

European Beachgrass Removal: Year 2 Report

Prepared for: Guadalupe Nipomo Dunes National Wildlife Refuge

Prepared by: The Land Conservancy of San Luis Obispo County

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Herbicide Treatment

The Scope of Work outlines three treatment areas: Primary (6.5 acres), Secondary (63 acres), and Tertiary Treatment Areas (95 acres) (Figure 1). The Primary Treatment Area is within the Secondary Treatment Area, both of which were treated during Year 1. In year 1, 19.4 acres of European beachgrass was treated. Year 2 treatment expanded the treatment area into the Tertiary Treatment Area, treating 21.72-acres of European beachgrass. Treatment by The Land Conservancy’s restoration crew took place over the course of 4 days (December 10, 11, 12, 16, 2019) (Figure 1). Backpack sprayers and truck sprayers were used to apply Round up Pro (glyphosate) and Habitat (imazapyr) (Table 1).

Table 1: Chemical used during Year 2 treatment of European beachgrass.

Application Date	Application Method	Blue-dye	Surfactants/Water Conditioners (Ounces)			Herbicide (Ounces)	
			Denali EA	Roundup Pro Conc	Roundup Custom	Habitat	
12/10/2019	Backpack	7.6	12.16	7.6	48.64	24.7	
12/11/2019	Handgun, Backpack	42	89.6	42	358.4	179.2	
12/12/2019	Handgun, Backpack	22.5	48	22.5	192	96	
12/16/2019	Handgun, Backpack	29.7	63.36	29.7	253.44	126.72	
	Total	101.8	213.12	101.8	852.48	426.62	

This project is being implemented in conjunction with a Dunes Collaborative-funded project that is also targeting European beachgrass. Together, the two funding sources treated 57.51 acres in December 2019 within and surrounding the Tertiary Treatment Area.

Year 1 Post-Treatment Monitoring

A post-treatment survey was conducted on January 8, 2020 using the 50-meter² grid, following the pre-treatment monitoring protocol. Each grid cell was visited and the percent cover of European beachgrass was documented. Year 1 herbicide treatment was very successful with reduction in percent cover in 12, 50-meter² grids, most of which were grids decreasing percent cover from 1-5%, to 0-1% (Figure 2, reduction highlighted).

Other nontarget invasive species found throughout the treatment area were European searocket

(*Cakile maritima*), narrow-leaf iceplant (*Conicosia pugioniformis*), and highway iceplants (*Carpobrotus spp*). Percent cover of these species were also documented in the monitoring effort and will be shared at Refuge staff request.

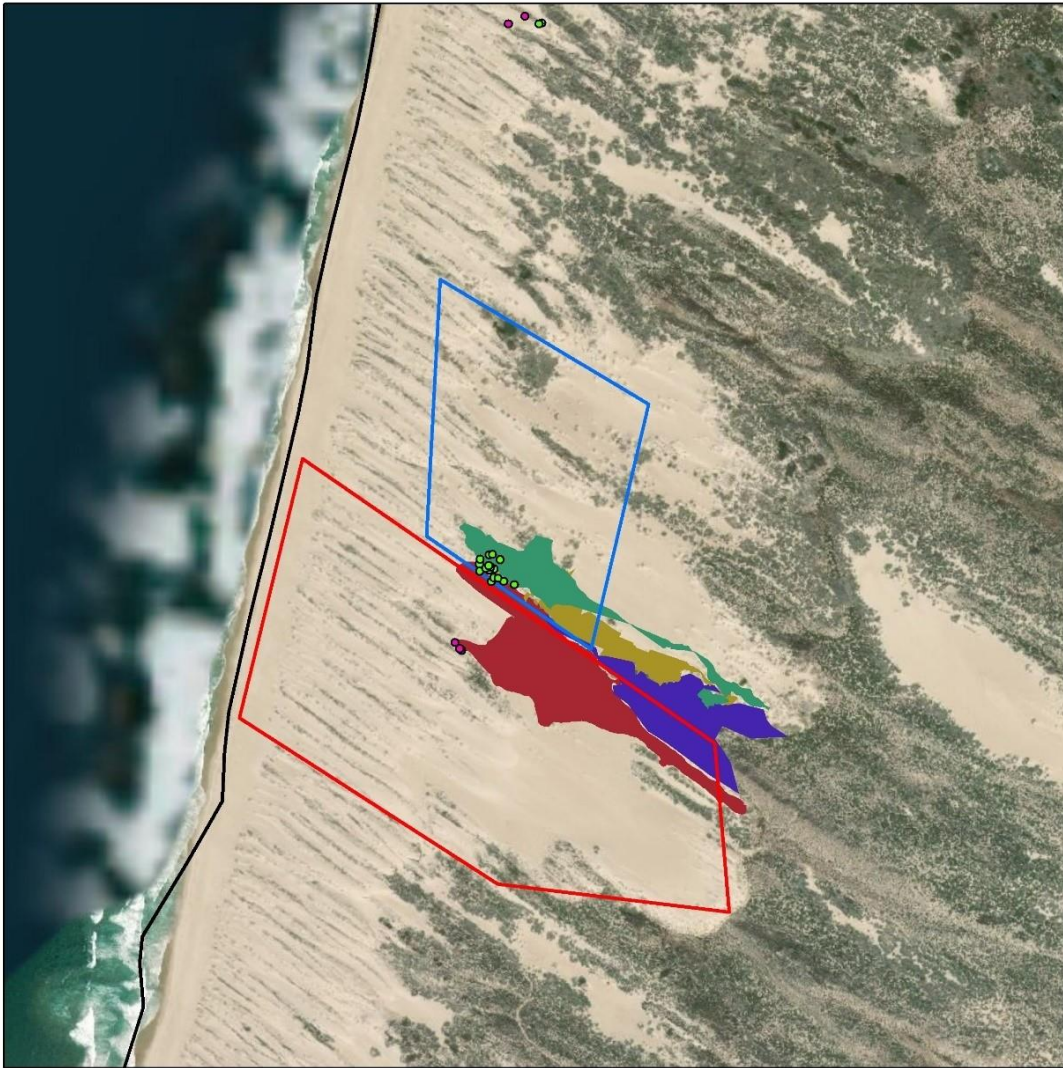
When special status species were found, the area is well marked with flags and documented with a GPS. LCSLO’s restoration crew is well trained in coastal dune special status species identification and did not use herbicide near special status species. When possible, a shield was used to protect herbicide application from nearby special status species. If the European beachgrass was too close to the special status species, it was hand-removed to the best of their ability, without harming the neighboring plants. Two special status species were found in the project area, Dune spectaclepod (*Dithyrea maritima*), and Surf thistle (*Cirsium rhotophilum*) (Table 1) (Figure 1).

Table 2: Special status species found during monitoring survey 01/08/2020.

Species	Number of Individuals Found (01/08/2020)
Dune spectaclepod (<i>Dithyrea maritima</i>)	156
Surf thistle (<i>Cirsium rhotophilum</i>)	24









Plover Monitoring

A Western snowy plover monitoring is completed annually by Trihyro Corporation. Weekly and annual reports have been given directly to Refuge staff. Monitoring was completed throughout the 2019 breeding season and will continue March 2020.



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Year 2 European Beachgrass Treatment

Beachgrass Treatment	Rare Species Found
 12/10/2019	 Beach spectaclepod
 12/11/2019	 Surf thistle
 12/12/2019	 Secondary Treatment Area
 12/16/2019	 Tertiary Treatment Area
	 Refuge Boundary

Created by: L. Roddick 2020/03

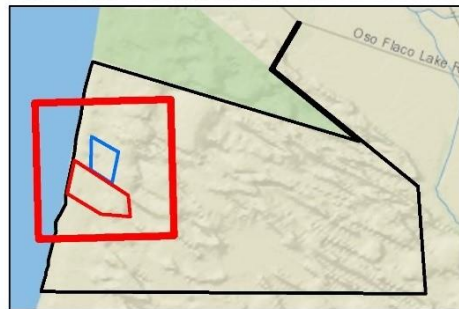
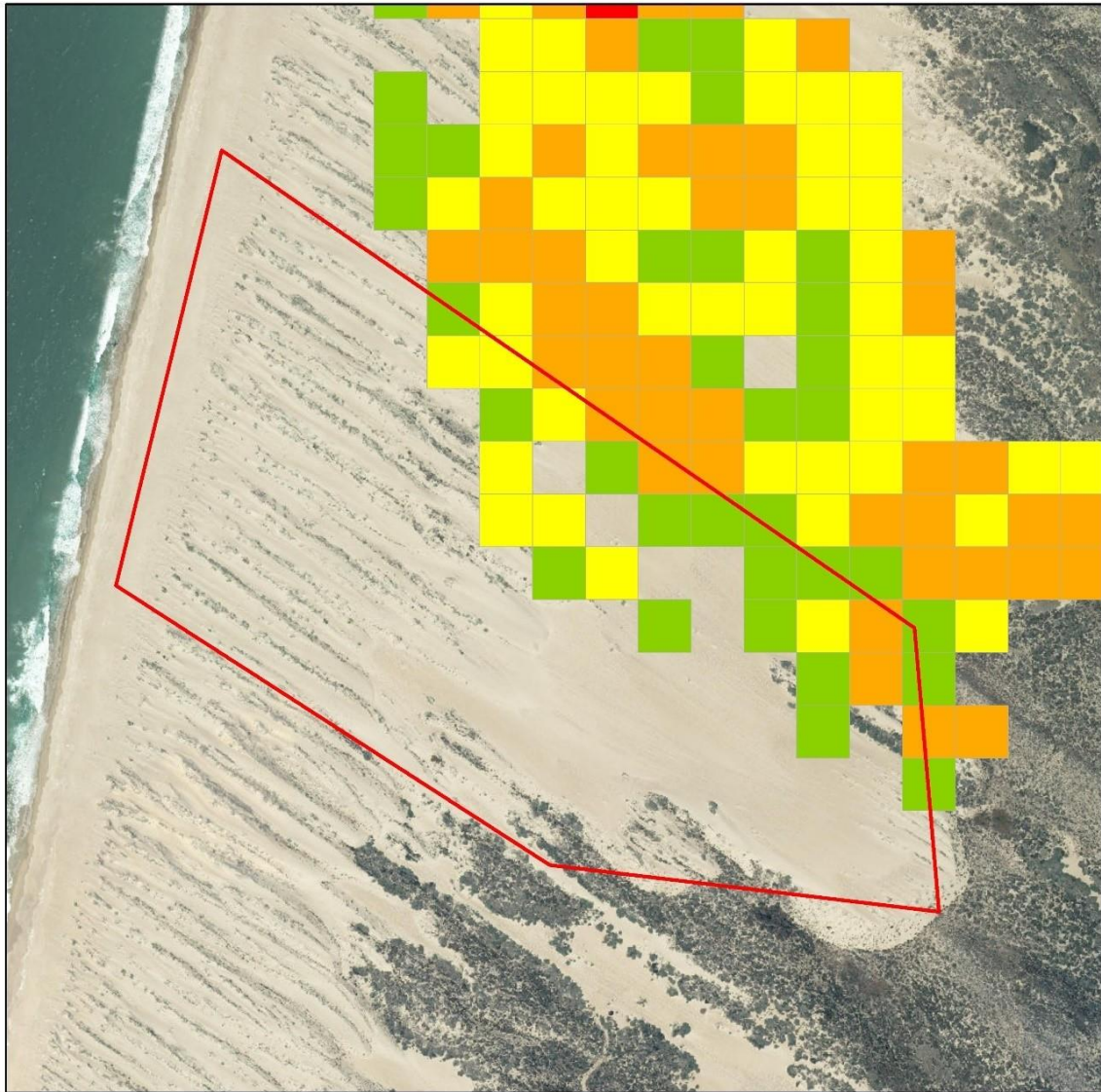







Figure 1: Year 2 herbicide treatment completed within the treatment areas (December 2019) as well as special status plant species found within the treatment area.



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Pre-Treatment Beachgrass Survey

Legend

-  0-1% Cover
-  1-5% Cover
-  5-25% Cover
-  25-50% Cover
-  Treatment Area

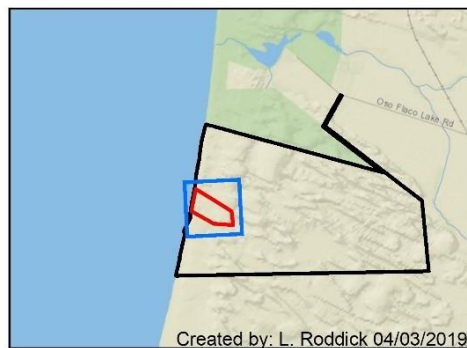
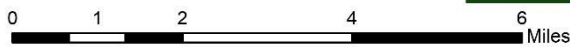
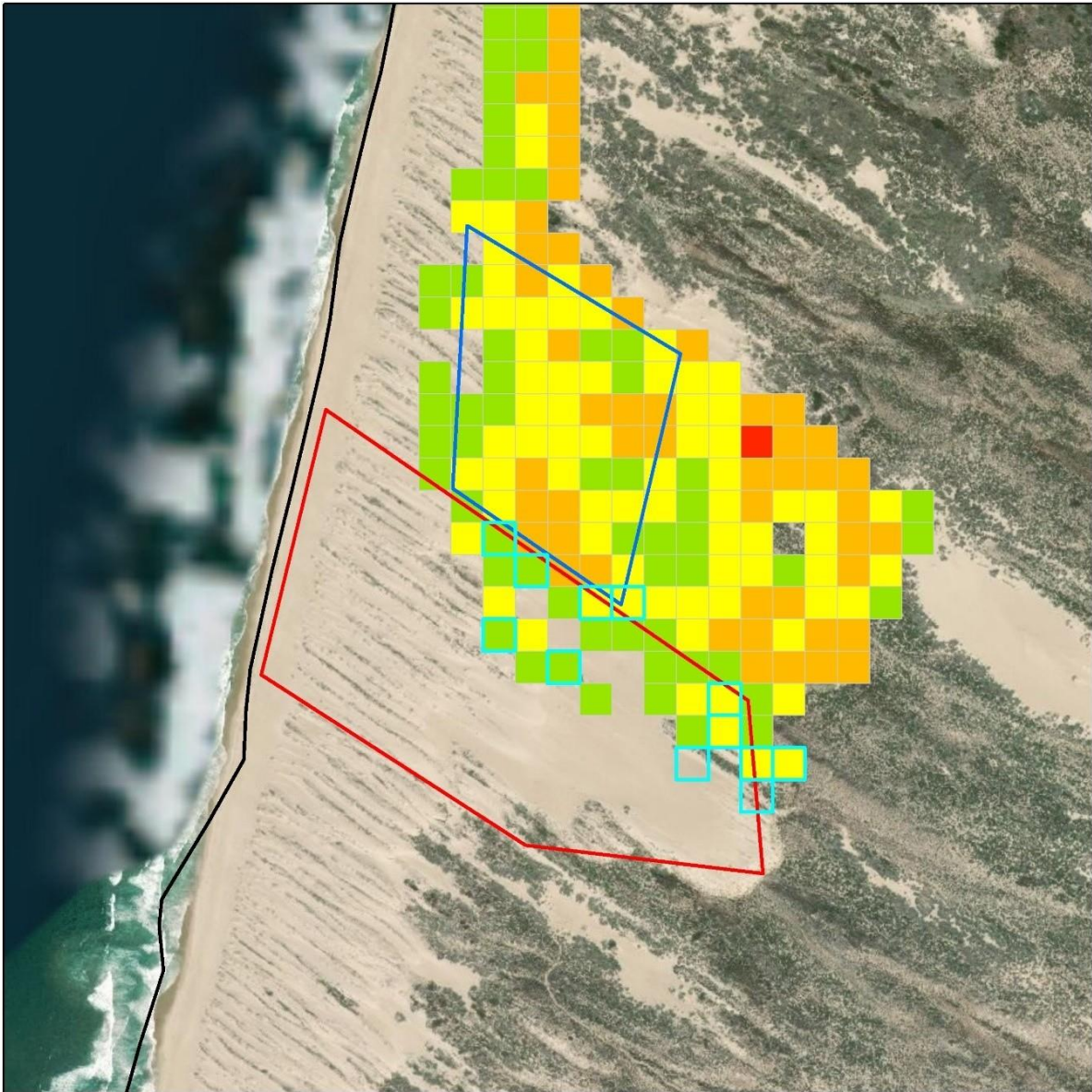


Figure 2: Pre-treatment European beachgrass percent cover mapping (December 2018).



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Post Year 1 Beachgrass Survey

Beachgrass

- 0-1% Cover
- 1-5% Cover
- 5-25% Cover
- 25-50% Cover

- ▭ Secondary Treatment Area
- ▭ Tertiary Treatment Area
- ▭ Refuge Boundary

Created by: L. Roddick 2020/03

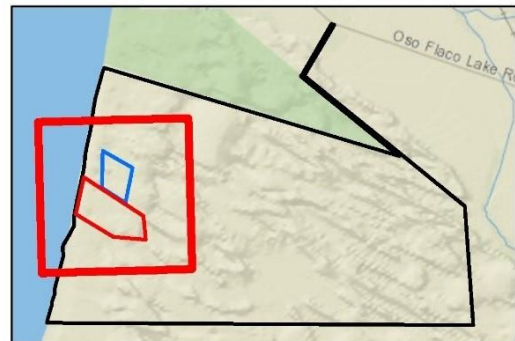


Figure 3: Year 1 post-treatment European beachgrass percent cover mapping (January 2020). 50-meter² grids that reduced in percent cover bracket are highlighted in blue.



Figure 4: Dead European beachgrass found after year 1 of treatment. The area continues to be monitored for resprouts from the rhizome.



Figure 5: Beach spectaclepod found within the treatment area.