County of San Diego

BRIAN ALBRIGHT
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DEPARTMENT OF PARKS AND RECREATION
5500 OVERLAND AVENUE, SUITE 410, SAN DIEGO, CA 92123
Administrative Office (858) 694-3030
www.sdparks.org

August 14, 2015

Sarah Pierce
San Diego Association of Governments
401 B Street, Suite 800
San Diego, CA 92101

RE: LUSARDI CREEK PRESERVE; FINAL MONITORING REPORT

Dear Ms. Pierce,

This letter constitutes the final monitoring report for the restoration effort funded through the TransNet Environmental Mitigation Program 2010 grant cycle.

Monitoring reports were completed for the 2012 and 2013 monitoring years. During the final year of monitoring, the Lusardi Creek Preserve burned during the Bernardo Fire. After the fire, Helix Environmental Consulting visited the restoration site in May 2014 to provide recommendations to remediate damage resulting from the wildfire.

Qualitative monitoring occurred during the final year of monitoring. Monitoring during the final year focused on recovery of native species and colonization of invasive species post-fire. Upon completion of monitoring, some arundo re-sprouts were observed in the wetland areas and vegetative cover in the upland sites was dominated by non-native species. Cacti cuttings that burned in the fire were observed re-sprouting and new growth was observed in both the cuttings that burned and the cuttings that were unaffected by the fire. DPR is currently seeking additional funding to continue maintenance of the site and implement the recommendations discussed in the May 2014 report.

PARKS AND RECREATION
COUNTY OF SAN DIEGO

CAPRA ACCREDITED

Attached are the quarterly monitoring reports for the Year 3 monitoring effort. Please let me know if you have any questions. I can be reached at (858) 966-1379 or by email at Lorrie.Bradley@sdcounty.ca.gov.

Sincerely,

LORRIE BRADLEY, Land Use/Environmental Planner
Resource Management Division

cc: Cheryl Goddard, Group Program Manager, DPR Resource Management Division

attachments

Lusardi Creek – May 2014 Bernardo Fire Damager
Restoration Recommendations

The majority of the restoration and enhancement areas were burned during the May 2014 Bernardo Fire. Native shrubs and seedlings within and adjacent to the restoration and enhancement areas were either burned or damaged. Non-native grasses and invasive species were also burned during the fire leaving a large amount of bare ground. The major restoration concern following the fire is the reemergence, increase, and introduction of non-native grasses and other species within the restoration and enhancement areas. Post-fire restoration and maintenance efforts should focus on the control of non-native species and installation of native seed and plant material to aid in establishing native cover.

Giant Reed Removal Areas

- Riparian Vegetation along Lusardi Creek was burned
  - The major restoration concern is that invasive species and other non-natives will colonize the burned portions of the creek were native herb, shrub, and canopy cover has been reduced
- Recommendations
  - Install willow cuttings at each giant weed removal location to help establish native cover where native riparian vegetation was burned
  - Cuttings can consist of red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), Goodding's willow (*Salix gooddingii*), sandbar willow (*Salix exigua*), and mule fat (*Baccharis salicifolia*).

CSS Restoration Area

- The entire CSS restoration was burned. The majority of native seedlings and young plants were killed or damaged. Non-native grasses were also burned leaving lots of bare ground. Total cover of the restoration area was estimated to be 15 percent.
  - Restoration concerns include the lack of native shrubs and seedlings and reemergence of non-native grasses.
- Recommendations
  - Mow or treat non-native grasses with an appropriate herbicide in August, September, and October
  - Install a native seed mix and container stock in late October following a weeding event (see below for recommended plantings and seed mix)

DIEGAN COASTAL SAGE SCRUB PLANTING AND SEED PALETTE FOR LUSARDI CREEK – CSS RESTORATION AREA (1.35 acres)		
CONTAINER PLANTINGS		
Scientific Name	**Common Name**	**Amount to be Ordered**
Artemisia californica	California sagebrush	300

Encelia californica	California encelia	150
Eriogonum fasciculatum ssp. *fasciculatum*	California buckwheat	200
Malosma laurina	laurel sumac	100
Rhus integrifolia	lemonadeberry	50
Salvia mellifera	black sage	200
	TOTAL	**1,000**

SEED MIXTURE		
Scientific Name	**Common Name**	**Amount to be Ordered**
Artemisia californica	California sagebrush	3
Baccharis pilularis	coyote brush	1
Deinandra fasciculata	fascicled tarplant	2
Encelia californica	California encelia	3
Eriogonum fasciculatum	California buckwheat	6
Eriophyllum confertiflorum	golden-yarrow	2
Eschscholzia californica	California poppy	2
Isocoma menziesii	goldenbush	1
Lasthenia gracilis	common goldfields	2
Acmispon glaber	deerweed	1
Lupinus succulentus	arroyo lupine	2
Mimulus aurantiacus	monkeyflower	2
Stipa pulchra	purple needlegrass	6
Plantago erecta	dot-seed plantain	2
Salvia mellifera	black sage	3
Sisyrinchium bellum	blue-eyed grass	2
	TOTAL	**40**

Lower Enhancement Area

- The entire lower enhancement area was burned during the fire. Approximately 50 percent of the cacti cuttings were burned. Non-native grasses and native shrubs throughout the lower enhancement areas were also burned.
  - Restoration concerns include the loss of cacti cuttings, reduction in native cover, and reemergence of non-native grasses.
- Recommendations
  - Mow or treat non-native grasses with an appropriate herbicide in August, September, and October
  - Install a native seed mix in late October following a weeding event in the lower enhancement area (Approximately 4.76 acres)
  - Replace dead cacti cuttings

DIEGAN COASTAL SAGE SCRUB SEED PALETTE FOR LUSARDI CREEK – LOWER ENHANCEMENT AREA (4.76 acres)		
SEED MIXTURE		
Scientific Name	**Common Name**	**Amount to be Ordered**
Artemisia californica	California sagebrush	10
Baccharis pilularis	coyote brush	3
Deinandra fasciculata	fascicled tarplant	7
Encelia californica	California encelia	10
Eriogonum fasciculatum	California buckwheat	21
Eriophyllum confertiflorum	golden-yarrow	7
Eschscholzia californica	California poppy	7
Isocoma menziesii	goldenbush	3
Lasthenia gracilis	common goldfields	7
Acmispon glaber	deerweed	3
Lupinus succulentus	arroyo lupine	7
Mimulus aurantiacus	monkeyflower	7
Stipa pulchra	purple needlegrass	21
Plantago erecta	dot-seed plantain	7
Salvia mellifera	black sage	10
Sisyrinchium bellum	blue-eyed grass	7
	TOTAL	**137**

Upper Enhancement Area

- Approximately 1/3 of the upper enhancement area was burned during the fire. The burned area is concentrated in the northeast and southeast area.
  - Restoration concerns include the reduction in native shrub cover outside of the dethatched area, lack of native germination within the dethatched area, and the introduction and increase in non-native species.
- Recommendations
  - Mow or treat non-natives with an appropriate herbicide in August, September, and October
  - Install a native seed mix in late October following a weeding event within the upper enhancement area (approximately 9.75 acres)

DIEGAN COASTAL SAGE SCRUB SEED PALETTE FOR LUSARDI CREEK – UPPER ENHANCEMENT AREA (9.75 acres)		
SEED MIXTURE		
Scientific Name	**Common Name**	**Amount to be Ordered**
Artemisia californica	California sagebrush	21
Baccharis pilularis	coyote brush	7
Deinandra fasciculata	fascicled tarplant	14
Encelia californica	California encelia	21
Eriogonum fasciculatum	California buckwheat	43
Eriophyllum confertiflorum	golden-yarrow	14
Eschscholzia californica	California poppy	14
Isocoma menziesii	goldenbush	**7**
Lasthenia gracilis	common goldfields	14
Acmispon glaber	deerweed	7
Lupinus succulentus	arroyo lupine	14
Mimulus aurantiacus	monkeyflower	14
Stipa pulchra	purple needlegrass	43
Plantago erecta	dot-seed plantain	14
Salvia mellifera	black sage	21
Sisyrinchium bellum	blue-eyed grass	14
	TOTAL	**282**

Lusardi Creek
May 2014 Bernardo Fire

Upper Enhancement Area

Lower Enhancement Area

Lusardi Creek
May 2014 Bernardo Fire

CSS Restoration Area

Preserve Overviews

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
Suite 200
La Mesa, CA 91942
619.462.1515 **tel**
619.462.0552 **fax**
www.**helixepi**.com

July 25, 2013 CSD-02.02

Cheryl Goddard
County of San Diego Parks and Recreation
5500 Overland Ave., Ste. 410
San Diego, CA. 92123

Subject: Quarterly Monitoring Log for the Lusardi Creek Project

Dear Ms. Goddard:

This letter summarizes the restoration monitoring activities performed by HELIX Environmental Planning Inc. (HELIX) at the Lusardi Creek Project Site. HELIX biologist Erica Harris conducted a monitoring visit of the site on July 8, 2014. Ms. Harris monitored previously treated areas along Lusardi Creek, the 1.35-acre coastal sage scrub (CSS) restoration completed in 2012, and the 19.2-acre CSS restoration/enhancement completed in 2013.

Project Location and Description

The project is funded through a 2010 TransNet Environmental Mitigation Program grant and is intended to remove and treat invasive non-native plant species that are infesting Lusardi Creek and upland habitat within the Lusardi Creek Preserve (Preserve). The Preserve is located within the northern portion of the County of San Diego, to the east of Camino Del Sur and north of San Dieguito Road (Figure 1). The Preserve is located in Sections 26 and 27, Township 13S, Range 3W, and is mapped on the Rancho Santa Fe U.S. Geological Survey 7.5-minute quadrangle map (Figure 2).

Treatment and removal of non-natives, mainly giant reed (*Arundo donax*), within Lusardi Creek and restoration of 1.35 acres of CSS was previously completed in 2012 by Dudek (Figure 3). An additional 19.2 acres of CSS restoration/enhancement were completed in April 2013 by HELIX (Figure 3). The restoration/enhancement site is situated upslope of and adjacent to Lusardi Creek and contains two separate areas: a lower portion bordering Lusardi Creek and an upper portion situated on top of an adjacent hill. Restoration/enhancement included dethatching of non-natives and installation of a CSS seed mix on an approximately 3-acre area within the upland enhancement portion. Additionally, approximately 150 cacti cuttings were installed within lower enhancement area.

Monitoring of Restored/Treated Areas

A large majority of the enhancement area was burned during the May 2014 Bernardo Fire. Native shrubs and seedlings within and adjacent to the enhancement areas were burned or damaged. Non-native grasses and invasive weed species were also burned leaving large amounts of bare ground. A summary of observations at each enhancement area is included below. Representative photographs were taken at previously established photo points during the monitoring visit and are included in Attachment A.

Giant Reed Removal (photo points 1 through 4)

Photo Point 1
No resprouting arundo was observed within the treatment area.

Photo Point 2
No resprouting arundo was observed within the treatment area.

Photo Point 3
A few resprouts of arundo were observed within the treatment area. Resprouts were between 1 and 3 feet tall. Resprouts should be cut at the base and treated with an appropriate herbicide to ensure control.

Photo Point 4
A few resprouts of arundo were observed within the treatment area. Resprouts were between 1 and 3 feet tall. Resprouts should be cut at the base and treated with an appropriate herbicide to ensure control.

CSS Restoration-1.35 acre Area (photo points 5 and 6)

The entire 1.35 acre CSS restoration site was burned during the Bernardo Fire. The majority of native seedlings and young plants were killed or damaged. Total cover was visually estimated to be 15 percent during the visit with native cover at 10 percent and non-native cover at 5 percent. While non-native cover has decreased due to the fire, the majority of the restoration site is currently bare. Reemergence of non-natives within the restoration site is a high concern.

Regular maintenance of the restoration site should continue. Maintenance activities should focus on controlling the reemergence of non-natives following the fire. Non-natives should either be handpulled or treated with an appropriate herbicide prior to plants setting seed. Any flower or seed heads present should be cut and removed from the site to prevent the distribution and spread of non-native species within the restoration site.

CSS Restoration/Enhancement-Upper Portion (photo points 7 through 12)

Approximately one third of the upper enhancement area was burned during the Bernardo Fire. The burned area is concentrated in the northeast and southeast portions of the area. Fire damage

within the dethatched portion of the enhancement area was minimal and is limited to the southern and northern edges.

No germination of native species within the dethatched portion was detected. Non-native cover was visually estimated to be less than 5 percent. Several Russian thistle (*Salsola tragus*) plants were observed at the eastern entrance. Russian thistle should either be handpulled or treated with an appropriate herbicide prior to plants setting seed. Any flower or seed heads present should be cut and removed from the site.

CSS Restoration/Enhancement-Lower Portion (photo points 13 through 16)

The entire lower enhancement area was burned during the Bernardo Fire. Approximately 50 percent of the cacti cuttings with either burned or damaged. The health of the cuttings will continue to be monitored during future visits.

Annual Bird Counts

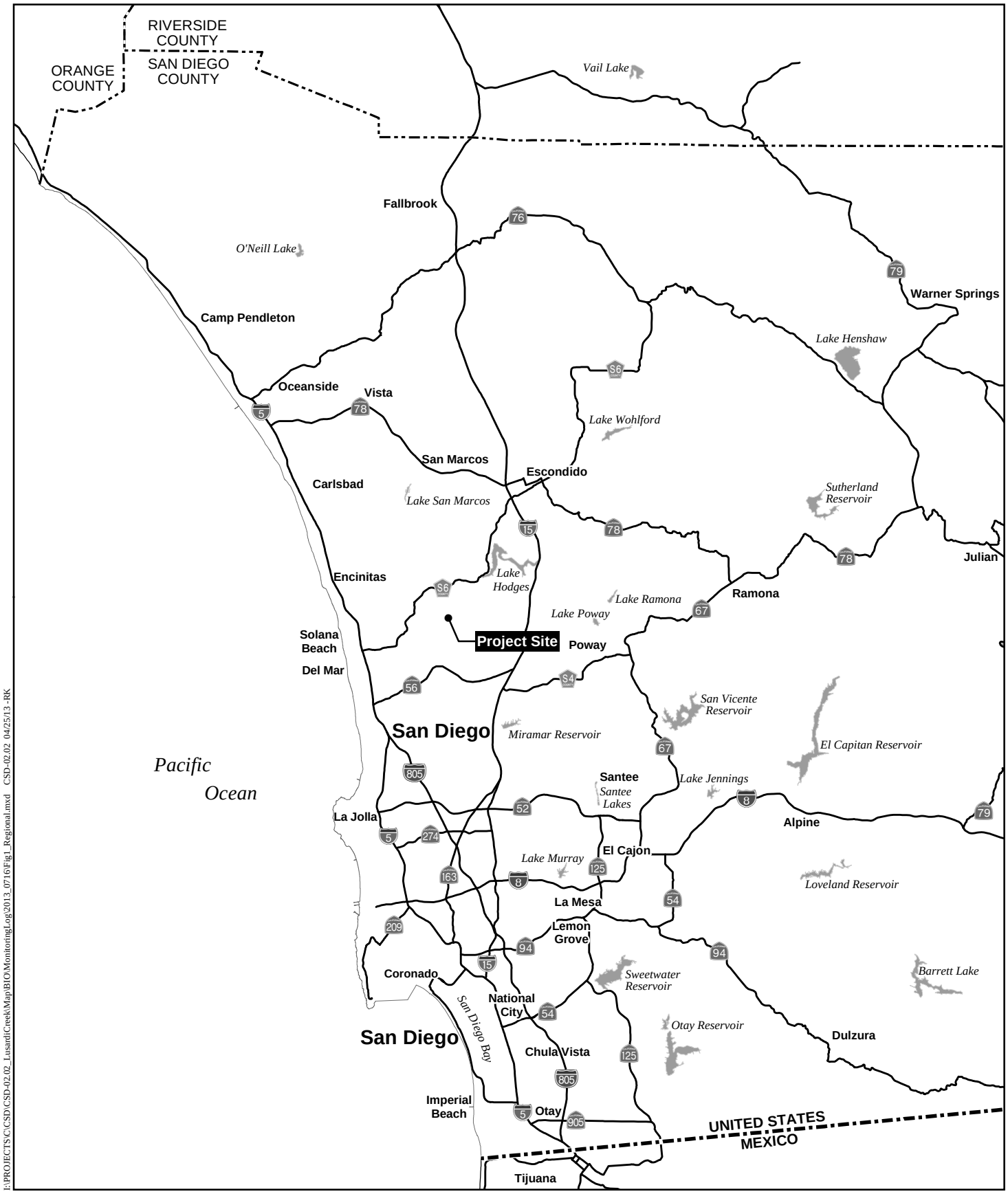
The annual avian point count survey was conducted during the July monitoring visit. Locations 2 and 4 identified in Figure 5 of the Lusardi Creek Preserve Biological Baseline Survey were surveyed in addition to two other locations (Figure 3). All avian species were detected either by sight or sound and were recorded over a 10-minute period at each point count location. The point count data sheets are included in Attachment B. A total of 47 individuals representing 24 species were detected during the point count surveys. A list of all species observed or detected is included as Attachment C. Avian alpha codes were used to record species on the point count data sheets. The alpha codes are included in parenthesis next to the common name of the species on Attachment C.

Please feel free to contact me or Monica Bilodeau (619-462-1515) if you have any questions.

Sincerely,

Erica Harris
Biologist

Enclosures: Figure 1-Regional Location Map
Figure 2-Project Location Map
Figure 3- Enhancement/Restoration Areas
Attachment A – Representative Site Photos
Attachment B-Avian Point Count Data Sheets
Attachment C-Animal Species Observed or Detected



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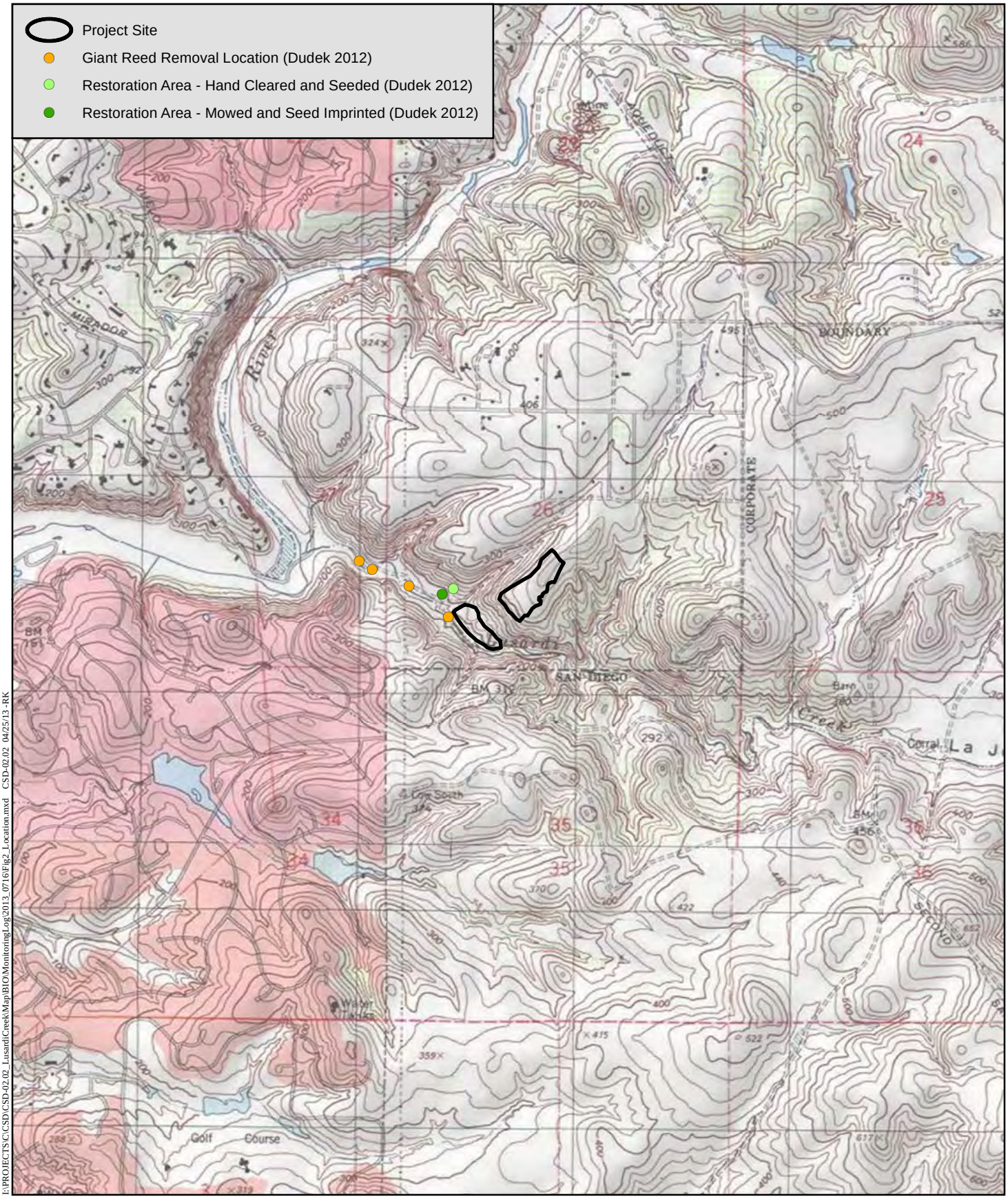
Regional Location Map

LUSARDI CREEK

HELIX Environmental Planning

N 0 8 Miles

Figure 1



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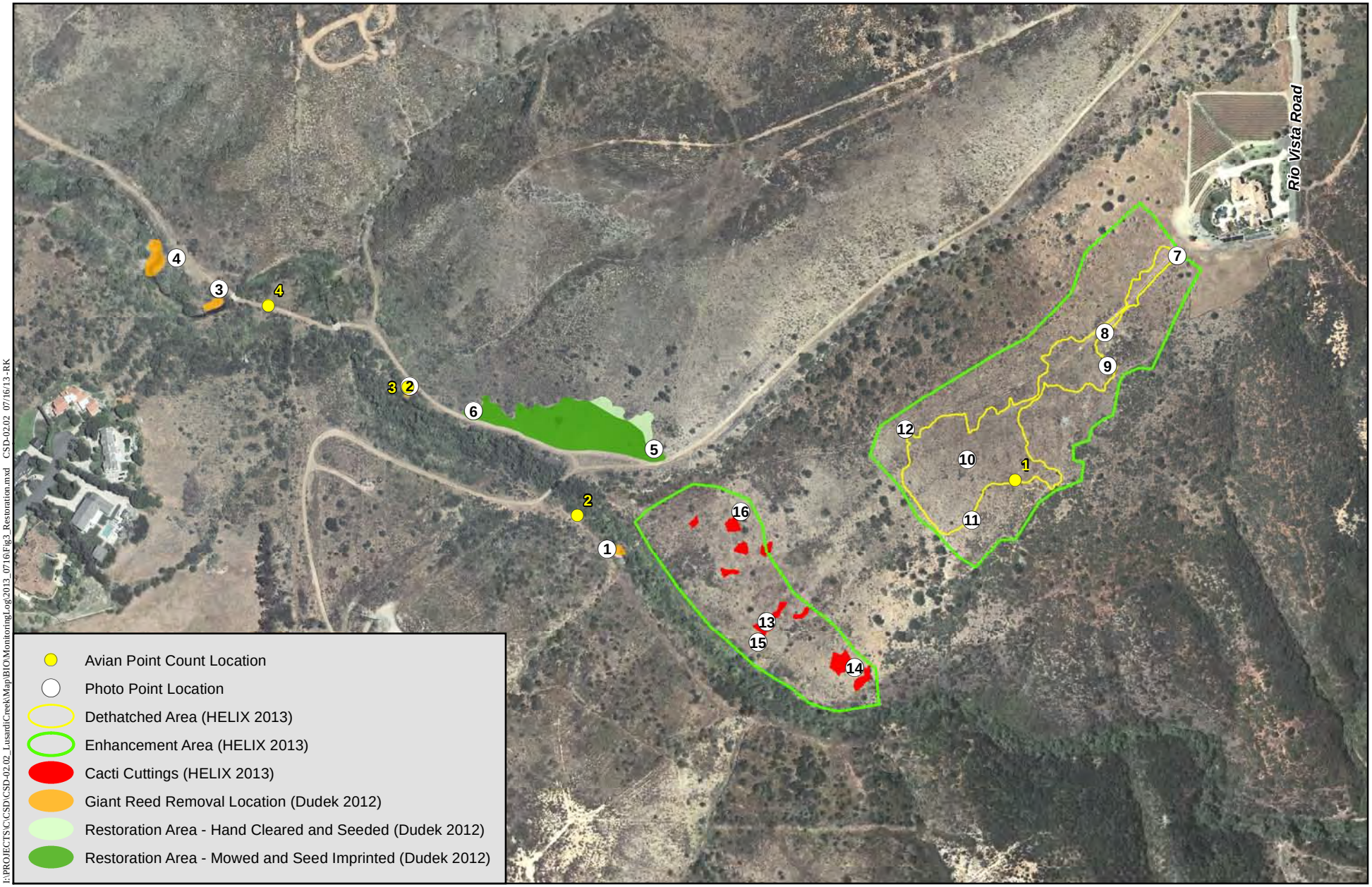
Project Location Map

LUSARDI CREEK

HELIX Environmental Planning

Figure 2



Enhancement/Restoration Areas

LUSARDI CREEK

HELIX Environmental Planning

N 0 400 Feet

Figure 3

ATTACHMENT A
LUSARDI CREEK PRESERVE
REPRESENTATIVE SITE PHOTOGRAPHS

Photo Point 1-Far upstream Lusardi Creek Target Control Area

Photo Point 2-Northeastern Lusardi Creek Target Control Area

ATTACHMENT A
LUSARDI CREEK PRESERVE
REPRESENTATIVE SITE PHOTOGRAPHS

Photo Point 3-Lusardi Creek Target Control Area (downstream of Arizona crossing)

Photo Point 4-Downstream Lusardi Creek Target Area

ATTACHMENT A
LUSARDI CREEK PRESERVE
REPRESENTATIVE SITE PHOTOGRAPHS

Photo Point 5-Facing west across CSS restoration area

Photo Point 6-Facing east across CSS restoration area

ATTACHMENT A
LUSARDI CREEK PRESERVE
REPRESENTATIVE SITE PHOTOGRAPHS

Photo Point 7-Upper mesa facing southwest

Photo Point 8-Upper mesa facing northeast

ATTACHMENT A
LUSARDI CREEK PRESERVE
REPRESENTATIVE SITE PHOTOGRAPHS

Photo Point 9- Upper mesa panoramic facing southwest

Photo Point 10-Upper mesa panoramic facing northeast

ATTACHMENT A
LUSARDI CREEK PRESERVE
REPRESENTATIVE SITE PHOTOGRAPHS

Photo Point 11- Upper mesa facing northwest

Photo Point 12- Upper mesa facing southeast

ATTACHMENT A
LUSARDI CREEK PRESERVE
REPRESENTATIVE SITE PHOTOGRAPHS

Photo Point 13: Cacti cuttings at Plot 2

Photo Point 14: Cacti cuttings at Plot 3

Photo Point 15: Cacti cuttings at Plot 5

Photo Point 16: Cacti cuttings at Plot 7

Lusardi Creek
Point Count Data Form

Point #	Date	Observer	Time Start	Temperature	Wind	Cloud Cover
PC1	7/8/14	Erica H	0707	68°F	0-1	100%

TIME	Species	Abundance	Distance (m)	Behavior
1	BHGR	1	<50	S
1	PHAI	1	<50	C
1	CLSW	1	18	FA/C
2	ANHU	1	27	S
3	NOMO	1	<50	S
4	BEMR	1	<50	S
4	WEBJ	1	<50	C
5	AMCR	1	<50	C
8	HOFI	1	19	FO/C
9	CALT	1	33	C

S=singing CB=courting behavior FS=food searching FH=food handling
C=calling NB=nesting behavior CF=carrying food A=aggressive behavior
P=perching D=Drumming H=humming O=other U=unknown
FO=flyover F=foraging

Other: LEM
NHA

Lusardi Creek
Point Count Data Form

Point #	Date	Observer	Time Start	Temperature	Wind	Cloud Cover
PC2	7/8/14	EnCaH1	0640	71°F	0-2	20%

TIME	Species	Abundance	Distance (m)	Behavior
1	ATFL	1	<50	S
1	CALT	1	<50	C
1	BHGR	1	48	S
2	AMCR	1	<50	C
3	NUWO	1	13	S
3	ANTW	1	7	P
4	PHAI	1	37	C
5	NOMO	1	29	S
6	HOFI	1	41	FO/C
6	BUSH	3	18	C
7	RTHA	1	<50	FO
8	SPTO	1	5	C
8	PHAI	1	11	P
9	NOMO	1	11	P/S/FO
10	BEMR	1	<50	S

S=singing CB=courting behavior FS=food searching FH=food handling
C=calling NB=nesting behavior CF=carrying food A=aggressive behavior
P=perching D=Drumming H=humming O=other U=unknown
FO=flyover F=foraging

RTHA

Lusardi Creek
Point Count Data Form

Point #	Date	Observer	Time Start	Temperature	Wind	Cloud Cover
PC3	7/8/14	Erica H	0800	69°F	0-1	100%

TIME	Species	Abundance	Distance (m)	Behavior
1	PHAI	1	<50	C
1	CALT	1	47	C
2	NUWO	1	31	S
2	ANHU	1	29	FO
3	LEGO	1	<50	C
3	COYE	1	22	S
4	HOFI	1	44	C
5	RCSP	1	49	C
6	AMCR	1	<50	C
8	CLSW	1	46	C

S=singing CB=courting behavior FS=food searching FH=food handling
C=calling NB=nesting behavior CF=carrying food A=aggressive behavior
P=perching D=Drumming H=humming O=other U=unknown
FO=flyover F=foraging

Lusardi Creek
Point Count Data Form

Point #	Date	Observer	Time Start	Temperature	Wind	Cloud Cover
PC4	7/8/14	Erica H	0746	68°F	0-1	100%

TIME	Species	Abundance	Distance (m)	Behavior
1	WREN	1	44	C
1	BCHU	1	13	C
1	CALT	1	38	C
2	LEGO	1	<50	C
3	MODO	1	<50	S
3	SOSP	1	21	C
4	COYE	1	24	C
6	HOFI	1	30	C/FO
7	MODO	1	<50	FO
10	BHGR	1	<50	S

S=singing CB=courting behavior FS=food searching FH=food handling
C=calling NB=nesting behavior CF=carrying food A=aggressive behavior
P=perching D=Drumming H=humming O=other U=unknown
FO=flyover F=foraging

ATTACHMENT C
ANIMAL SPECIES OBSERVED OR DETECTED
Lusardi Creek Preserve

TAXON		SCIENTIFC NAME	COMMON NAME
VERTEBRATES			
Birds			
Order	Family		
Accipitriformes	Accipitridae	*Buteo jamaicensis*	Red-tailed Hawk (RTHA)
		Circus cyaneus	Northern Harrier (NOHA)
Apodiformes	Trochilidae	*Archilochus alexandri*	Black-chinned Hummingbird (BCHU)
		Calypte anna	Anna's Hummingbird (ANHU)
Caprimulgiformes	Caprimulgidae	*Chordeiles minor*	Lesser Nighthawk (LENI)
Columbiformes	Columbidae	*Zenaida macroura*	Mourning Dove (MODO)
Passeriformes	Aegithalidae	*Psaltriparus minimus*	Bushtit (BUSH)
	Cardinalidae	*Pheucticus melanocephalus*	Black-headed Grosbeak (BHGR)
	Corvidae	*Aphelocoma californica*	Western Scrub-Jay (WESJ)
		Corvus brachyrhynchos	American Crow (AMCR)
	Emberizidae	*Aimophila ruficeps*	Rufous-crowned Sparrow (RCSP)
		Melospiza melodia	Song Sparrow (SOSP)
		Melozone crissalis	California Towhee (CALT)
		Pipilo maculates	Spotted Towhee (SPTO)
	Fringillidae	*Haemorhous mexicanus*	House Finch (HOFI)
		Spinus psaltria	Lesser Goldfinch (LEGO)
	Hirundinidae	*Petrochelidon pyrrhonota*	Cliff Swallow (CLSW)
	Mimidae	*Mimus polyglottos*	Northern Mockingbird (NOMO)
	Parulidae	*Geothlypis trichas*	Common Yellowthroat (COYE)
	Ptilogonatidae	*Phainopepla nitens*	Phainopepla (PHAI)
	Sylviidae	*Chamaea fasciata*	Wrentit (WREN)
	Troglodytidae	*Thryomanes bewickii*	Bewick's Wren (BEWR)
	Tyrannidae	*Myiarchus cinerascens*	Ash-throated Flycatcher (ATFL)
Piciformes	Picidae	*Picoides nuttallii*	Nuttall's Woodpecker (NUWO)

HELIX Environmental Planning, Inc.
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619.462.1515 **tel**
619.462.0552 **fax**
www.**helixepi**.com

October 20, 2014 CSD-02.02

Cheryl Goddard
County of San Diego Parks and Recreation
5500 Overland Ave., Ste. 410
San Diego, CA. 92123

Subject: Quarterly Monitoring Log for the Lusardi Creek Project

Dear Ms. Goddard:

This letter summarizes the restoration monitoring activities performed by HELIX Environmental Planning Inc. (HELIX) at the Lusardi Creek Project Site. HELIX biologist Erica Harris conducted a monitoring visit of the site on October 15, 2014. Ms. Harris monitored previously treated areas along Lusardi Creek, the 1.35-acre coastal sage scrub (CSS) restoration completed in 2012, and the 19.2-acre CSS restoration/enhancement completed in 2013.

Project Location and Description

The project is funded through a 2010 TransNet Environmental Mitigation Program grant and is intended to remove and treat invasive non-native plant species that are infesting Lusardi Creek and upland habitat within the Lusardi Creek Preserve (Preserve). The Preserve is located within the northern portion of the County of San Diego, to the east of Camino Del Sur and north of San Dieguito Road (Figure 1). The Preserve is located in Sections 26 and 27, Township 13S, Range 3W, and is mapped on the Rancho Santa Fe U.S. Geological Survey 7.5-minute quadrangle map (Figure 2).

Treatment and removal of non-natives, mainly giant reed (*Arundo donax*), within Lusardi Creek and restoration of 1.35 acres of CSS was previously completed in 2012 by Dudek (Figure 3). An additional 19.2 acres of CSS restoration/enhancement were completed in April 2013 by HELIX (Figure 3). The restoration/enhancement site is situated upslope of and adjacent to Lusardi Creek and contains two separate areas: a lower portion bordering Lusardi Creek and an upper portion situated on top of an adjacent hill. Restoration/enhancement included dethatching of non-natives and installation of a CSS seed mix on an approximately 3-acre area within the upland enhancement portion. Additionally, approximately 150 cacti cuttings were installed within lower enhancement area.

Monitoring of Restored/Treated Areas

A large majority of the enhancement area was burned during the May 2014 Bernardo Fire. Native shrubs and seedlings within and adjacent to the enhancement areas were burned and/or damaged. Non-native grasses and invasive weed species were also burned leaving large amounts of bare ground. A summary of observations at each enhancement area is included below. Representative photographs were taken at previously established photo points during the monitoring visit and are included in Attachment A.

Giant Reed Removal (photo points 1 through 4)

Photo Point 1
No resprouting arundo was observed within the treatment area.

Photo Point 2
No resprouting arundo was observed within the treatment area.

Photo Point 3
A fair amount of resprouting arundo was observed within the treatment area. Resprouts were between 3 and 6 feet tall. Resprouts should be cut at the base and treated with an appropriate herbicide to ensure control.

Photo Point 4
A fair amount of resprouting arundo was observed within the treatment area. Resprouts were between 4 and 6 feet tall. Resprouts should be cut at the base and treated with an appropriate herbicide to ensure control.

CSS Restoration-1.35 acre Area (photo points 5 and 6)

The entire 1.35 acre CSS restoration site was burned during the Bernardo Fire. The majority of native seedlings and young plants were killed or damaged. Total cover was visually estimated to be 15 percent during the visit with native cover at 10 percent and non-native cover at 5 percent. While non-native cover has decreased due to the fire, the majority of the restoration site is currently bare. Reemergence of non-natives within the restoration site remains a high concern. Emerging Russian thistle (*Salsola tragus*) was observed along the irrigation piping bordering the road and one Mexican fan palm (*Washingtonia robusta*) seedling was detected in the southern portion of the site.

Regular maintenance of the restoration site should continue. Maintenance activities should focus on controlling the reemergence of non-native species. Non-natives should either be handpulled or treated with an appropriate herbicide prior to plants setting seed. Any flower or seed heads present should be cut and removed from the site to prevent the distribution and spread of non-native species within the restoration site.

CSS Restoration/Enhancement-Upper Portion (photo points 7 through 12)

Approximately one third of the upper enhancement area was burned during the Bernardo Fire. The burned area is concentrated in the northeast and southeast portions of the area. Fire damage within the dethatched portion of the enhancement area was minimal and is limited to the southern and northern edges.

No germination of native species within the dethatched portion was detected. Non-native cover was visually estimated to be less than 5 percent. Several Russian thistle (*Salsola tragus*) plants were observed at the eastern entrance. Russian thistle should either be handpulled or treated with an appropriate herbicide prior to plants setting seed. Any flower or seed heads present should be cut and removed from the site.

CSS Restoration/Enhancement-Lower Portion (photo points 13 through 16)

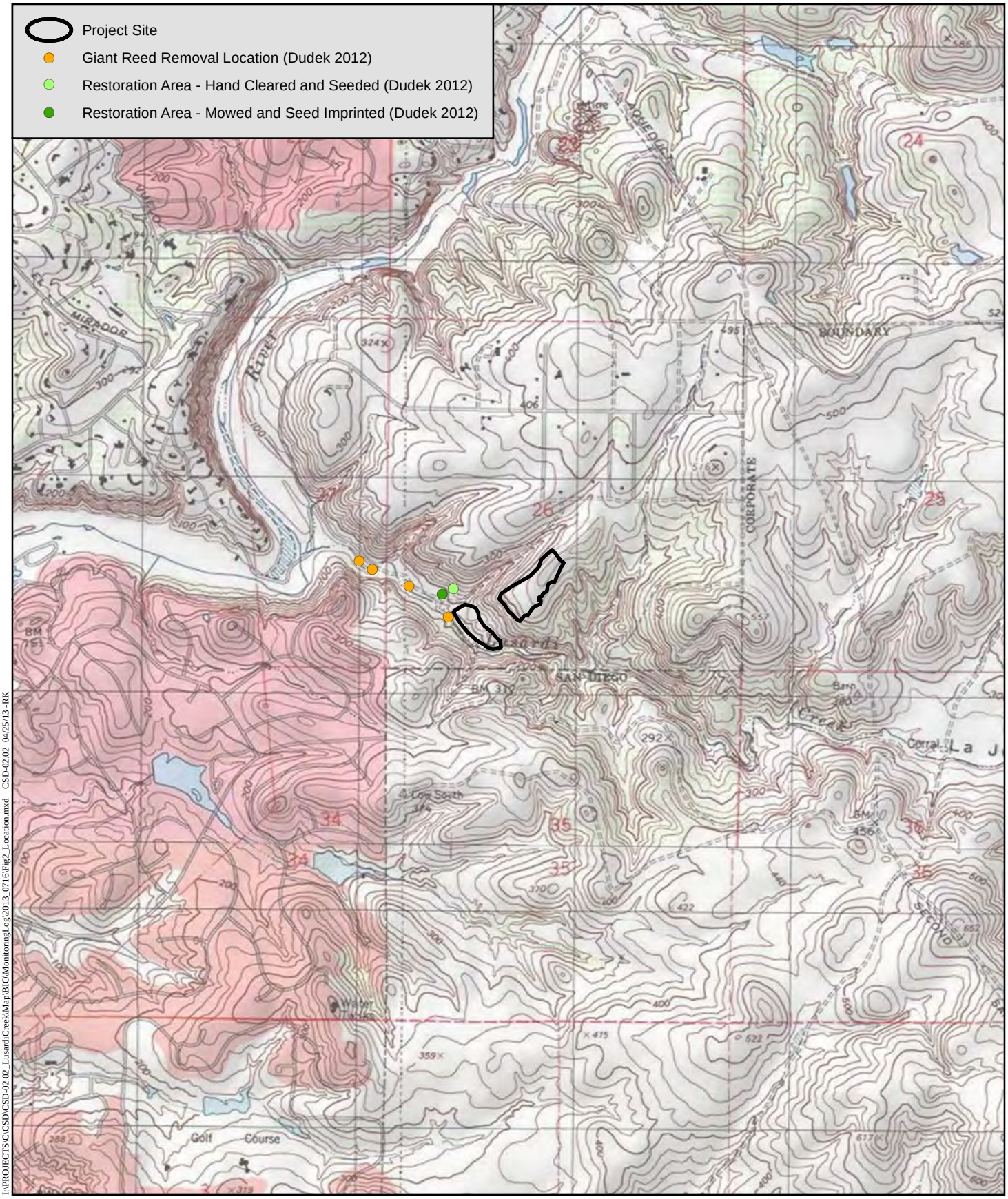
The entire lower enhancement area was burned during the Bernardo Fire. However, the majority of cacti cuttings seem to be recovering with new growth segments observed on several of the cuttings, including damaged individuals. Non-native cover within the lower enhancement area remains low since the vast majority non-native grasses were burned during the Bernardo Fire.

Please feel free to contact me or Monica Bilodeau (619-462-1515) if you have any questions.

Sincerely,

Erica Harris
Biologist

Enclosures: Figure 1-Regional Location Map
Figure 2-Project Location Map
Figure 3- Enhancement/Restoration Areas
Attachment A – Representative Site Photos



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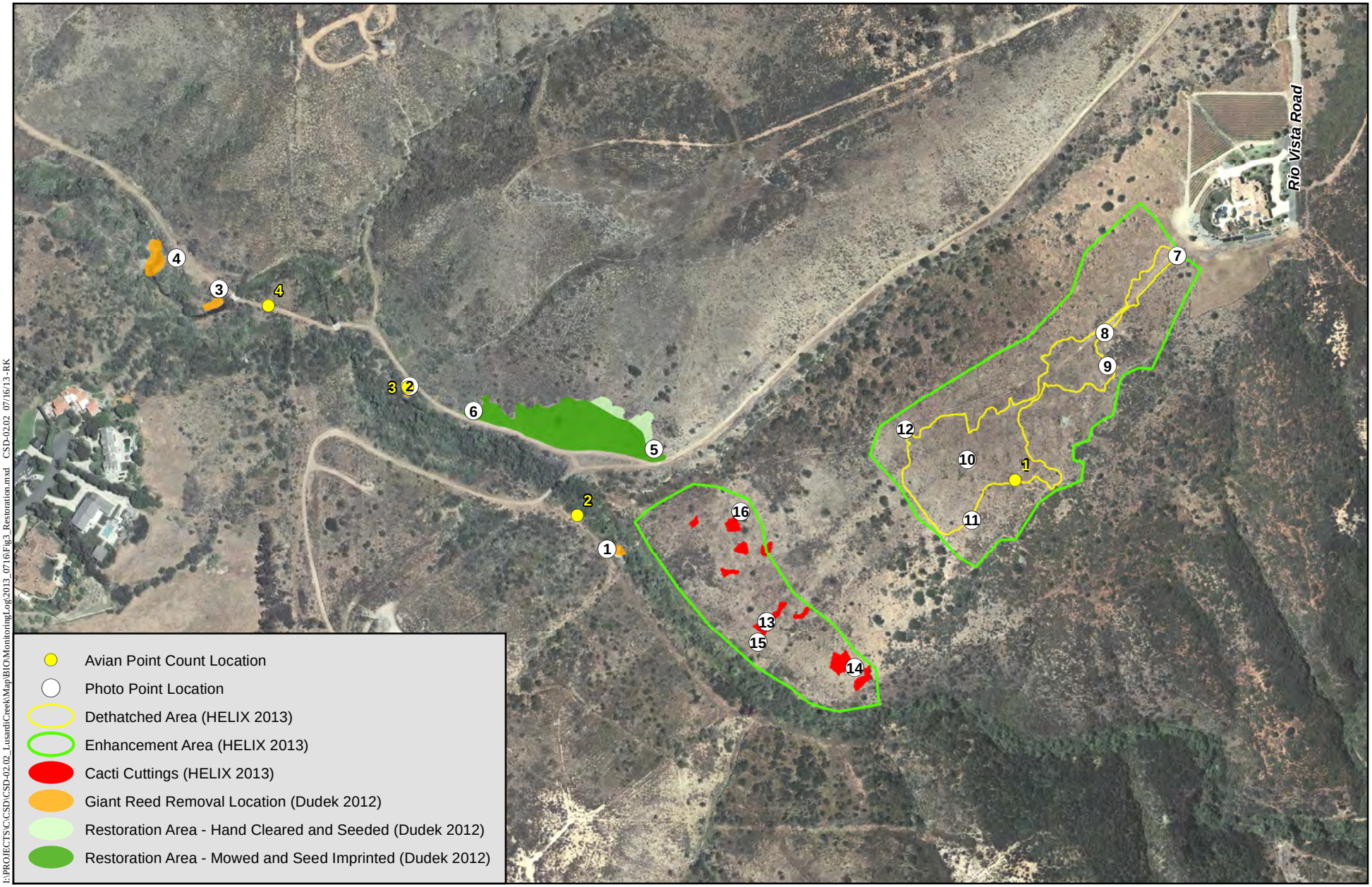
Project Location Map

LUSARDI CREEK

HELIX Environmental Planning

Figure 2



Enhancement/Restoration Areas

LUSARDI CREEK

HELIX Environmental Planning

N 0 400 Feet

Figure 3

ATTACHMENT A
LUSARDI CREEK PRESERVE
REPRESENTATIVE SITE PHOTOGRAPHS

Photo Point 1-Far upstream Lusardi Creek Target Control Area

Photo Point 2-Northeastern Lusardi Creek Target Control Area

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Photo Point 3-Lusardi Creek Target Control Area (downstream of Arizona crossing)

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Photo Point 5-Facing west across CSS restoration area

Photo Point 6-Facing east across CSS restoration area

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Photo Point 7-Upper mesa facing southwest

Photo Point 8-Upper mesa facing northeast

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Photo Point 9- Upper mesa panoramic facing southwest

Photo Point 10-Upper mesa panoramic facing northeast

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Photo Point 11- Upper mesa facing northwest

Photo Point 12- Upper mesa facing southeast

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Photo Point 13: Cacti cuttings at Plot 2

Photo Point 14: Cacti cuttings at Plot 3

Photo Point 15: Cacti cuttings at Plot 5

Photo Point 16: Cacti cuttings at Plot 7

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www.**helixepi**.com

January 27, 2015 CSD-02.02

Cheryl Goddard
County of San Diego Parks and Recreation
5500 Overland Ave., Ste. 410
San Diego, CA. 92123

Subject: Quarterly Monitoring Log for the Lusardi Creek Project

Dear Ms. Goddard:

This letter summarizes the restoration monitoring activities performed by HELIX Environmental Planning Inc. (HELIX) at the Lusardi Creek Project Site. HELIX biologist Erica Harris conducted the final of eight quarterly visit of the site on January 15, 2015. Ms. Harris monitored previously treated areas along Lusardi Creek, the 1.35-acre coastal sage scrub (CSS) restoration completed in 2012, and the 19.2-acre CSS restoration/enhancement completed in 2013.

Project Location and Description

The project is funded through a 2010 TransNet Environmental Mitigation Program grant and is intended to remove and treat invasive non-native plant species that are infesting Lusardi Creek and upland habitat within the Lusardi Creek Preserve (Preserve). The Preserve is located within the northern portion of the County of San Diego, to the east of Camino Del Sur and north of San Dieguito Road (Figure 1). The Preserve is located in Sections 26 and 27, Township 13S, Range 3W, and is mapped on the Rancho Santa Fe U.S. Geological Survey 7.5-minute quadrangle map (Figure 2).

Treatment and removal of non-natives, mainly giant reed (*Arundo donax*), within Lusardi Creek and restoration of 1.35 acres of CSS was previously completed in 2012 by Dudek (Figure 3). An additional 19.2 acres of CSS restoration/enhancement were completed in April 2013 by HELIX (Figure 3). The restoration/enhancement site is situated upslope of and adjacent to Lusardi Creek and contains two separate areas: a lower portion bordering Lusardi Creek and an upper portion situated on top of an adjacent hill. Restoration/enhancement included dethatching of non-natives and installation of a CSS seed mix on an approximately 3-acre area within the upland enhancement portion. Additionally, approximately 150 cacti cuttings were installed within lower enhancement area.

Monitoring of Restored/Treated Areas

A large majority of the enhancement area was burned during the May 2014 Bernardo Fire. Native shrubs and seedlings within and adjacent to the enhancement areas were burned and/or damaged. During the January 2015 site visit several plants were observed to have begun resprouting, particularly coast prickly pear (*Opuntia littoralis*). Non-native grasses and invasive weed species were also burned leaving large amounts of bare ground during the summer months. Non-native grasses have begun to emerge throughout the restoration sites following the winter rains. A summary of observations at each enhancement area is included below. Representative photographs were taken at previously established photo points during the monitoring visit and are included in Attachment A.

Giant Reed Removal (photo points 1 through 4)

Photo Point 1
A few resprouts of giant reed were observed within the treatment area.

Photo Point 2
No resprouting giant reed was observed within the treatment area.

Photo Point 3
Multiple resprouts of giant reed were observed within the treatment area. Resprouts were between 3 and 7 feet tall. Resprouts should be cut at the base and treated with an appropriate herbicide to ensure control.

Photo Point 4
Multiple patches of resprouting giant reed were observed within the treatment area. Resprouts were between 4 and 8 feet tall. Resprouts should be cut at the base and treated with an appropriate herbicide to ensure control.

CSS Restoration-1.35 acre Area (photo points 5 and 6)

The entire 1.35 acre CSS restoration site was burned during the Bernardo Fire. The majority of native seedlings and young plants were killed or damaged. However, during the January monitoring several plants, mostly bush sunflower (*Encelia californica*) and coast prickly pear were observed resprouting. Total cover was visually estimated to be 70 percent during the visit with native cover estimated at 15 percent and non-native cover estimated at 85 percent. Non-native cover primarily consisted of wild oat (*Avena* sp.) and filaree (*Erodium* spp.) with several Russian thistle (*Salsola tragus*) present along the access road and irrigation pipes. No flowers or seed heads were observed.

Regular maintenance of the restoration site should continue. Maintenance activities should focus on controlling the reemergence of non-native species. Non-natives should either be handpulled or treated with an appropriate herbicide prior to the development of flower and seed heads. Any

flower or seed heads present should be cut and removed from the site to prevent the distribution and spread of non-native species within the restoration site.

CSS Restoration/Enhancement-Upper Portion (photo points 7 through 12)

Approximately one third of the upper enhancement area was burned during the Bernardo Fire. The burned area is concentrated in the northeast and southeast portions of the area. Fire damage within the dethatched portion of the enhancement area was minimal and is limited to the southern and northern edges.

No germination of native shrub species within the dethatched portion has been detected. Native annuals, primarily clustered tarweed (*Deinandra fasciculata*), were observed during the monitoring visit. Non-native cover was visually estimated at 35 percent consisting primarily of filaree and unidentified non-native grasses. Several Russian thistle (*Salsola tragus*) plants were observed at the eastern entrance. Russian thistle should either be handpulled or treated with an appropriate herbicide prior to plants setting seed. Any flower or seed heads present should be cut and removed from the site.

CSS Restoration/Enhancement-Lower Portion (photo points 13 through 16)

The entire lower enhancement area was burned during the Bernardo Fire. However, the majority of cacti cuttings have resprouted if they were burned or remain healthy with several new growth segments observed. Non-native cover within the lower enhancement area has significantly increased with the emergence of non-native grasses following the winter rains.

Please feel free to contact me or Jasmine Bakker (619-462-1515) if you have any questions.

Sincerely,

Erica Harris
Biologist

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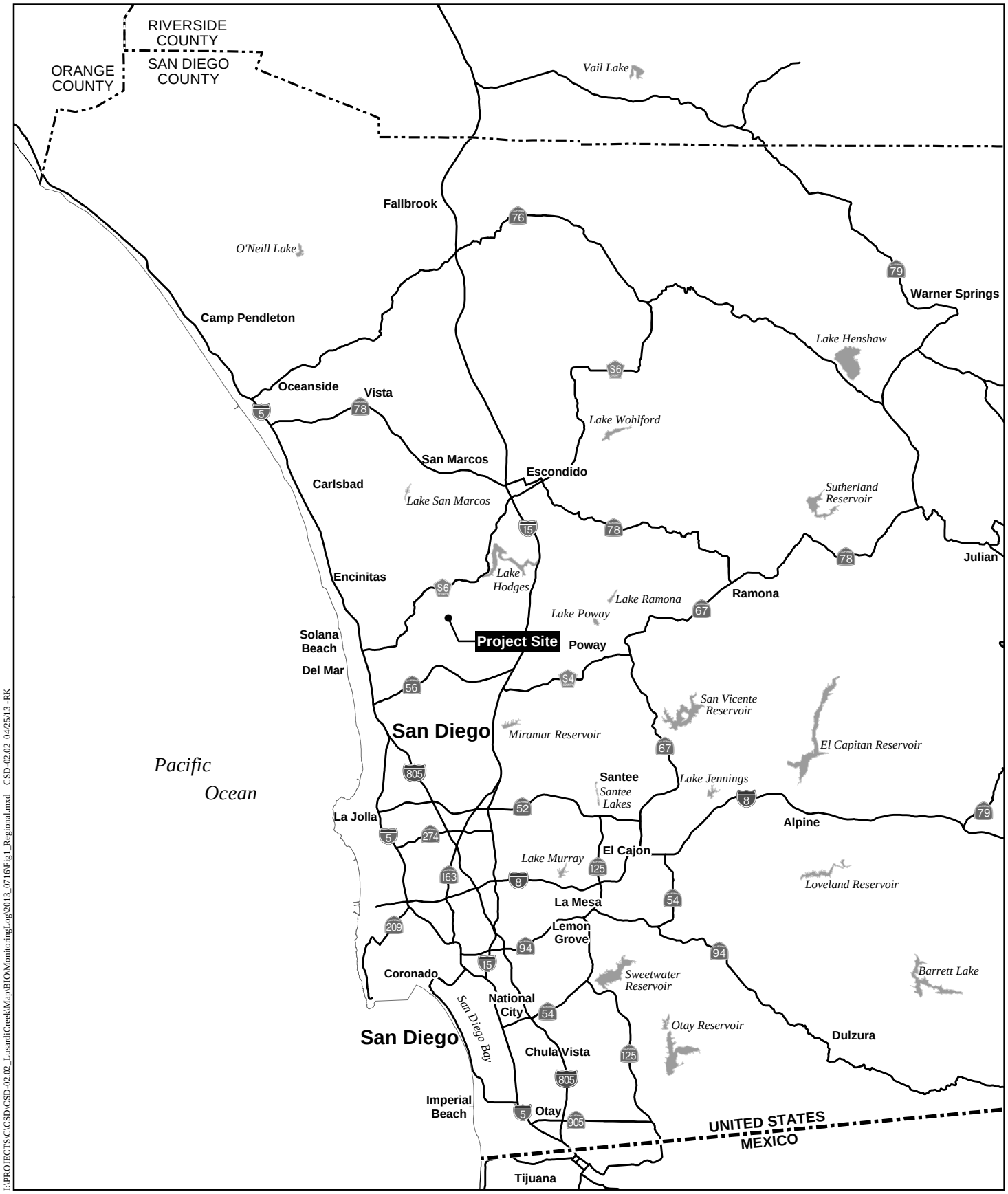

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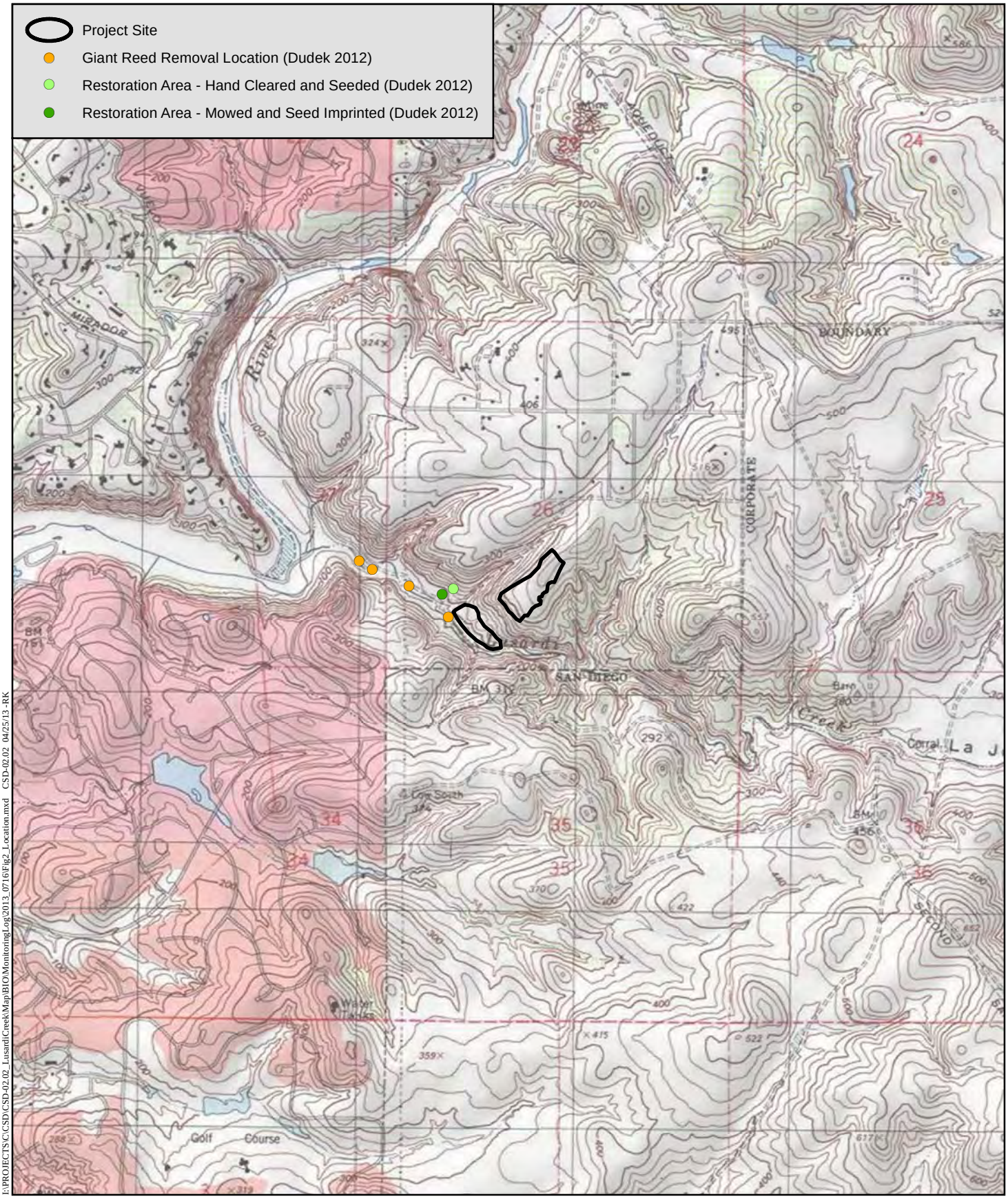
Regional Location Map

LUSARDI CREEK

HELIX Environmental Planning

N 0 8 Miles

Figure 1



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LUSARDI CREEK

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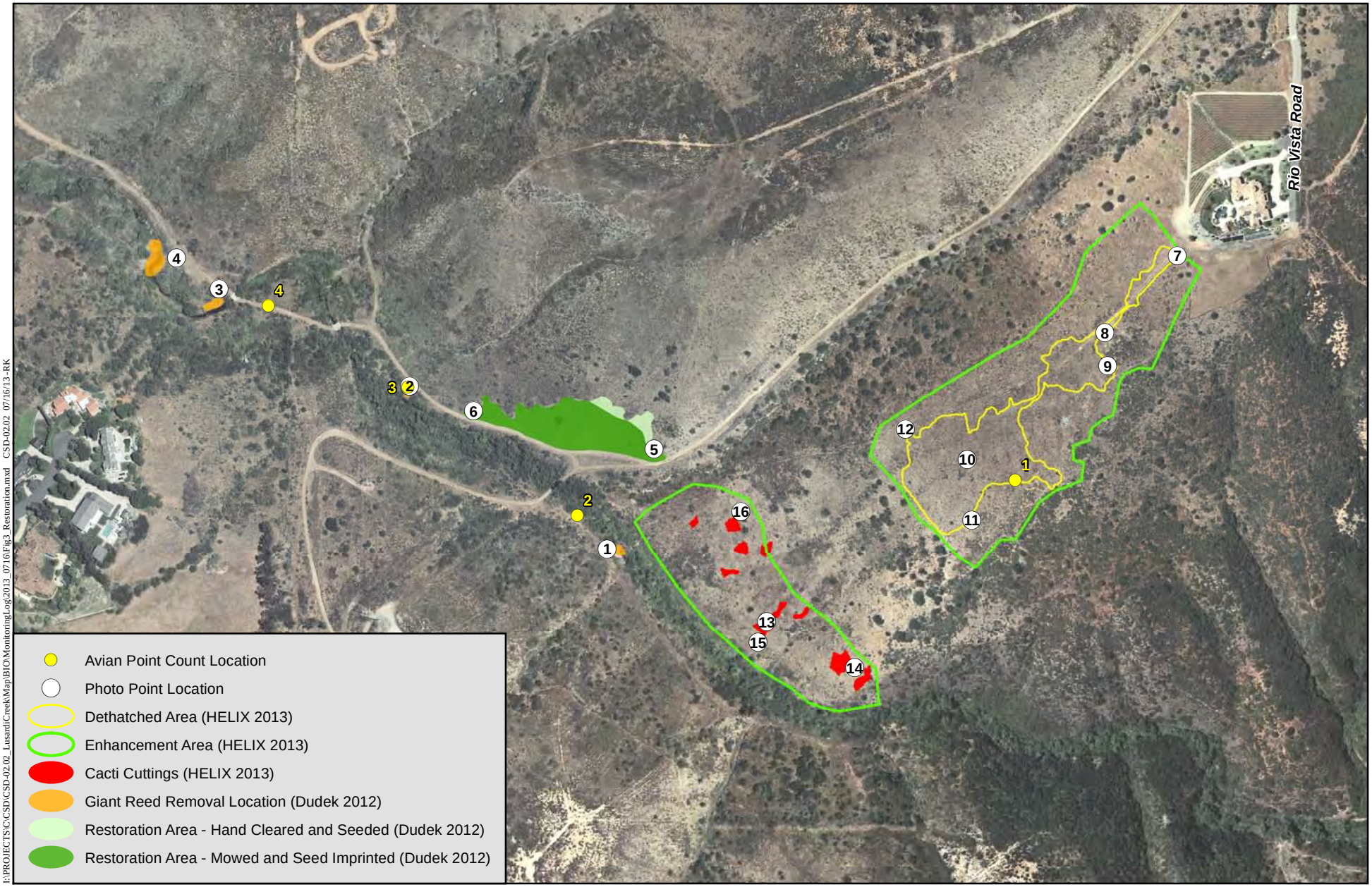
Figure 2



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N 0 400 Feet

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