7	Monument Marker; Photo direction is 191°SW	<i>Ceanothus cyaneus</i>	CECY scattered on slopes in foreground
CECY-7.8	Monument Marker; Photo direction is 227°SW	<i>Ceanothus cyaneus</i>	CECY in foreground
CECY-7.9	Monument Marker; Photo direction is 287°NW	<i>Ceanothus cyaneus</i>	CECY in middle of photo
CECY-7.10	Monument Marker; Photo direction is 260°SW	<i>Ceanothus cyaneus</i>	CECY in middle of photo
CECY-7.11	Monument Marker; Photo direction is 210°SW	<i>Ceanothus cyaneus</i>	CECY in foreground

Additional Notes:

CECY phenology is about 80% flowering, 20% vegetative.



CECY-7.1. Monument Marker.



CECY-7.2. Close up, Monument Marker and clipboard.



CECY-7.3. Clipboard and tape with Landmark #2 (boulder) in background.



CECY-7.4. *Ceanothus cyaneus* scattered in foreground and on slopes in background.



CECY-7.5. *Ceanothus cyaneus* scattered in left-middle of photo and on slopes in background



CECY-7.6. *Ceanothus cyaneus* on slopes in background.



CECY-7.7. *Ceanothus cyaneus* scattered on slopes in foreground.



CECY-7.8. *Ceanothus cyaneus* in foreground.



CECY-7.9. *Ceanothus cyaneus* in middle of photo.



CECY-7.10. *Ceanothus cyaneus* in middle of photo.



CECY-7.11. *Ceanothus cyaneus* in foreground.



Photograph Log Crestridge Ecological Reserve

Observer(s):		Date of Observation:	
Patricia Gordon-Reedy/Janet McDonald		5/20/10	
Species:		Camera:	Lens: unless otherwise noted, lens height is 1.37 m from ground
<i>Ceanothus cyaneus</i> (CECY-8) (note: corresponds to general location of CECY-7 & CECY-8 from 2009 surveys)		Canon Powershot G-5	
Monument marker: <u>General location:</u> South of Interstate 8 at Dunbar Road offramp; east end of Crestridge Ecological Reserve; east-facing slopes west of Bullard Lane (note: photos also include offsite lands, primarily views of Crestlake property). <u>Specific location description:</u> Monument marker is east of reserve boundary; about 135 m southeast of junction of Bullard Lane and south-trending, overgrown dirt road that runs along the base of west-facing slopes. Marker is at base of and on east side of a low boulder in an open grassy area within (burned) recovering chamise chaparral. No flags. <u>GPS coordinates (marker):</u> N32°51.057', W116°49.359'			
Landmark points: 6) Edge of overgrown dirt road (N32°51.053, W116°49.373'); from this spot to landmark point #2 (below) is 6.1 m and 238°SW; 7) West side of trail; landmark point is an orange, lichen-covered rock (<1 m tall; taller than wide) at base of <i>Adenostoma fasciculatum</i> and adjacent to <i>Rhamnus crocea</i> (landmark location is N32°51.050', W116°49.379); from landmark to marker = 30.6 m and 73°NE. Note: No flagging used; photopoint and landmark points are on land adjacent to the reserve.			
Photo Number	From:	Toward:	Description:
CECY-8.1	Landmark #1, edge of road (N32°51.053', W116°49.373')	Landmark #2 (N32°51.050, W116°49.379')	Landmark rock (#2) with field assistant to immediate right
CECY-8.2	N32°51.046', W116°49.361'; Photo point is NE of Monument Marker; Marker is 2.4 m and 257° SW of photo point	Monument Marker	Monument Marker and clipboard
CECY-8.3	N32°51.046', W116°49.361'; Photo	Monument Marker	Close up of Monument Marker and clipboard;



	point is NE of Monument Marker; Marker is 2.4 m and 257° SW of photo point		marker is to the right of the lower right-hand corner of clipboard.
CECY-8.4	Monument Marker; photo direction is 274°NW	<i>Ceanothus cyaneus</i>	CECY on slopes in middle of photo
CECY-8.5	Monument Marker; Photo direction is 243°SW	<i>Ceanothus cyaneus</i>	CECY on slopes at right edge of photo
CECY-8.6	Monument Marker; Photo direction is 46°NE	<i>Ceanothus cyaneus</i>	CECY on slopes in background of photo (off reserve)
CECY-8.7	Monument Marker; Photo direction is 91°SE	<i>Ceanothus cyaneus</i>	CECY on slopes in middle and background of photo (all off reserve)
CECY-8.8	Monument Marker; Photo direction is 128°SE	<i>Ceanothus cyaneus</i>	CECY on slopes in background of photo (off reserve)

Additional Notes:

CECY phenology is about 90% flowering, 10% vegetative.



CECY-8.1. Landmark #2 (lichen-covered rock to immediate left [in photo] of field assistant).



CECY-8.2. Monument Marker (lower left edge of clipboard).



CECY-8.3. Monument Marker (lower right edge of clipboard).



CECY-8.4. *Ceanothus cyaneus* in on slopes in middle of photo (vicinity of telephone pole).



CECY-8.5. *Ceanothus cyaneus* on slopes at right edge of photo (vicinity of telephone pole).



CECY-8.6. *Ceanothus cyaneus* on slopes in background (off reserve).



CECY-8.7. *Ceanothus cyaneus* in middle and background of photo (off reserve).



CECY-8.8. *Ceanothus cyaneus* on slopes in background (off reserve).



Photograph Log Crestridge Ecological Reserve

Observer(s):		Date of Observation:	
Patricia Gordon-Reedy/Janet McDonald		5/26/10	
Species:		Camera: Canon Powershot G-5	Lens: unless otherwise noted, lens height is 1.37 m from ground
<i>Horkelia truncata (HOTR-1)</i> (note: corresponds to general location of HOTR-2 from 2009 surveys)			
Monument marker:			
<u>General location:</u> East-central (east-west oriented) trail, about 0.52 miles west of cattle gate on Gibson property; south side of trail <u>Specific location description:</u> Trail edge (south side of trail) = N32°50.760', W116°50.347'; no marker placed (GPS point is for trail edge), but blue flagging in dead branch directly north of this point and on north side of trail. This location corresponds to Landmark #1 for CECY-7 <u>GPS coordinates (marker):</u> N32°50.760', W116°50.347' (trail edge; no marker placed)			
Landmark points:			
1) Boulder south of trail (N32°50.758', W116°50.344'). Boulder is located 2.3 m and 155°SE from marker (e.g., Specific Location, above). This is the same boulder used as Landmark #1 for CECY-7.			
Photo Number	From:	Toward:	Description:
HOTR-1.1	Photo Point (edge of trail, see GPS location, above); photo direction is 154°SE	Edge of trail	2 m
HOTR-1.2	Photo Point; photo direction is 194°SW	HOTR	South side of trail
HOTR-1.3	Photo Point; photo direction is 226°SW	HOTR	Foreground (white flowers)
HOTR-1.4	Photo Point; photo direction is 254°SW	HOTR	Foreground (white flowers, left and center in photo)
HOTR-1.5	Photo Point; photo direction is 292°NW	HOTR with <i>Helianthemum scoparium</i> and <i>Ceanothus cyaneus</i>	Blue flagging



HOTR-1.6	Photo Point; photo direction is 75°NE	1 HOTR plant on the left side of photo with <i>Eriodictyon crassifolium</i> and bare ground	CECY on slopes in background
HOTR-1.7	2.7 m from Photo Point; photo direction is 261°SW	HOTR with <i>Ceanothus cyaneus</i> and <i>Juncus</i> sp.	North side of trail; photo shows the middle of trail
HOTR-1.8	21 m from Photo Point; photo direction is 372°NW	HOTR and <i>Juncus</i> spp.	North side of trail*

Additional Notes:

*238°SW from marker (trail edge) to photo point.



HOTR 1.1. From photo point toward south side of trail.



HOTR 1.2. South side of trail with *Horkelia truncata* (white flowers) along trail edge.



HOTR 1.3. *Horkelia truncata* in foreground (white flowers) along trail.



HOTR-1.4. *Horkelia truncata* scattered in foreground (white flowers).



HOTR-1.5. *Horkelia truncata* (white flowers) along north side of trail with *Helianthemum scoparium* and *Ceanothus cyaneus*.



HOTR-1.6. *Horkelia truncata* (1 plant) on left side of photo.



HOTR-1.7. *Horkelia truncata* (white flowers) in foreground; *Ceanothus cyaneus* in background.



HOTR-1.8. *Horkelia truncata* (white flowers) in center of photo.



APPENDIX D

SEED COLLECTION FORMS

FIELD RECORD FORM

RSA Accession # _____

Date:										Do not disclose locality.		
Scientific Name: Ceanothus cyaneus (CECY-1 seed collection)												
Common Name: Lakeside ceanothus												
Collector Name: Patricia Gordon-Reedy												
Collector Address: 10830 Woodstream Point, San Diego, CA 92131												
Email Address: pgordonreedy@consbio.org												
Phone: 858-547-9801												
Voucher Collection		Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	Coll #		Herbarium	SDNHM (to be deposited)	<input checked="" type="checkbox"/>	SDNHM (to be deposited)	<input checked="" type="checkbox"/>
CNDDB EO# (if known): _____ Landowner/Mgr.: CDFG/Endangered Habitats Conservancy												
Locality: Crestridge Ecological Reserve												
County: San Diego			State: California			Country: USA						
Quad Name: Alpine		Elev: ca. 1500'		T 15S		R 1E		S 26		¼ of _____		¼ _____
Merid. _____												
PLEASE ATTACH A MAP OR PROVIDE COORDINATES :												
GPS Coordinate		N32o50.320'N,		116o50.909W		OR		Lat: _____		Long: _____		
Datum: NAD27		<input type="checkbox"/>		NAD83		<input type="checkbox"/>		WGS84		<input checked="" type="checkbox"/>		
UTM: Zone 10		<input type="checkbox"/>		Zone 11		<input checked="" type="checkbox"/>		GPS Accuracy (meters/feet): + 10 m				
Species Information:								Occurrence Information:				
Population size:		1000+		Common		<input checked="" type="checkbox"/>		% Vegetative		<input type="checkbox"/>		
Number of individuals sampled:		50		Scattered		<input checked="" type="checkbox"/>		% Flowering		2		
Est. size of seed collection:		2,500+		Rare		<input type="checkbox"/>		% Fruiting		98		
Excellent		<input checked="" type="checkbox"/>		Poor		<input type="checkbox"/>		Good		<input type="checkbox"/>		
Fair		<input type="checkbox"/>		Other:		<input type="checkbox"/>						
Associated Species (Include dominant species and other taxa at this site on this date): Ceanothus cyaneus, Malosma laurina, Helinathemum scoparium, Adenostoma fasciculatum, Hesperoyucca whipplei, Helianthus gracilentus, Salvia apiana												
RSA Floristic Province												
Californian		<input checked="" type="checkbox"/>		Sonoran: Mojave		<input type="checkbox"/>		Sierra/Cascade		<input type="checkbox"/>		
Great Basin		<input type="checkbox"/>		Sonoran: Colorado		<input type="checkbox"/>		North Coast Ranges		<input type="checkbox"/>		
Site Information												
Community				Geology								
Alpine		<input type="checkbox"/>		Scrub (indicate type):		<input type="checkbox"/>		Gabbro		<input checked="" type="checkbox"/>		
Forest		<input type="checkbox"/>						Granite		<input checked="" type="checkbox"/>		
Woodland		<input type="checkbox"/>		Chaparral		<input checked="" type="checkbox"/>		Limestone		<input type="checkbox"/>		
Grassland		<input type="checkbox"/>		Riparian		<input type="checkbox"/>		Sandstone		<input type="checkbox"/>		
Vernal Pool		<input type="checkbox"/>						Serpentine		<input type="checkbox"/>		
Soil				Slope		Exposure		Moisture				
Sand		<input type="checkbox"/>		Clay		<input type="checkbox"/>		Flat		<input checked="" type="checkbox"/>		
Gravel		<input type="checkbox"/>		Humus		<input type="checkbox"/>		Gentle		<input checked="" type="checkbox"/>		
Rock		<input checked="" type="checkbox"/>		Alluvium		<input type="checkbox"/>		Steep		<input checked="" type="checkbox"/>		
Loam		<input checked="" type="checkbox"/>		Other:		<input type="checkbox"/>		Cliffs		<input type="checkbox"/>		
Full sun		<input checked="" type="checkbox"/>		Wet		<input type="checkbox"/>		Semishade		<input type="checkbox"/>		
Shade		<input type="checkbox"/>		Moist		<input type="checkbox"/>		Other:		<input type="checkbox"/>		
Seasonally wet/moist		<input type="checkbox"/>		Dry		<input checked="" type="checkbox"/>						
Aspect (indicate): _____												
Comments (Describe site condition. Include land use, visible disturbances, threats): Area burned in 2003 Cedar fire; CECY recovering well, although overall pop. size reduced from pre-fire extent. Area receives some recreational use; primary threat is another fire prior to development of seed bank; minor threats from trail impacts and invasive species.												
Determination:		Keyed: <input checked="" type="checkbox"/>		Specimen: <input checked="" type="checkbox"/>		Where housed: SDNHM (to be deposited)		ID by: Patricia Gordon-Reedy (CBI)				
Photograph		Slide <input type="checkbox"/>		Print <input checked="" type="checkbox"/>		Digital <input checked="" type="checkbox"/>		Diagnostic Features		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Inflorescence size, color _____												

FIELD RECORD FORM

RSA Accession # _____

Date: _____										<input type="checkbox"/> Do not disclose locality.							
Scientific Name: Ceanothus cyaneus (CECY-2 seed collection)																	
Common Name: Lakeside ceanothus																	
Collector Name: Patricia Gordon-Reedy																	
Collector Address: 10830 Woodstream Point, San Diego, CA 92131																	
Email Address: pgordonreedy@consbio.org																	
Phone: 858-547-9801																	
Voucher Collection		Yes <input type="checkbox"/>	No <input type="checkbox"/>	Coll #	Herbarium												
CNDDB EO# (if known):				Landowner/Mgr.: CDFG/Endangered Habitats Conservancy													
Locality: Crestridge Ecological Reserve																	
County: San Diego				State: California				Country: USA									
Quad Name: Alpine		Elev: 1300-1400		T 15S		R 1E		S 26		¼ of	¼	Merid.					
PLEASE ATTACH A MAP OR PROVIDE COORDINATES:																	
GPS Coordinate		32o50.393'N,		116o51.225'W		OR		Lat:		Long:							
Datum: NAD27		NAD83		WGS84		<input checked="" type="checkbox"/>		UTM: Zone 10		Zone 11		<input checked="" type="checkbox"/>	GPS Accuracy (meters/feet): + 10 m				
Species Information:										Occurrence Information:							
Population size:		ca. 500+		Common		<input checked="" type="checkbox"/>		% Vegetative				Excellent	<input checked="" type="checkbox"/>	Poor	<input type="checkbox"/>		
Number of individuals sampled:		30		Scattered		<input checked="" type="checkbox"/>		% Flowering		5		Good	<input type="checkbox"/>	Other:			
Est. size of seed collection:		1500+		Rare		<input type="checkbox"/>		% Fruiting		95		Fair	<input type="checkbox"/>				
Associated Species (Include dominant species and other taxa at this site on this date): Ceanothus cyaneus, Rhamnus crocea, Malosma laurina, Artemisia californica, Helianthus gracilentus, Ceanothus crassifolius (unburned), Salvia apiana, Adenostoma fasciculatum, Helianthemum scoparium, Eriogonum fasciculatum												+					
RSA Floristic Province																	
Californian		<input checked="" type="checkbox"/>		Sonoran: Mojave		<input type="checkbox"/>		Sierra/Cascade		<input type="checkbox"/>		Klamath/Siskiyou		<input type="checkbox"/>			
Great Basin		<input type="checkbox"/>		Sonoran: Colorado		<input type="checkbox"/>		North Coast Ranges		<input type="checkbox"/>							
Site Information																	
Community				Geology													
Alpine		<input type="checkbox"/>		Scrub (indicate type):		<input type="checkbox"/>		Gabbro		<input type="checkbox"/>		Shale		<input type="checkbox"/>			
Forest		<input type="checkbox"/>						Granite		<input checked="" type="checkbox"/>		Volcanic		<input type="checkbox"/>			
Woodland		<input type="checkbox"/>		Chaparral		<input checked="" type="checkbox"/>		Limestone		<input type="checkbox"/>		Mixed (alluvium or landslide debris)		<input type="checkbox"/>			
Grassland		<input type="checkbox"/>		Riparian		<input type="checkbox"/>		Sandstone		<input type="checkbox"/>		Other: (Cieneba Soils)					
Vernal Pool		<input type="checkbox"/>						Serpentine		<input type="checkbox"/>							
Soil				Slope				Exposure				Moisture					
Sand		<input type="checkbox"/>		Clay		<input type="checkbox"/>		Flat		<input checked="" type="checkbox"/>		Full sun		<input checked="" type="checkbox"/>		Wet	<input type="checkbox"/>
Gravel		<input type="checkbox"/>		Humus		<input type="checkbox"/>		Gentle		<input checked="" type="checkbox"/>		Semishade		<input type="checkbox"/>		Moist	<input type="checkbox"/>
Rock		<input checked="" type="checkbox"/>		Alluvium		<input type="checkbox"/>		Steep		<input type="checkbox"/>		Shade		<input type="checkbox"/>		Dry	<input checked="" type="checkbox"/>
Loam		<input checked="" type="checkbox"/>		Other:		<input type="checkbox"/>		Cliffs		<input type="checkbox"/>		Other:				Seasonally wet/moist	<input type="checkbox"/>
Aspect (indicate): _____																	
Comments (Describe site condition. Include land use, visible disturbances, threats): Most of collection area burned in 2003 Cedar fire; plants 1-12 from unburned chaparral. Area receives some recreational use; primary threat is another fire prior to establishment of seed bank; minor threats from trail impacts and invasive species.																	
Determination:		Keyed: <input checked="" type="checkbox"/>		Specimen:		<input type="checkbox"/>		Where housed:				ID by: Patricia Gordon-Reedy (CBI)					
Photograph		Slide <input type="checkbox"/>		Print <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		Diagnostic Features				Yes <input checked="" type="checkbox"/>		No <input type="checkbox"/>		Inflorescence size, color	



APPENDIX E

RANCHO SANTA ANA BOTANIC GARDEN SEED BANK COLLECTION REPORT



RANCHO SANTA ANA BOTANIC GARDEN

1500 North College Avenue, Claremont, CA 91711-3157 ■ Phone (909) 625-8767 Fax (909) 626-7670 www.RSABG.org

Seed Conservation Program

6 October, 2010

Mary Ann Showers

Staff Environmental Scientist, Lead Botanist

Habitat Conservation Planning Branch

Department of Fish and Game

1416 9th Street, Room 1280 Sacramento, CA 95814

(916) 651-6594

Conservation Seed Banking for San Diego Ceanothus (*Ceanothus cyaneus*)

Dear Mary Ann,

The cleaning, processing and packaging of these seed collections has now been completed. Enclosed is a summary report documenting the status of these conservation collections in addition to an invoice for these services. Upon payment this funding establishes two permanent conservation seed collections for the San Diego Ceanothus at the Rancho Santa Ana Botanic Garden seed storage facilities.

As per the Garden's Conditions of Acceptance Policy and our Agreement the Conservation Seed Collection will remain a permanent collection at RSABG. A back up sample for each collection will be sent to the National Center for Genetic Resource Preservation in Ft. Collins Colorado. See attached Number of Seeds per Individual Worksheet

Our recommendation for a high quality conservation seed collection is a minimum of between 500 - 2500 current season, filled, sound, seed collected from between 30 and 50 individuals. Following the accession information is a statement as to whether we feel the collection is sufficient to serve its intended purpose. When a collection does not meet this minimum standard we will recommend making future additions to the collection. Seed sent to RSA to augment existing funded conservation collections will be stored without charge except for the cleaning and processing costs.

Should you have questions regarding information in this report or about this collection please do not hesitate to give me a call.

Sincerely

Michael Wall

Seed Program Manager

Phone ext. 259

Michael.wall@cgu.edu

Cc: Patricia Gordon-Reedy. Conservation Biology Institute, San Diego, CA



SEED BANK COLLECTION REPORT

23225 *Ceanothus cyaneus* CNDDDB EO# (new occ.) Rhamnaceae
(San Diego *Ceanothus*)

23225 ... SD wild collected in USA

California: San Diego: Cuyamaca Mountains: Crestside Ecological Reserve; 17 miles NE of San Diego and SW of El Capitan Reservoir; 0.9 miles SW of CNDDDB EO#1. Californian: Chaparral. 1500 ft. 32.833422°, 116.833586°. Funded maternal line conservation seed collection; area burned in the 2003 Cedar Fire; plants recovering well although overall pop. size reduced from pre-fire extent; area receives some recreational use; primary threat is from another fire prior to the development of a soil seed bank; minor threats from trail impacts and invasive species. Patricia Gordon-Reedy SN. 16 Aug 2010.

23226 *Ceanothus cyaneus* CNDDDB EO# (new occ.) Rhamnaceae
(San Diego *Ceanothus*)

23226 ... SD wild collected in USA

California: San Diego: Cuyamaca Mountains: Crestside Ecological Reserve; 17 miles NE of San Diego and SW of El Capitan Reservoir; 1.75 miles SW of CNDDDB EO#1. Californian: Chaparral. 1400 ft. 32.833443°, 116.850063°. Funded maternal line conservation seed collection; plants on Cienega soils; most of the area burned in the 2003 Cedar Fire; plants 1-12 from unburned chaparral; area receives some recreational use; primary threat is from another fire prior to the development of a soil seed bank; minor threats from trail impacts and invasive species. Patricia Gordon-Reedy SN. 19 Aug 2010.

LOT NUMBER	ACCESSION NUMBER	COLLECTION YEAR	STATUS CNPS	STATUS FED STATE	SEED QUANTITY	# PLANTS SAMPLED
4299	23225	2010	1B.2	none	52,387	50
4300	23226	2010	1B.2	none	26,526	30

Based on the quantity of seed and the number of individuals sampled these collections **are** considered sufficient to serve their intended purpose.



Active, Base, and Back-up storage units of accession 23225



These seed collections were received as maternal line samples collected from 80 plants in two populations at the Crestridge Ecological Reserve. The fruits were collected at an optimal period and there was a very high percentage of filled, sound, ripe seed. The preceding seed lot table above shows the quantity of filled sound seed that was extracted from the material received. The estimated viability (% live seed) of each sample is greater than 95%. Excellent collection.

From these two collections back-up collections of 8,000 seeds from ca. 80 parents will be stored at the USDA National Center for Genetic Resource Preservation in Ft. Collins, CO. See number of seed per individual worksheet.

These seed collections were dried to equilibrium at 12% relative humidity, packaged in heavy duty foil/plastic seed pouches, heat sealed, and placed into storage at -18° C.

Germination Test Results

Initial germination tests were conducted on 0.5% agar solution on clear plastic examination plates maintained at 11 hrs. light at 20° C and 13 hrs. dark at 12° C. Test results indicate that there **is** physical dormancy in a high percentage of fresh seed that inhibits germination.

LOT_NUM	ACC #	# TESTED	START_DT	END_DT	# GERM	% GERM	SEED TYPE	PRE TREATMENT	MISC
4299*1	23225	Fresh seed	14-Sep-10	6-Oct-10	20	2	10	NT	No Treatment
4299*2	23225	Fresh seed	14-Sep-10	6-Oct-10	20	12	60	SC	Scarification of seed coat using abrasive medium
4299*3	23225	Fresh seed	14-Sep-10	6-Oct-10	20	18	90	HW1	Boiled water; soak cooling 24 hrs.

Tests on accession 23226 are in process at this time.



Seed Photos by John Macdonald

6 October, 2010
Michael Wall – Seed Conservation Program Manager



APPENDIX F GRASSLAND DATA

Appendix F.1 – Species Richness
Appendix F.2 – Species Cover



Appendix F.1 Grassland Species Richness

Species	Transects				Total Hits ¹	% of Plots ¹
	1	2	3	4		
<i>Artemisia californica</i> ²			1		1	3
<i>Malosma laurina</i> ²		1			1	3
<i>Croton setigerus</i>	9	4		4	17	47
<i>Juncus bufonius</i>	8			1	9	25
<i>Clarkia purpurea</i> var. <i>quadrivulnera</i>	3	1			4	11
<i>Crassula connata</i>	2	2			4	11
<i>Amsinckia menziesii</i> var. <i>intermedia</i>			1	1	2	6
<i>Centaureum venustum</i>	1				1	3
<i>Cryptantha</i> sp.		1			1	3
<i>Gnaphalium</i> sp.	1				1	3
<i>Lotus strigosus</i>		1			1	3
<i>Marah macrocarpus</i>		1			1	3
<i>Navarretia</i> sp.		1			1	3
<i>Erodium botrys</i>	2	6	9	8	25	69
<i>Centaurea melitensis</i>		4	3	6	13	36
<i>Anagallis arvensis</i>	8			4	12	33
<i>Silene gallica</i>	8			4	12	33
<i>Lythrum hyssopifolium</i>	8				8	22
<i>Spergularia villosa</i>	8				8	22
<i>Hirschfeldia incana</i>	5	2			7	19
<i>Erodium cicutarium</i>	4	1			5	14
<i>Filago gallica</i>	2	2		1	5	14
<i>Sonchus oleraceus</i>	2	1			3	8
<i>Carduus pycnocephalus</i>			1		1	3
<i>Malva parviflora</i>				1	1	3
<i>Marrubium vulgare</i>	1				1	3
<i>Medicago polymorpha</i>				1	1	3
<i>Rumex crispus</i>				1	1	3
<i>Galium aparine</i>						0
<i>Hypochaeris</i> sp.						0
<i>Stellaria media</i>						0
<i>Urtica urens</i>						0



Species	Transects				Total Hits ¹	% of Plots ¹
	1	2	3	4		
<i>Calandrinia</i> sp.						0
<i>Daucus pusillus</i>						0
<i>Camissonia</i> sp. 1						0
<i>Camissonia</i> sp. 2						0
<i>Conyza canadensis</i>						0
<i>Lotus purshianus</i>						0
<i>Bromus madritensis</i> ssp. <i>rubens</i>	7	8	8	3	26	72
<i>Vulpia myuros</i> var. <i>hirsuta</i>	9	3	1	8	21	58
<i>Bromus diandrus</i>		1	8	5	14	39
<i>Bromus hordeaceus</i>		1	4		5	14
<i>Avena barbata</i>			1	1	2	6

¹There are a total of 36 species richness subplots.

²Due to low temporal variability, shrubs are excluded from discussion of species richness.



Appendix F.2 Grassland Cover

Species	Transects (% cover)				Total Hits ¹	Total % Cover ¹
	1	2	3	4		
<i>Quercus agrifolia</i> ²		6			3	2
<i>Artemisia californica</i> ²	10	2	10		11	6
<i>Malosma laurina</i> ¹		14			7	4
<i>Croton setigerus</i>	16			2	9	5
<i>Amsinckia menziesii</i> var. <i>intermedia</i>			4		2	1
<i>Clarkia purpurea</i> ssp. <i>quadrivulnera</i>	4				2	1
<i>Calandrinia ciliata</i>	2				1	1
<i>Gnaphalium</i> sp.	2				1	1
<i>Juncus bufonius</i>	2				1	1
<i>Linaria canadensis</i>	2				1	1
<i>Marah macrocarpus</i>		2			1	1
<i>Bromus madritensis</i> ssp. <i>rubens</i>	2	27	39	4	35	18
<i>Vulpia myuros</i> var. <i>hirsuta</i>	16	16	10	24	33	17
<i>Bromus diandrus</i>		2	37	6	21	11
<i>Bromus hordeaceus</i>	2		10		6	3
<i>Avena barbata</i>			2	4	3	2
<i>Erodium botrys</i>	12	18	67	71	79	40
<i>Lythrum hyssopifolium</i>	24				12	6
<i>Silene gallica</i>	12		2	6	10	5
<i>Hirschfeldia incana</i>	12	2			7	4
<i>Centaurea melitensis</i>		2	6	6	6	3
<i>Spergularia villosa</i>	8				4	2
<i>Anagallis arvensis</i>				6	3	2
<i>Marrubium vulgare</i>	4				2	1
<i>Medicago polymorpha</i>				2	1	1
Bare Ground	73	57	2	4	136	69
Litter	27	43	98	96	264	135

¹Each transect yielded 49 points, or hits, for a total of 196 points.

²Due to low temporal variability, trees and shrubs are excluded from species cover discussion.



APPENDIX G TRAIL EROSION

Appendix G.1 – La Cresta Trail Erosion
Appendix G.2 – Racetrack Trail Erosion



Photograph Log Crestridge Ecological Reserve

Observer(s): Patricia Gordon-Reedy/Janet McDonald		Date of Observation: 4/9/2010	
Species: --- Trail Erosion		Camera: Canon Powershot G-5	Lens: unless otherwise noted, lens height is 1.37 m from ground
Monument marker: <u>General location:</u> La Cresta Trail <u>Specific location description:</u> <u>GPS coordinates (marker):</u> N32°49.115; W116°52.587			
Landmark points:			
Photo Number	From:	Toward:	Description:
1	Top of trail	Down trail (towards <i>Ceanothus leucodermis</i>)	Trail erosion
2	Bottom of trail	Top of trail (from <i>Ceanothus leucodermis</i> in photo 1)	Trail erosion
3	Bottom of trail	Top of trail (taken below <i>Ceanothus leucodermis</i> in photo 1)	Trail erosion
4			
5			
Additional Notes: None			



Photo 1. La Cresta Trail; view from the top of the trail towards the bottom of the trail.



Photo 2. La Cresta Trail; view from the bottom of the trail towards the top of the trail.



Photo 3. La Cresta Trail; view from bottom of the trail towards top of the trail.

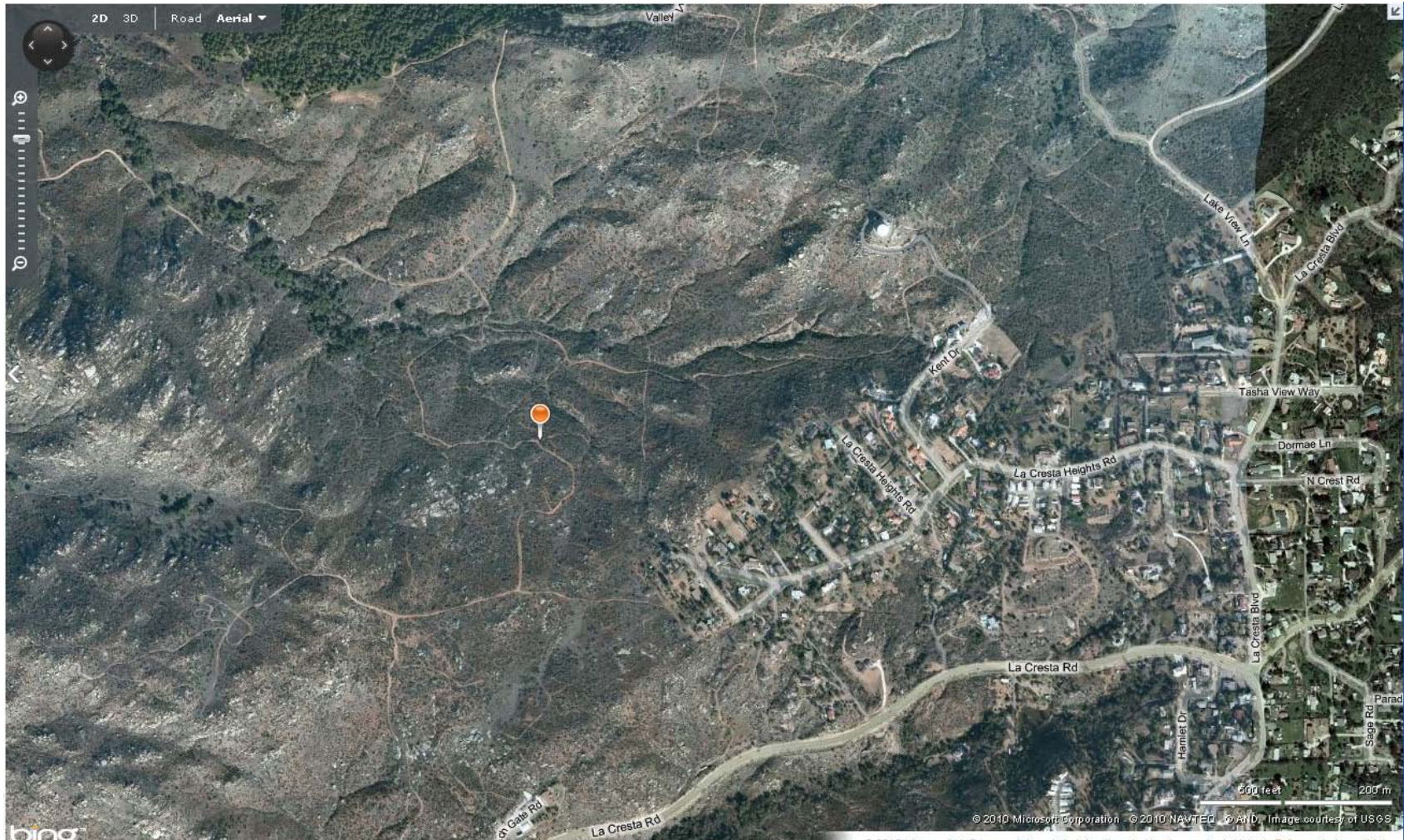


Photo 4. La Cresta Heights Trail erosion; aerial photograph of trail erosion location (Source: 2010 Google map).



Photo 5. La Cresta Heights Trail erosion; Bird's eye-view image of trail erosion location (source: Bing map).



Photograph Log Crestridge Ecological Reserve

Observer(s): Patricia Gordon-Reedy/Janet McDonald		Date of Observation: 05/06/10	
Species: --- Trail Erosion		Camera: Canon Powershot G-5	Lens: unless otherwise noted, lens height is 1.37 m from ground
Monument marker: <u>General location:</u> Racetrack Trail (just north of intersection with trail between Rios Canyon Road and Montana Serena) <u>Specific location description:</u> <u>GPS coordinates (marker):</u> 1 & 2) N32°50.155, W116°50.928 3) N32°50.157, W116°50.929 4) N32°50.091, W116°50.876			
Landmark points:			
Photo Number	From:	Toward:	Description:
1	Middle of trail	Up trail (north)	Trail erosion
2	Middle of trail	Down trail (south)	Trail erosion
3	Bottom of trail	Up trail (north)	Trail erosion
4	6 feet east of trail (on bank above and to east of trail)	Up trail (northwest)	Trail erosion
5			
Additional Notes: Erosion (esp. photo 4, above) seems more pronounced than in 2009			



Photo 1. Racetrack Trail; view from the middle of the trail towards the top of the trail.



Photo 2. Racetrack Trail; view from the middle of the trail towards the bottom of the trail.



Photo 3. Racetrack Trail; view from bottom of the trail towards top of the trail.



Photo 3. Racetrack Trail; view from bottom of the trail towards top of the trail.

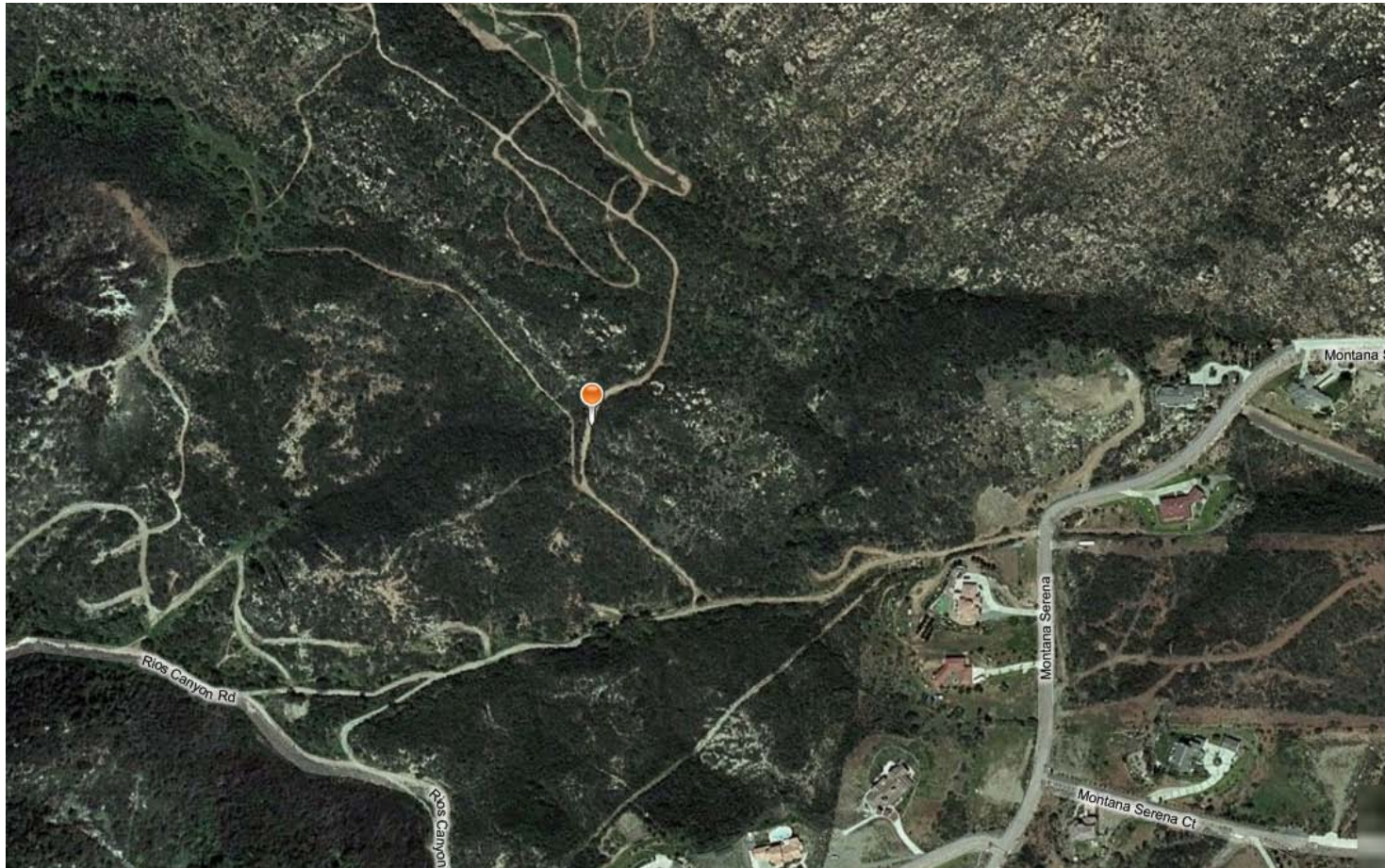


Photo 4. Racetrack Trail erosion; aerial photograph of trail erosion location (Source: 2010 Google map).

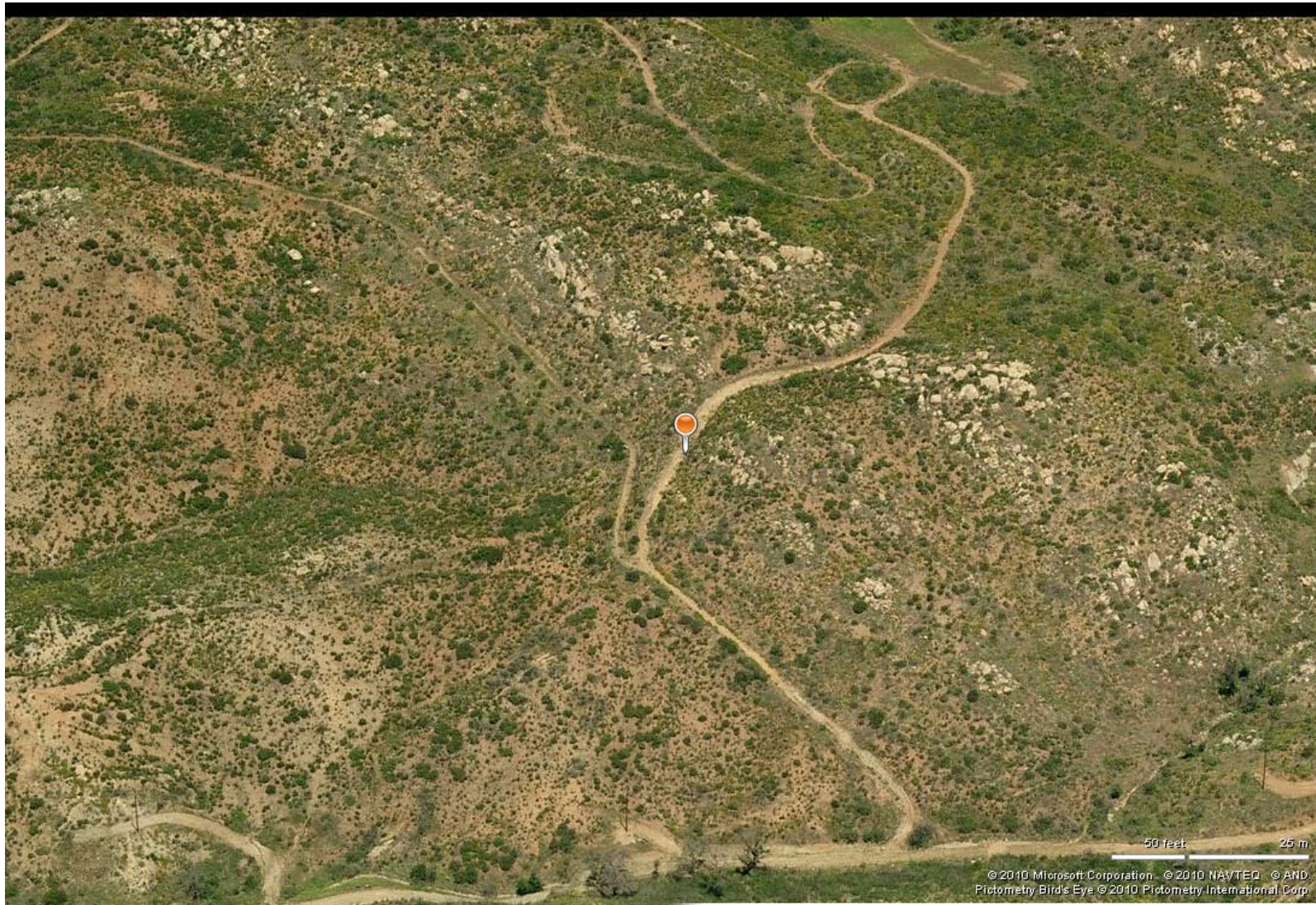


Photo 5. Racetrack Trail erosion; Bird's-eye view image of trail erosion location (Source: Bing map).