

California Department of Fish and Wildlife
Environmental Enhancement Fund (EEF) Grant Program
Final Progress Report
The Little River State Beach Nearshore Dune Habitat Restoration and Coastal Resilience Project

Date: April 1, 2025

Agreement No.: Q2275069

Project Title: Little River State Beach
Nearshore Dune Habitat Restoration and
Coastal Resilience Project

Grant Term: 01/19/2023-06/30/2025

Grantee: Redwood Parks Conservancy

FISCAL REPORT

Fund Source	Amount Awarded	Total Amount Invoiced
CDFW EEF Grant Funds	\$99,811	\$88 378.23
Cost Share	\$40,825.20	70,926.08
Agreement Totals	\$140,636.20	\$159,304.31

PROGRAM/TECHNICAL REPORT

Brief Summary of Work Performed 09/01/2023 to 03/28/2025:

Located near McKinleyville, California, Little River State Beach spans from the Pacific Ocean to Highway 101 and is comprised of beach, dunes, and wetlands (Figure 1). The Little River State Beach Nearshore Dune Habitat Restoration and Coastal Resilience Project area consists of 22 acres of nearshore dune habitat in the southern portion of the park (Figure 2).

The primary goals for the Little River State Beach Nearshore Dune Habitat Restoration and Coastal Resilience Project are to 1) restore the ecological function and the native flora and fauna, 2) improve coastal resilience, and 3) enhance breeding and wintering habitat for the western snowy plover at LRSB. This project includes multiple tasks to achieve these goals. The tasks include three components: 1) initial treatment of the non-native plant species; 2) revegetation of the treated area with native dune and wetland species; and 3) project monitoring, assessment, and reporting. The following restoration and monitoring activities were undertaken between September 1, 2023 and March 28, 2025:

- Pre-treatment vegetation monitoring was conducted in September 2023 to document plant species cover prior to initial treatment.
- In 2023, 1,686 ounces of native dune mat seeds and approximately 94 ounces of native dune swale seeds were collected by CSP staff to be used for revegetation efforts (Tables 1 and 2).
- A complete botanical survey was conducted prior to the initial treatment to document special status species and sensitive natural communities that may have occurred within the restoration area. A 50m² (540 ft²) patch of dune swale wetland dominated by slough sedge (*Carex obnupta*) was mapped and flagged. One special status plant species, pink sand verbena (*Abronia umbellata* ssp. *breviflora*), was found with a total of twelve plants in two locations in the project area (Figure 3). Only hand removal techniques were used within 4.5 m (15 ft) of the flagged wetland area and pink sand verbena populations.
- In December 2023 and January 2024, initial treatment of yellow bush lupine (*Lupinus arboreus*) and jubata grass (*Cortaderia jubata*) using manual removal methods occurred.
- In December 2023, pre-treatment photo monitoring was conducted. Twenty-five photo monitoring points were established and a GPS point was recorded for each point (Photos 1, 3, 5, and 7).
- In January and February 2024, initial treatment of European beachgrass (*Ammophila arenaria*) using heavy equipment was conducted.
- In March 2024, 1,686 ounces of native dune mat seeds and approximately 94 ounces of native dune swale seeds were broadcasted in multiple locations in the project area and 240 American dune grass (*Leymus mollis*) plants were transplanted into the foredune of the project area (Figure 4).
- Vegetation sampling of the wetland was conducted in five 1m² quadrats pre-initial treatment in April 2024 and three months after initial treatment in July 2024.
- Post initial treatment vegetation monitoring occurred in June 2024.
- In August 2024, 5 months after initial treatment, post-treatment photos were taken from the 25 previously established photo points (Photos 2, 4, 6, and 8).
- In 2024, Samara Restoration collected approximately 270 ounces of native dune mat seeds and 6 ounces of dune swale seeds and grew 973 plugs of four native dune mat species (Tables 1 and 2).
- In December 2024, the project area was surveyed for sensitive plant species and there were 25 pink sand verbena plants found in four locations (2 previously locations and 3 new locations) (Figure 3).
- Retreatment of invasive non-native species, primarily European beachgrass occurred between July 2024 and February 2025.
- In February 2025, 973 plugs of native dune mat species were planted in the project area (Table 2, Figure 4).

Deliverables

<u>Task</u>	<u>Description</u>	<u>Deliverables</u>	<u>Expected Completion Dates</u>	<u>Completed (Yes/No)*</u>	<u>Date submitted to CDFW</u>
1	Project Management and Administration	Quarterly Progress Reports	Due within 30 days following each calendar quarter (March, June, September, December) after grant execution	Partial	September 2, 2024
		Quarterly Invoices	Due within 30 days following each calendar quarter (March, June, September, December) after grant execution	No	
		Draft Final Report	June 15, 2025	Yes	April 10, 2025
		Final Report	June 30, 2025	Yes	April 10, 2025
		Final Invoice	June 30, 2025	Yes	April 3, 2025
2	Initial Treatment	Treatment of European beachgrass and other non-invasive plants	June 15, 2025	Yes	February 28, 2024
3	Retreatment	European Beachgrass retreatment	June 15, 2025	Yes	February 28, 2025
4	Revegetation	Manual revegetation with native dune plants	June 15, 2025	Yes	February 28, 2025
5	Monitoring	Conduct vegetation and topographic monitoring	June 15, 2025	Yes	June 30, 2024

Problems/Delays and Lessons Learned:

No quarterly reports were submitted between April and September 2023 as no work had been conducted. Between October 2023 and March 2025 no quarterly reports were submitted. However, one annual report was submitted to CDFW in September 2024.

No quarterly invoices were submitted. This was an oversight due to a change in management. One

final invoice will be submitted at the end of the project.

Project Benefits and Results:

A complete botanical survey was conducted prior to the initial treatment to document special status species and sensitive natural communities that may have occurred within the restoration area. One 50 m² (540 ft²) patch of dune swale wetland dominated by slough sedge (*Carex obnupta*) was mapped and flagged. Only hand removal techniques were used within 4.5 m (15 ft) of the flagged area. One special status plant species, pink sand verbena, was found with a total of twelve plants in one location in the project area (Figure 3). In December 2024, the project area was surveyed and there were 25 pink sand verbena plants found in five locations (2 previously locations and 3 new locations) in the 22-acre HRA. This is consistent with the species ecology as an early pioneer following recent disturbance and moving sand.

Vegetation monitoring of upland dune habitat was conducted in five macroplots pre initial treatment, in September 2023 and six months after, in August 2025 following the Little River State Beach Restoration Monitoring Plan. Prior to initial treatment there was an average of 37% cover of European beachgrass and an average total cover of 56% of non-native plant species across all macroplots (Figure 5). After initial treatment European beachgrass cover was reduced to an average of just under 3% and total non-native plant species cover was reduced to just under 4% (Figure 5).

In the dune swale wetland, hand removal methods were used to treat the invasive non-native species in and within 15 feet of the wetland edge. Vegetation sampling of the wetland was conducted in five 1m² quadrats pre initial treatment in April 2024 and three months after initial treatment in July 2024. Prior to initial treatment, there was a 29% cover of non-native plant species (Figure 6). After initial treatment non-native plant species cover was reduced to 13% (Figure 6). Total native plant cover stayed approximately the same between pre and post initial treatment (62% and 63%) (Figure 6).

Estimated Co-benefits achieved to date:

This project has already shown an increase in sensitive native dune mat vegetation. One special status plant species, pink sand verbena, was found with a total of twelve plants in two locations in the project area prior to initial treatment (Figure 4). In December 2024, the project area was surveyed and there were 25 pink sand verbena plants found in five locations (2 previously locations and 3 new locations) in the 22-acre project area. Recent surveys have documented multiple native dune mat species establishing in the project area and over 90% of the American dune grass transplants have survived for over 1 year. Evidence of Western snowy plovers in the project area have been documented along with other wildlife. In addition, there has been an increase of sand movement in the northern part of the project area.

Objectives:

Project Objective (as stated in Grant Agreement)	Objective met or exceeded? (Yes/No)
Reduce cover of European beachgrass and other non-native plants in the nearshore dunes to a total area cover of less than 5%	Yes
Restore native nearshore dune species of the sand-verbena-beach bursage alliance and sea lyme grass patches alliance in the foredune and dune hummocks areas to a total cover greater than 10%	No

Issues and Lessons Learned:

Based on the previous restoration of nearshore dunes at Little River State Beach, CSP has learned that even with immediate seeding and transplanting of native dune plants, it can take up to 5 years to achieve a 10% cover of native plant species. In fall of 2025, approximately 276 ounces of native dune mat and wetland seed will be broadcasted into the restoration area. It is anticipated that the goal of 10% native cover will be achieved by 2028. Annual vegetation monitoring will be conducted for the next 4 years or until the goal of 10% native plant cover is achieved. Subsequent broadcast seeding in 2026 and 2027 may occur to reach this goal.

Relevant Tables, Figures and Pictures for this Report:

Table 1. Native dune mat revegetation efforts in the Little River State Beach Nearshore Dune Habitat Restoration and Coastal Resilience Project in 2024 and 2025 by species.

Species Name	Common Name	Ounces (2024)	Plugs (P)/Transplants (T) (2024)	Ounces (2024)	Plugs (P)/Transplants (T) (2024)
<i>Abronia latifolia</i>	Yellow sand verbena	45.2	0	0	0
<i>Abronia umbellata ssp. breviflora</i>	pink sand verbena	0.1	0	0	0
<i>Achillea millefolium</i>	yarrow	105.8	0	10.1	0
<i>Ambrosia chamissonis</i>	beach bursage	292.1	0	60.8	0
<i>Anaphalis margaritacea</i>	pearly everlasting	3.3	0	0	0
<i>Calystegia soldanella</i>	beach morning glory	69.0	0	24	0
<i>Camissoniopsis cheiranthifolia</i>	beach evening primrose	1.1	0	6.6	0
<i>Cardionema ramosissimum</i>	sandmat	122.5	0	43.2	0
<i>Erigeron glaucus</i>	seaside daisy	119.9	0	9.6	150 (P)
<i>Eriogonum latifolium</i>	coast buckwheat	116.0	0	54.4	379 (P)
<i>Fragaria chiloensis</i>	beach strawberry	0	0	0	144 (P)
<i>Glehnia littoralis</i>	American silvertop	419.5	0	46.4	0
<i>Lathyrus latifolius</i>	beach pea	289.2	0	1.8	0
<i>Leymus mollis</i>	American dune grass	29.8	240 (T)	13	0
<i>Polygonum paronychia</i>	beach knotweed	35.0	0	0	0
<i>Solidago spathulata</i>	dune goldenrod	37.3	0	0	300 (P)
Total		1,685.8	240	269.8	973

Table 2. Native dune swale revegetation efforts in the 2 in the Little River State Beach Nearshore Dune Habitat Restoration and Coastal Resilience Project in 2024 and 2025 by species.

Species Name	Common Name	2024 (ounces)	2025 (ounces)
<i>Carex obnupta</i>	Dune sedge	72.7	0
<i>Juncus breweri</i>	Brewer's rush	21.7	6.6
Total		94.40	6.6

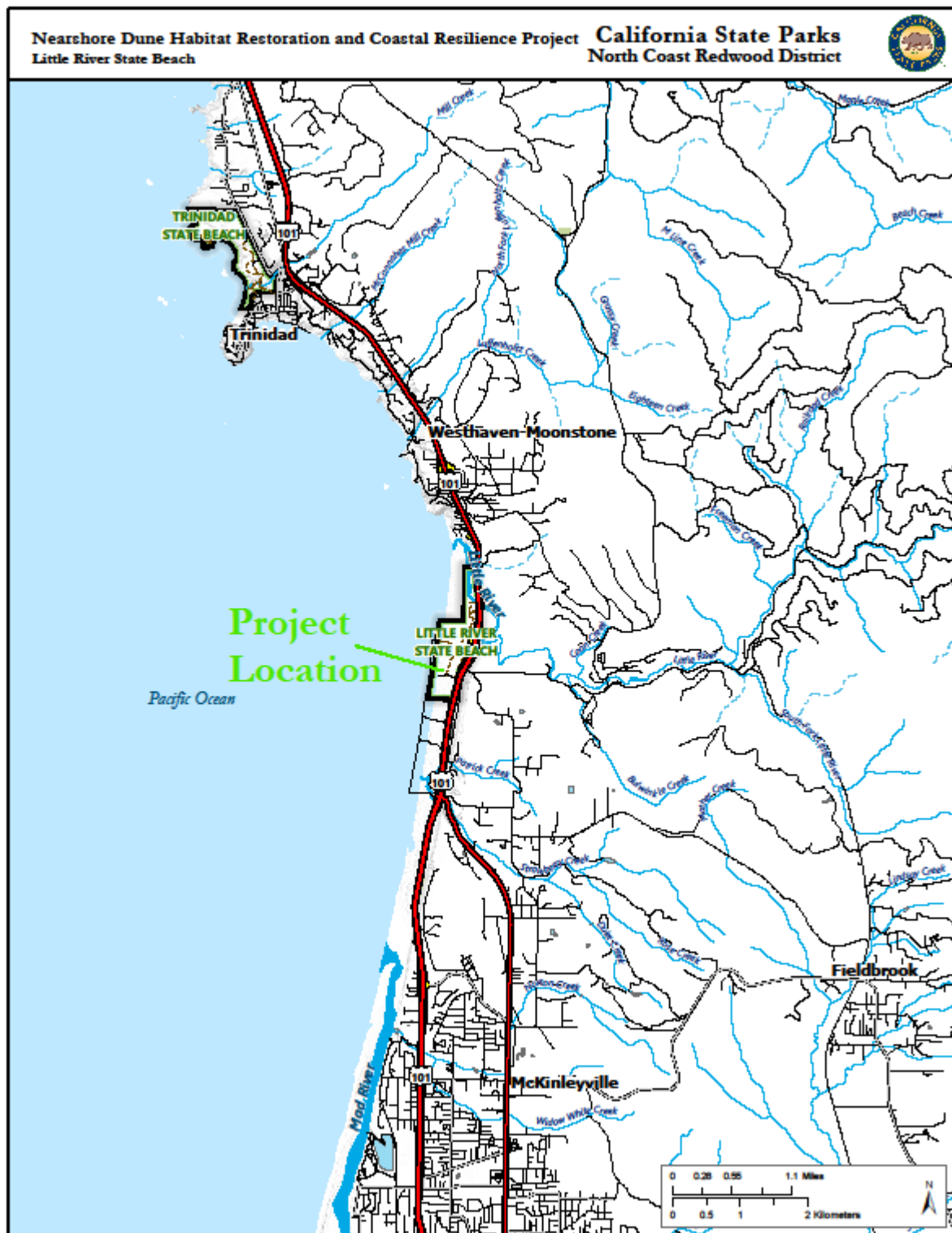


Figure 1. The Little River State Beach Nearshore Dune Habitat Restoration and Coastal Resilience Project location.



Figure 2. The Little River State Beach Nearshore Dune Habitat Restoration and Coastal Resilience Project habitat restoration area prior to initial treatment.



Figure 3. Pink sand verbena locations before and after initial treatment in the Little River State Beach Nearshore Dune Habitat Restoration and Coastal Resilience Project area.

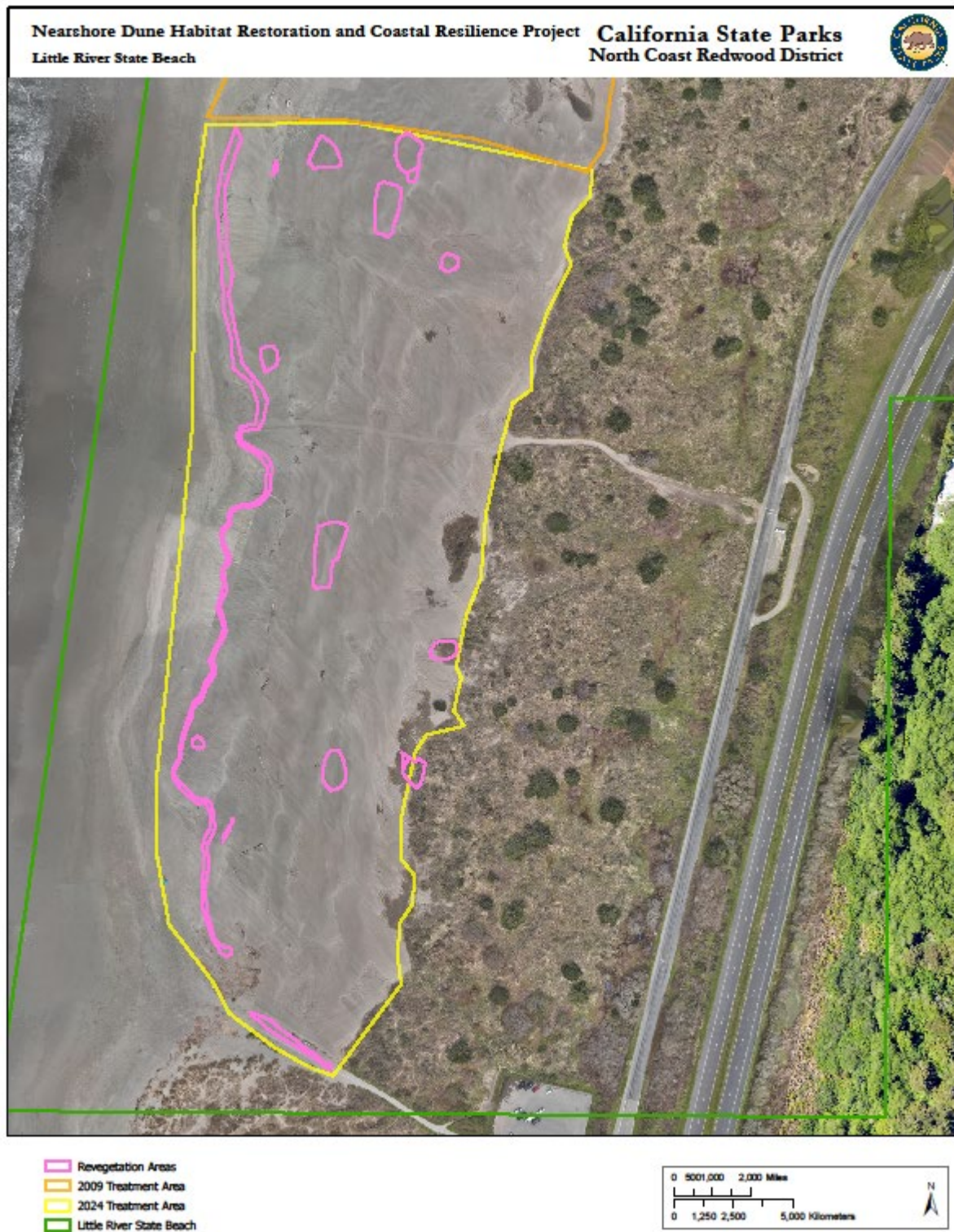


Figure 4. Seed broadcast and transplanting areas in 2024 and 2025 in the Little River State Beach Nearshore Dune Habitat Restoration and Coastal Resilience Project area.

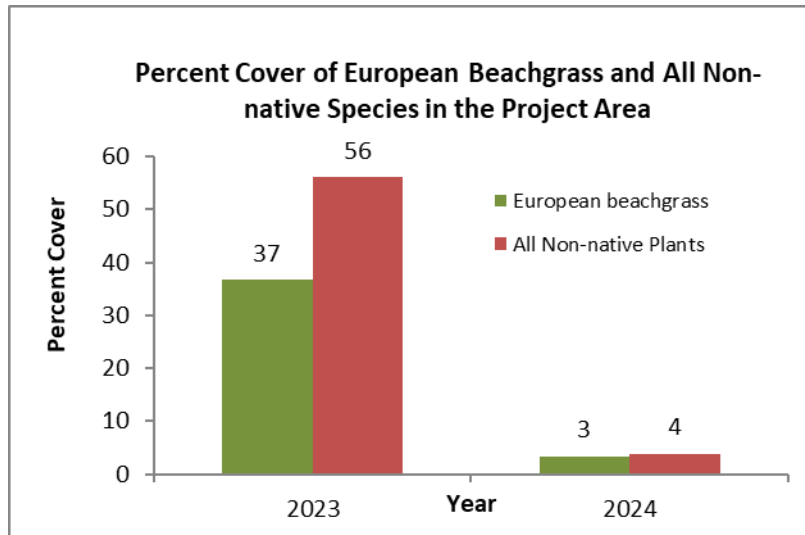


Figure 5. Percent cover of European beachgrass and total non-native species cover before and after initial treatment of the nearshore dunes in the project area at Little River State Beach.

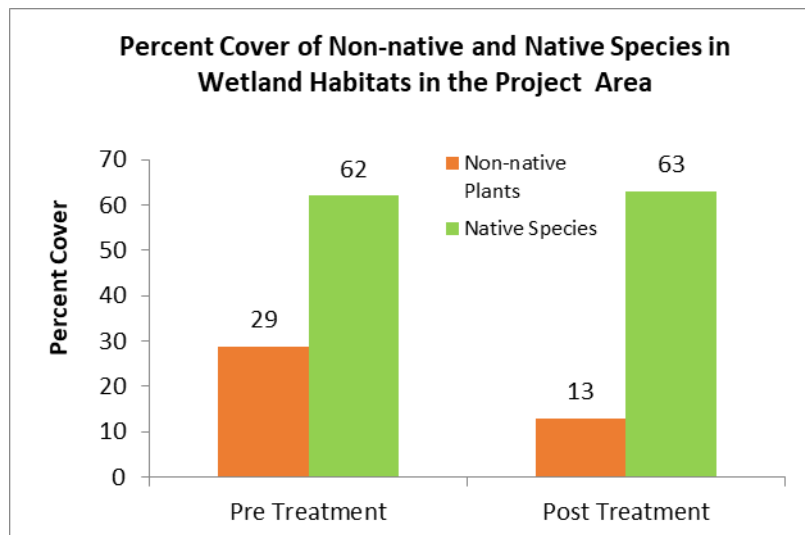


Figure 6. Percent cover all non-native and native plant cover before and after initial treatment of the wetland in the project areas at Little River State Beach.



Photo 1. Photo point 4, facing south, Little River State Beach Nearshore Dune Habitat Restoration and Coastal Resilience Project prior to heavy equipment treatment in 2023.



Photo 2. Photo point 4, facing south, LRSB Nearshore Dune Habitat Restoration and Coastal Resilience Project 5 months after heavy equipment treatment in 2024.



Photo 3. Photo point 17, facing north, Little River State Beach Nearshore Dune Habitat Restoration and Coastal Resilience Project prior to heavy equipment treatment in 2023.



Photo 4. Photo point 17, facing north, LRSB Nearshore Dune Habitat Restoration and Coastal Resilience Project 5 months after heavy equipment treatment in 2024..



Photo 5. Monitoring photo point 1, Little River State Beach Nearshore Dune Habitat Restoration and Coastal Resilience Project prior to heavy equipment treatment in 2023.



Photo 6. Monitoring photo point 1, LRSB Nearshore Dune Habitat Restoration and Coastal Resilience Project 5 months after heavy equipment treatment in 2024.



Photo 7. Monitoring photo point 2, LRSB Nearshore Dune Habitat Restoration and Coastal Resilience Project prior to heavy equipment treatment in 2023.



Photo 8. Monitoring photo point 2, LRSB Nearshore Dune Habitat Restoration and Coastal Resilience Project 5 months after heavy equipment treatment in 2024.