

**San Diego Association of Governments
Silverwood Wildlife Sanctuary
Final Report
Project Period: 2/15/2017 – 6/30/2019
SANDAG Contract Number: 5004951**

Executive Summary

Silverwood Wildlife Sanctuary (SWS) has encountered a number of hardships over the past few decades including the Cedar Fire of 2003 and El Nino of 2016. These events created conditions for invasive plants to flourish, impairing the growth of native flora and reducing the quality and quantity of native habitat supporting local fauna. This SANDAG EMP award provided critical financial support to allow staff to devote concentrated effort to eradicate invasive plant species on 70 high-priority acres of the sanctuary most impacted by invasives.

Project Background

Silverwood Wildlife Sanctuary, owned and operated by San Diego Audubon since 1966, is maintained to preserve 785 acres of prime coastal chaparral and riparian woodland habitat in San Diego County, consistent with objectives described in the Management Strategic Plan (SP). Like much of San Diego County, sensitive wildlife in the preserve is threatened by the presence and potential spread of invasive non-native plant species. This project supported the implementation of invasive plant control in priority habitat areas within the preserve.

Project Goals

This project intended to eradicate 90% of the main target invasive plants in 65 acres of mapped invasive sites within the 785 acre preserve and repair the land for the native plants and animals to thrive. A total of 70 acres of invasive species hot spots were treated with herbicide application (65 acres) and hand management (5 acres), reducing invasive cover by more than 90% within the 18-month grant term.

Work Performed by Task

Task 1 – Invasive Species Control

Budget: \$26,080.00

Spent: \$27,324.19

Over the 18-month period of invasive species control, the SWS Resident Manager and his Assistant invested 411 hours of invasive plant management. Volunteers also contributed 117 hours to help with hand weeding. Spraying herbicide (i.e. glyphosate) and hand weeding were the two main methods employed. The bulk of the herbicide treatment happened in the first quarter of the grant term, and hand management and hot spot treatments with herbicide

continued throughout the remainder of the term. Heavy rains experienced in the winter between 2018 and 2019 caused an exponential increase in the need for hand management as germination of native and non-native plants coincided. Due to this intensive attention to the land, many native and non-native plant species were discovered.

Following is a list of plants targeted in the project.

<i>Brassica nigra</i>	Black Mustard
<i>Hirschfeldia incana</i>	Short-Pod Mustard
<i>Lepidium didymum</i>	Lesser Wart-Cress
<i>Sisymbrium orientale</i>	Hare's-Ear Cabbage
<i>Brassica tournefortii</i>	Sahara Mustard
<i>Carduus pycnocephalus</i>	Italian Thistle
<i>Centaurea melitensis</i>	Tocalote/Star Thistle
<i>Polypogon interruptus</i>	Mediterranean Beard Grass
<i>Polypogon monspeliensis</i>	Ditch Beard Grass
<i>Marrubium vulgare</i>	Horehound
<i>Anthriscus caucalis</i>	Bur Chervil
<i>Cotula australis</i>	Australian Brass-Buttons
<i>Euphorbia peplus</i>	Petty Spurge
<i>Medicago polymorpha</i>	California Bur Clover
<i>Erodium botrys</i>	Long-Stem Filaree
<i>Erodium brachycarpum</i>	Short-Beak Filaree
<i>Erodium cicutarium</i>	Red-Stem Filaree Eurasia
<i>Anagallis arvensis</i>	Scarlet Pimpernel
<i>Dittrichia graveolens</i>	Stinkwort
<i>Nicotiana glauca</i>	Tree Tobacco
<i>Lactuca serriola</i>	Prickly Lettuce
<i>Dysphania pumillo</i>	Tasmanian Goosefoot
<i>Tribulus terrestris</i>	Puncture Vine
<i>Spergularia rudra</i>	Ruby Sand Spurrey
<i>Spergula arvensis</i>	Starwort
<i>Polycarpon tetraphyllum</i>	Four-leaf Allseed

Of the 63 non-native species identified, many are now rarely seen and are removed when located. Of the 30 species of grasses at Silverwood, 21 are non-native. Most have been eradicated along the trails, along the frontage of both sides of Wildcat Canyon Road, in fire clearance zones, around the parking area, observation area, Cienega, along the driveway and main tributary. These grasses include:

* <i>Bromus madritensis</i>	Foxtail Chess
* <i>Bromus diandrus</i>	Ripgut Grass
* <i>Vulpia myuros var. hirsute</i>	Hairy Rat-Tail
* <i>Bromus madritensis</i>	Compact Brome

* <i>Avena barbata</i>	Slender Wild Oat
* <i>Melinis repens</i>	Natal Grass
* <i>Cenchrus setaceus</i>	African Fountain Grass

New native species recorded:

<i>Hesperocnide tenella</i>	Western Nettle
<i>Bowlesia incana</i>	American Bowlesia
<i>Eriastrum filifolium</i>	Thread-leaf Woolly Star
<i>Gilia angelensis</i>	Grassland Gilia
<i>Stipa comate</i>	Needle and Thread Grass
<i>Eriodictyon crassifolium</i>	Smooth Leaf Yerbasanta

During 2019, the following additional species were recorded:

<i>Anagallis minima</i>	Common Chaffweed
<i>Trichostema lanceolatum</i>	Vinegar Weed
<i>Platystemon californicus</i>	Cream Cups Poppy
<i>Ranunculus sceleratus</i>	Hairy-Fruit Buttercup
<i>Logfia filaginoides</i>	California Cottonrose

Task 2 – Grant Administration and Reporting

Budget: \$2,730.00

Spent: \$1,487.19

Grant administration and reporting efforts included eight quarterly reports, eight invoices, and this final project.

Conclusions

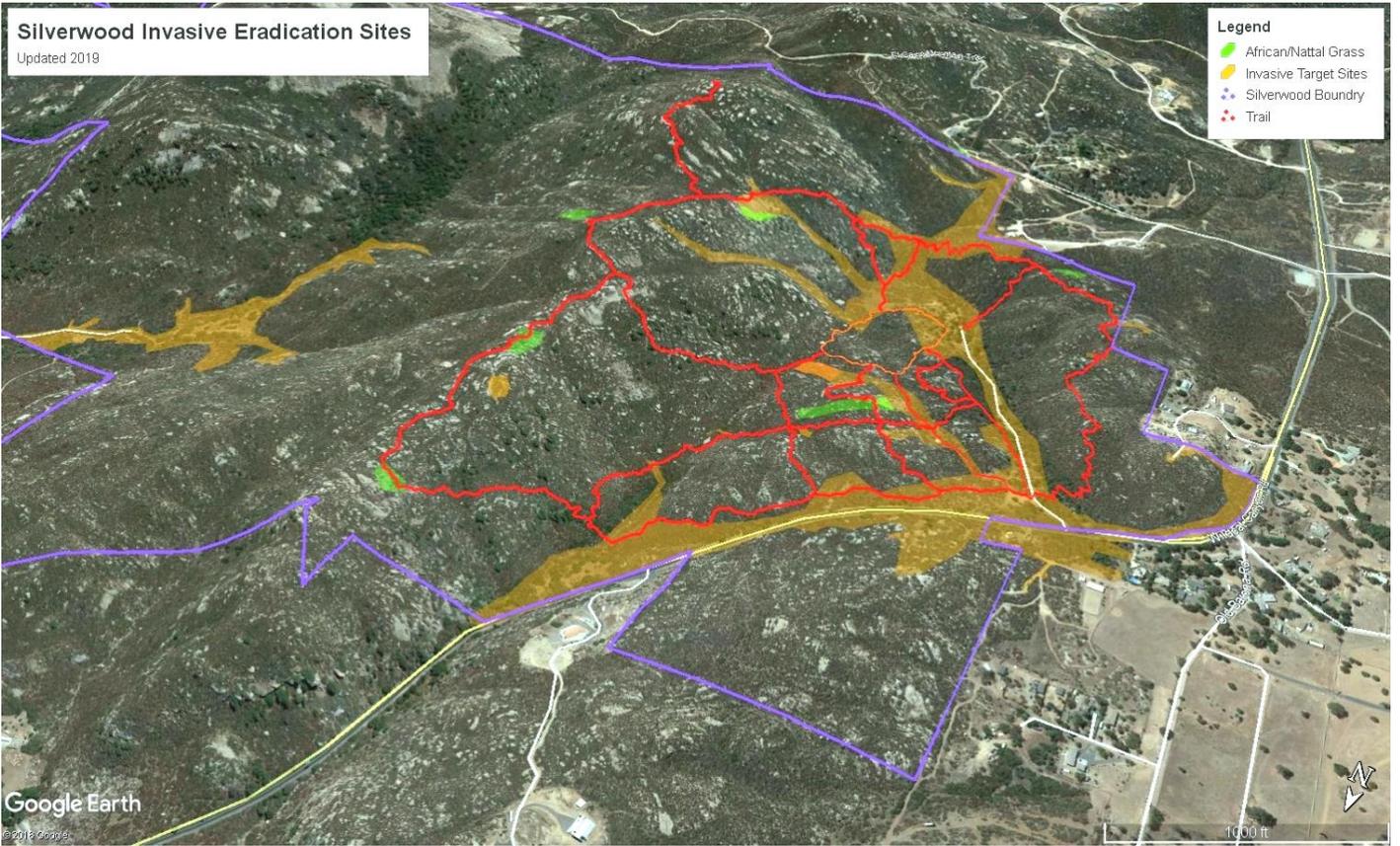
Overall, the project was a great success, reducing invasive plant cover by more than 90% and allowing the native plants to grow and thrive which in turn supported the wildlife of the area and other essential flora. The project created the space for a reasonable management plan to be put in place to maintain and improve the conditions for the healthy growth of all plants and wildlife at the Silverwood Wildlife Sanctuary. Future management recommendations are to continue with hand management of targeted species especially during germination periods.

Appendices

Silverwood Invasive Eradication Sites

Updated 2019

- Legend**
- African/Nattal Grass
 - Invasive Target Sites
 - Silverwood Boundry
 - Trail



Silverwood Acreage Covered for Invasive Plant Species

- Legend**
- 385 acres Assessed for Target Invasives
 - African/Nattal Grass
 - Silverwood Boundry
 - Target Invasive Sites
 - Trail

