

Final Report

White Oak Bayou Native Habitat Restoration and Outreach

TCEQ Contract # 582-18-80341

Houston Parks and Recreation Department



A PROGRAM OF TCEQ



Table of Contents

Introduction	1
Project Significance and Background	1
Methods	2
Habitat Restoration	2
Education and Outreach	2
Results and Observations	3
Discussion	4
Summary	4

Executive Summary

The White Oak Parkway Native Habitat Restoration and Outreach Project focused on restoring a 10-acre section of a park owned by the City of Houston to native riparian habitat. The restoration project focused on the removal of invasive species and the establishment of native trees, shrubs, and wetland plants to enhance the riparian habitat along the bayou for birds and other wildlife traveling along the bayou corridors. The community was engaged through the Houston Audubon's bird-friendly community outreach efforts and the youth engagement of the Student Conservation Association (SCA) through regular monthly workdays. The park has an established community workday each month and interpretive signage to educate visitors on the importance of native habitat for the citizens of Houston and for the wildlife that rely on these urban forests.

Introduction

The White Oak Parkway Native Habitat Restoration and Outreach Project focused on restoring a 10-acre section of a park owned by the City of Houston to native riparian habitat. Prior to restoration, the park was an ideal location to find many of the harmful invasive species that are located within the Houston area. The site located along White Oak Bayou in the Heights, is frequently flooded and inundated with seed from non-native vegetation and trash during flooding events. The restoration project focused on the removal of invasive species and the establishment of native trees, shrubs, and wetland plants to enhance the riparian habitat along the bayou for birds and other wildlife traveling along the bayou corridors. The project was the Houston Audubon's pilot for their bird-friendly community program, with a goal to attract local and migratory birds and educate the public on the importance of quality urban habitat for wildlife. This project became one of the pilot project sites for the Houston Parks Riparian Restoration Initiative where every City of Houston Park along a bayou or tributary is targeted for restoration of forested riparian buffers. White Oak Parkway was the example "enhancement" site and served as the template for restoration of existing riparian forest through the removal of invasives and replacement of native vegetation.

Project Significance and Background

Historically, much of the Houston area was coastal prairie habitat with forested riparian habitat lining the bayous. Many of the riparian buffers have been removed or degraded due to development or stream channelization. White Oak Parkway was one of two projects initiated by the Houston Parks and Recreation Department's (HPARD) Natural Resources Management Program to target restoration of riparian habitat within city parks along the bayous. The two projects turned into pilot projects for a larger initiative, with White Oak Parkway setting the example of how an existing riparian buffer can be enhanced through the removal of invasive species and replaced with native vegetation. Currently, the HPARD is targeting all parks adjacent to bayous and tributaries for the restoration of forested riparian buffers. The overall project will help the department reach a broader goal to increase nature-based infrastructure within parks to mitigate flooding, improve water quality, reduce erosion, create wildlife habitat, and establish areas for passive recreation. The White Oak Parkway Project has guided best management practices for the larger initiative, which is focused on the restoration of 70 parks and 1,000 acres of riparian buffer habitat.

The White Oak Parkway Restoration Project had a strong focus on community engagement. The HPARD, along with the Houston Audubon and the SCA, held multiple community events at the site to remove trash and debris, remove invasive species, and install native trees, shrubs, and wetland vegetation back into the site. The location of the site along the Houston Parks Board's Bayou Greenway trail system, allowed the partners to reach a broader audience than would normally be utilizing a park site. Community members were educated on the importance of

native habitat, the harmful impacts of invasive species, the impacts of trash on the ecosystem and Galveston Bay, and the significance of natural areas in parks for resident and migratory wildlife in the urban setting.

Methods

Habitat Restoration

The HPARD subcontracted with an SCA crew to remove invasive species from the restoration area and lead community planting events to install native trees. The crew worked one day per month for 12 months on restoration activities at the site.

A contractor was hired to use herbicide on invasive species within the restoration area, with a focus on elephant ear in the wetland area and invasive grasses. The contractor was also instructed to girdle and spray some of the large non-native trees and leave the snags to support birds and other wildlife.

Two part-time interns were hired to assist with the ongoing habitat restoration workdays and for community engagement during volunteer events at the site.

Education and Outreach

The SCA youth crew members were trained by the HPARD Staff on the identification of invasive species and by the Houston Audubon on the identification of birds during a one-day training prior to the start of their work at the site. Each month, the crew members engaged the community as they used the park and adjacent trail. Crew members also became group leaders during community events, teaching volunteers the appropriate ways to plant trees.

The Houston Audubon offered a pop-up birding station at community events to teach visitors how to use binoculars and identify common birds to the Houston area.

The HPARD staff lead the events and provided information to the public on the habitat restoration efforts and impacts of these projects to the community and wildlife. The HPARD and the Houston Audubon formed a regular monthly community workday at the site moving forward to help with the maintenance and establishment of the restoration site and to create a consistent opportunity for volunteers to be involved with the site.

Interpretive signage was created to detail the importance of the natural habitat of the site and allow visitors to learn about the project while recreating at the park.

Results and Observations

September 16, 2017	The Houston Audubon taught the SCA crew about bird facts and identification and how to interact with the public with the pop-up birding station. The HPARD taught the crew on identification of common native and invasive plants at White Oak Parkway.
October 21, 2017	The SCA Crew removed invasive elephant ear from the park and the Houston Audubon set-up the birding station for the public.
October 30, 2017	The Garden Club of Houston had a "weed bash" where 35 volunteers removed 37 trash bags full of elephant ear and other invasives from the park and planted 14 native trees and 11 native understory species.
November 18, 2017	The HPARD and the SCA crew led 29 community volunteers in planting 160 native trees and shrubs and removing invasive species. The Houston Audubon had the birding station set-up at the site for visitors.
December 16, 2017	The SCA Crew and the Harvey Recovery Crew (34 Members) participated in a community planting event with 12 community members. The groups planted 140 trees, removed 400 sq. feet of ragweed, and removed 30 15-gallon bags of trash in addition to large debris. The Houston Audubon set-up the birding station for the public
January 20, 2018	The SCA Crew removed invasive elephant ear and white mulberry, planted 472 bare root trees, and removed 7 25-gallon bags of trash The Houston Audubon set-up the birding station for the public.
February 17, 2018	Invasive species were removed, as well as debris from trees from a flooding event. Herbaceous shade-tolerant grass was planted.
March 24, 2018	The SCA Crew removed 1 acre of Invasive species and cleaned up trash clean.
April 28, 2018	. The SCA Crew and members of the public participated in the Houston City Nature Challenge event by going around the park and taking pictures of plants and animals for iNaturalist. Several nature walks for the community were held including tours identifying birds, insects and plants. The SCA Crew also removed invasive ragweed from around the newly planted trees. Seventeen community members volunteered at the event. The Houston Audubon set-up the birding station for the public.

May 19, 2018	The SCA Crew removed 2 acres of ragweed and elephant ear invasive species and trimmed around newly planted trees to prevent invasives from shading them out.
June 2018	Interpretive signs designed.
September 2018	Interpretive signs installed at the park.
February 26, 2019	Ongoing monthly community workday established.
July 22, 2019	Herbicide contractor working on site.

Discussion

The White Oak Parkway Native Habitat Restoration and Outreach Project was a success. The multiple community events helped to get local citizens involved in habitat projects that the City is conducting across the bayou systems. The partnership with the Houston Audubon and the SCA were helpful in obtaining more volunteers for community events and enhancing the experience for visitors.

A majority of the invasive species at the site were removed and native trees, shrubs, and wetland plants were installed. This frequently flooded location was a challenge during rain events but helped the HPARD to establish best management practices for frequently flooded sites. Moving forward, only 5-gallon trees will be planted in sites that flood often. The smaller trees were much more tolerant of floodwaters than 15- or 30-gallon trees and simply just bent over. In contrast, the larger trees were washed away with the floodwaters. This site was challenging in that the strong seed source from the floodwaters helped herbaceous vegetation establish quickly and were strong competition for the newly planted trees. The method for establishment was to remove the herbaceous vegetation in a five-foot circle on a consistent basis until the tree was large enough to not be shaded out by the tall grasses.

Summary

The White Oak Parkway Native Habitat Restoration and Outreach Project was one of two initial riparian restoration projects initiated by the HPARD to help restore park land that would provide nature-based infrastructure solutions, while engaging the community in the importance of natural spaces in parks. With partnerships formed through the Houston Audubon and the SCA, the local community was engaged in the restoration of 10 acres of riparian forest along White Oak Bayou. This project helped to create best management practices for a larger riparian restoration initiative where the HPARD is targeting all parks adjacent to a bayou for the creation of forested buffers.