City of Houston's Riparian Restoration Initiative

Kelli Ondracek, Natural Resources Manager

HPARD
HOUSTON PARKS
AND RECREATION DEPARTMENT
A CAPRA Accredited Agency

Natural Resources Management

- 18,000 acres of natural area
- Wildlife
- Water features
- Conservation Policy
- Green Infrastructure
- Habitat Restoration and management

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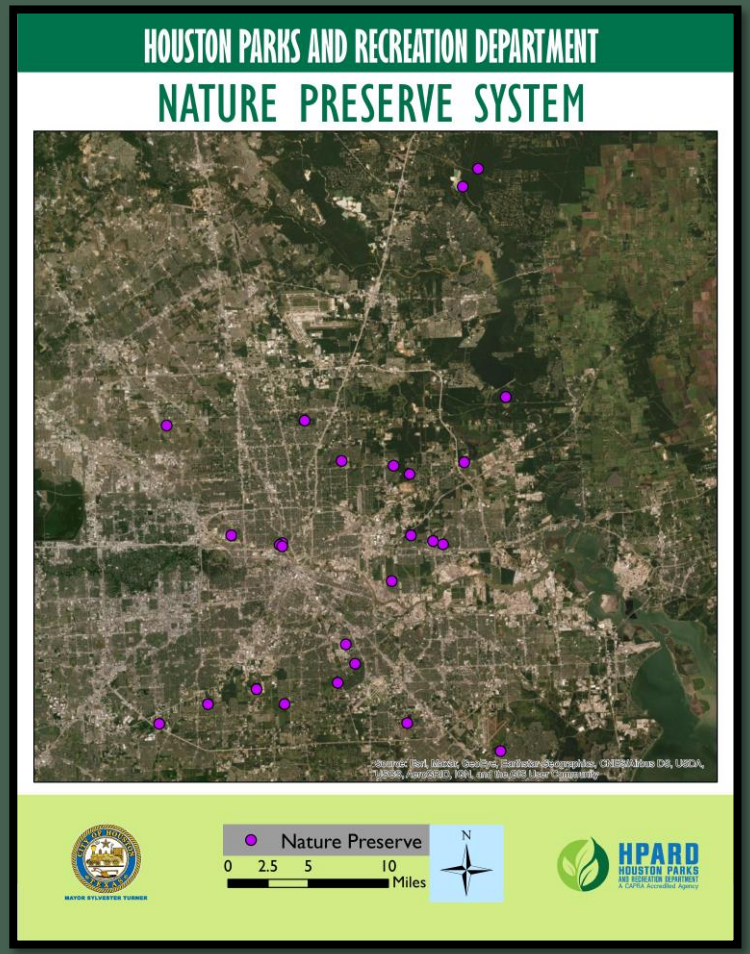
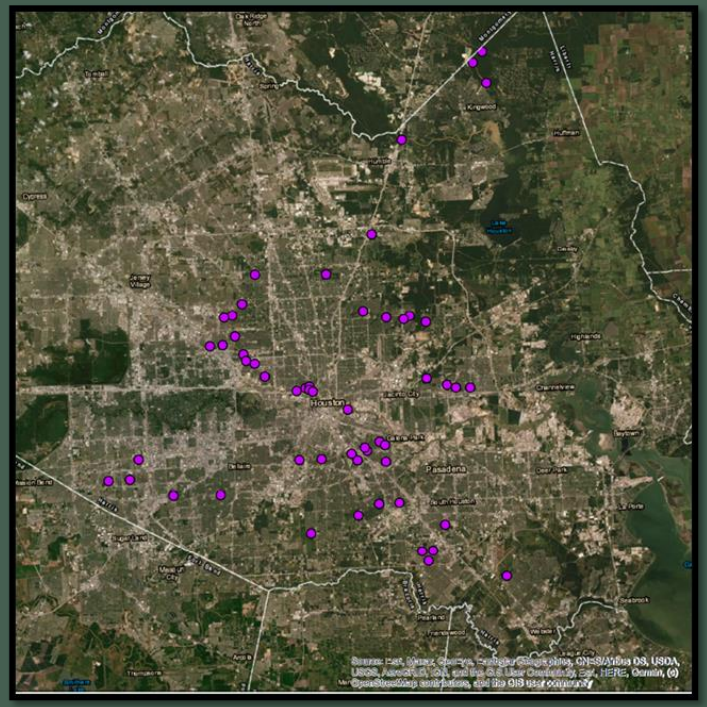


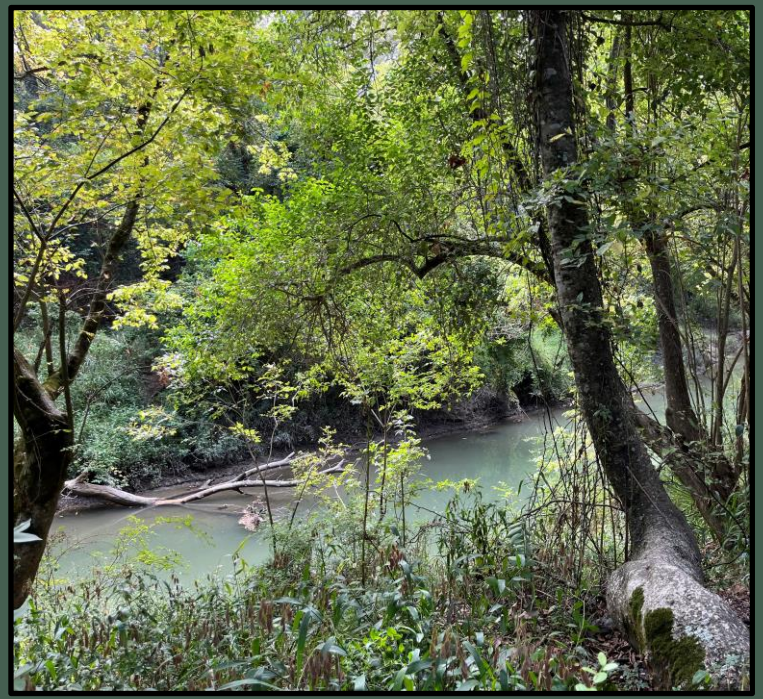
Nature Preserve Ordinance

City of Houston, Texas, Ordinance No. 2022-812

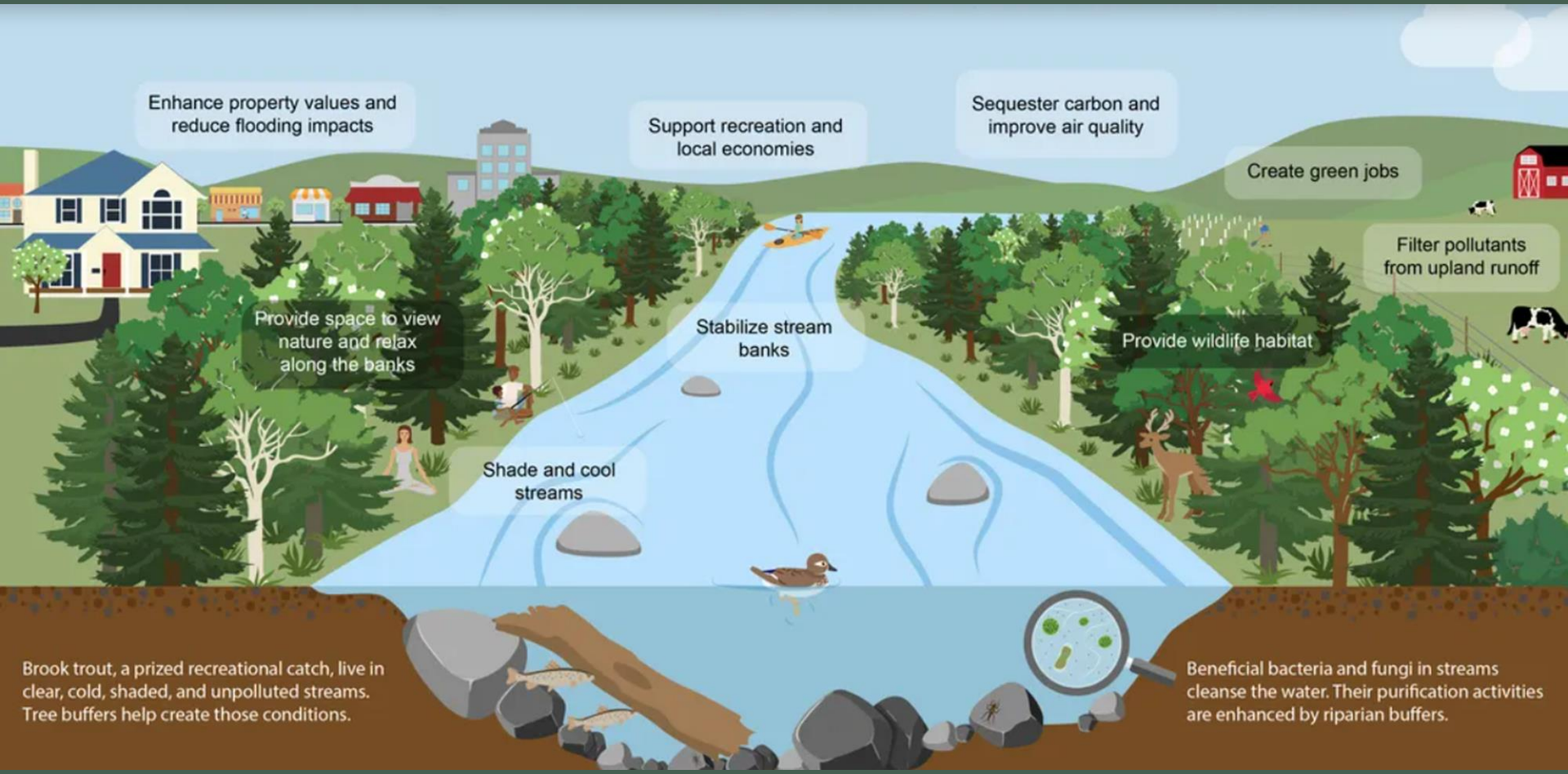
Riparian Restoration Initiative

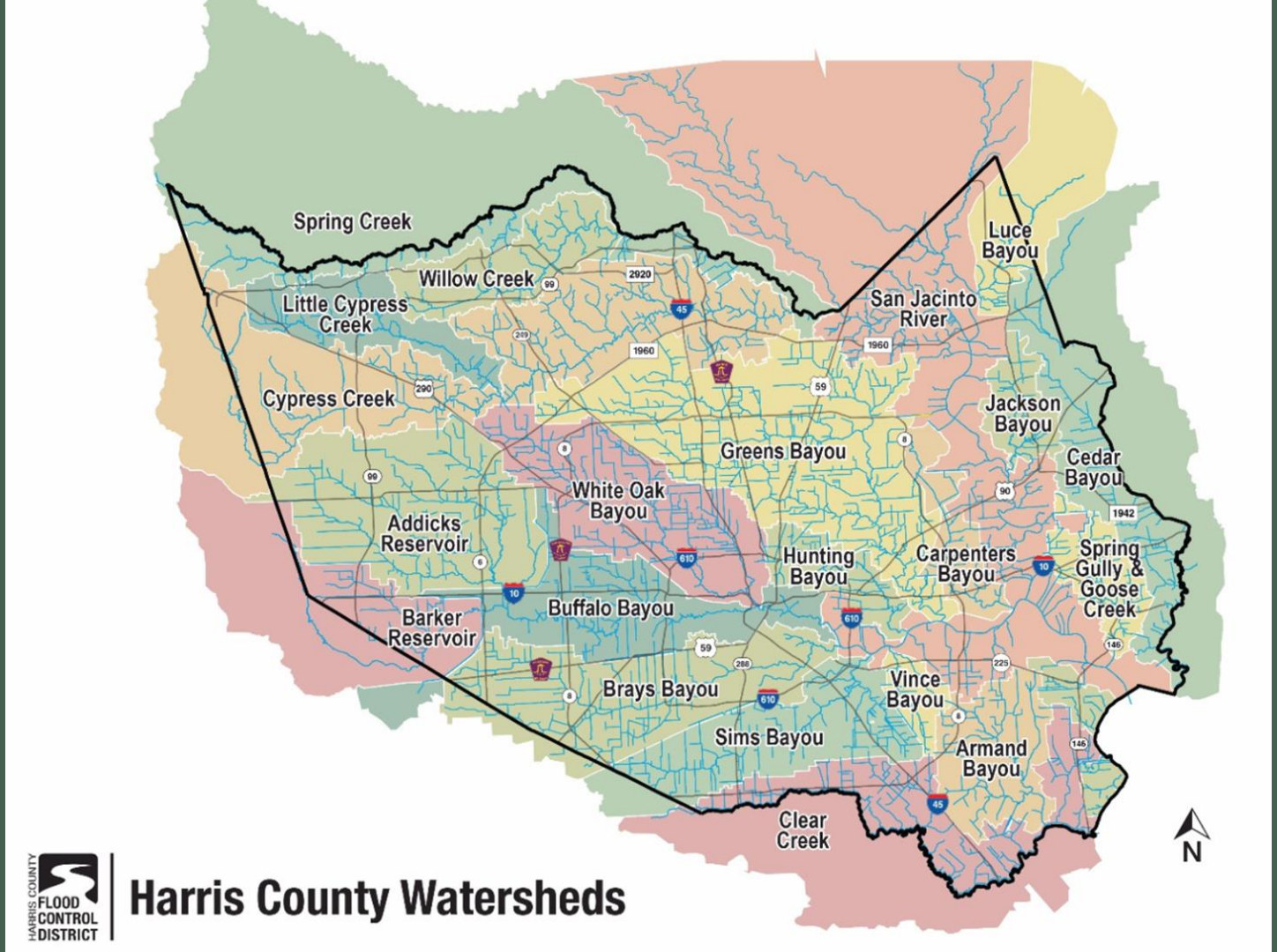
Creation or enhancement of forested riparian buffers in all parks adjacent to waterways



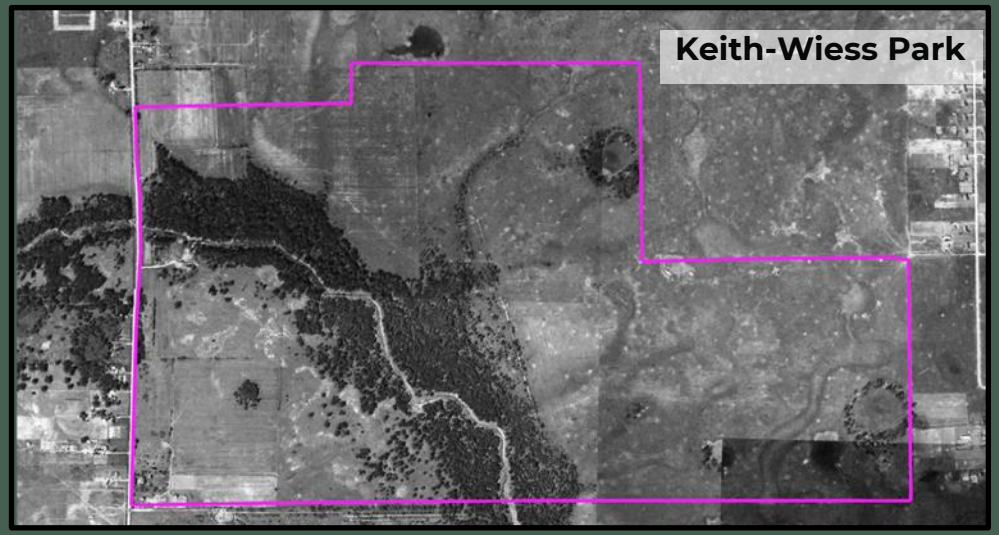


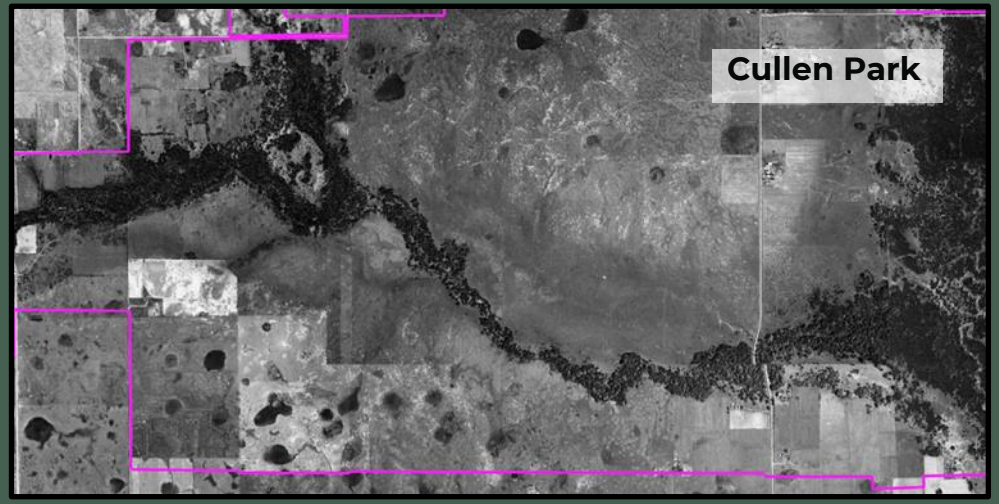
What is riparian habitat?

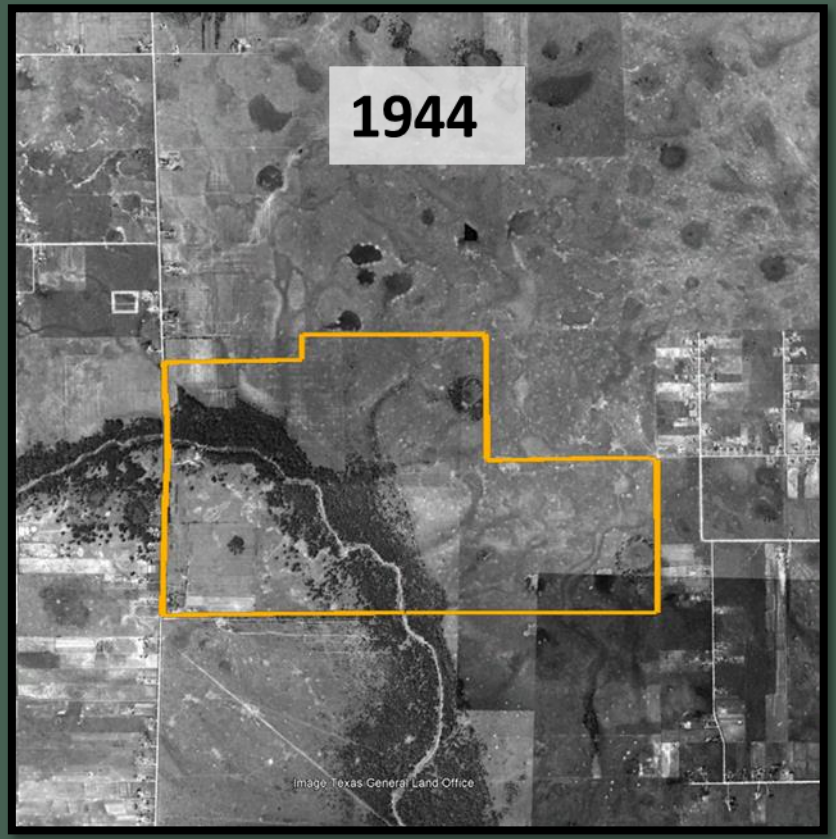



Spring Creek
Willow Creek
Little Cypress Creek
Cypress Creek
Addicks Reservoir
Barker Reservoir
White Oak Bayou
Buffalo Bayou
Brays Bayou
Sims Bayou
Clear Creek
Greens Bayou
Hunting Bayou
Luce Bayou
San Jacinto River
Jackson Bayou
Cedar Bayou
Carpenters Bayou
Spring Gully & Goose Creek
Vince Bayou
Armand Bayou
N
HARRIS COUNTY FLOOD CONTROL DISTRICT
Harris County Watersheds


Langwood Park


Keith-Wiess Park


Cullen Park


1944
Image Texas General Land Office


2022

Quick Facts

- 70 parks
- 26 sites currently completed or ongoing
- Announced in 2020
- Targeted for completion 2030

TEXAS COASTAL RESILIENCY MASTER PLAN

MARCH 2023

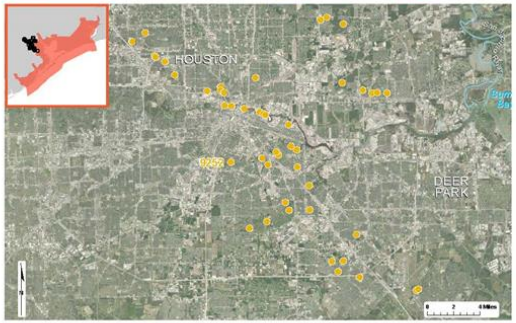
Commissioner Dawn Buckingham, M.D.
Texas General Land Office

Houston Parks and Recreation Department's Riparian Restoration Initiative *(9252)*

Estimated Project Cost: $4,000,000

ABILITY TO ADDRESS VULNERABILITIES

Land Change | Flooding | Degraded Water Resources



LOCATION:
70 parks and/or waterways in southeast Houston

STATUS:
Ongoing

STAKEHOLDERS:
- ***City of Houston Parks and Recreation Department***
- Galveston Bay Estuary Program
- Student Conservation Association

ACTIONS:

PROJECT TYPE(S):
Habitat Creation and Restoration; Studies, Policies, and Programs

Project Description

The City of Houston Parks and Recreation Department's Riparian Restoration Initiative will result in the restoration of riparian forest in selected parks adjacent to waterways based on a siting study already completed by the City. The restoration initiative aims to install new riparian forests or improve existing riparian forests across the city, reaching over 70 parks and 1,000 acres of parks and greenspaces by the year 2030. A total of 9 projects have been completed and 15 projects are ongoing. The entire initiative has not been funded; only certain individual projects have been funded in full. Coastal funding sources for this project would allow the City to complete restoration efforts in the 58 parks located in or immediately impacting coastal areas, of which 46 are currently unfunded, as seen in the project map. The project will help mitigate flooding, improve water quality, add recreation opportunities, reduce erosion, and create wildlife habitat throughout the City of Houston. The projects also will help to reduce urban heat from surrounding development.

Project Need

Riparian zones are narrow strips of land adjacent to streams and rivers that act as buffers between upland areas and open water. Many of Houston's riparian buffers have been removed or degraded due to development or stream channelization. The Riparian Restoration Initiative will target parks adjacent to bayous and tributaries to revitalize forested riparian buffers by removing invasive species and installing a diverse mix of native trees and shrubs.

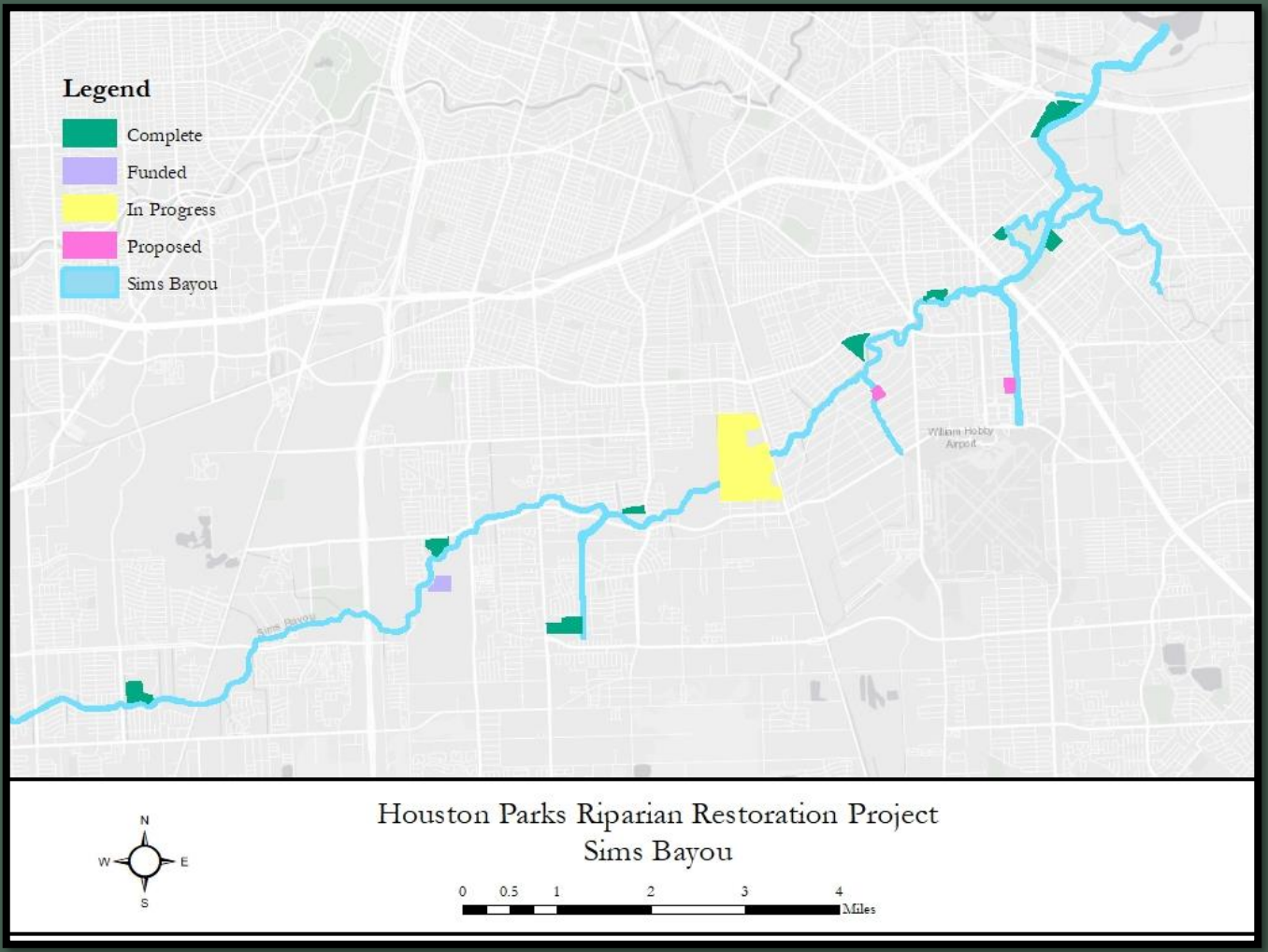
POTENTIAL LOCAL BENEFITS

✓ Addressing Data Gaps	7 Endangered Species	✓ Education & Outreach

Medium Social Vulnerability

19 Migratory Bird Species	✓ Public Access Improvements

**For more information on cost estimates and project benefits calculations, see page 132 of the 2023 Texas Coastal Resiliency Master Plan.*


Legend
Complete
Funded
In Progress
Proposed
Sims Bayou
William Hobby Airport
Sims Bayou
N
W
E
S
Houston Parks Riparian Restoration Project
Sims Bayou
0
0.5
1
2
3
4
Miles

Enhancement

Creation

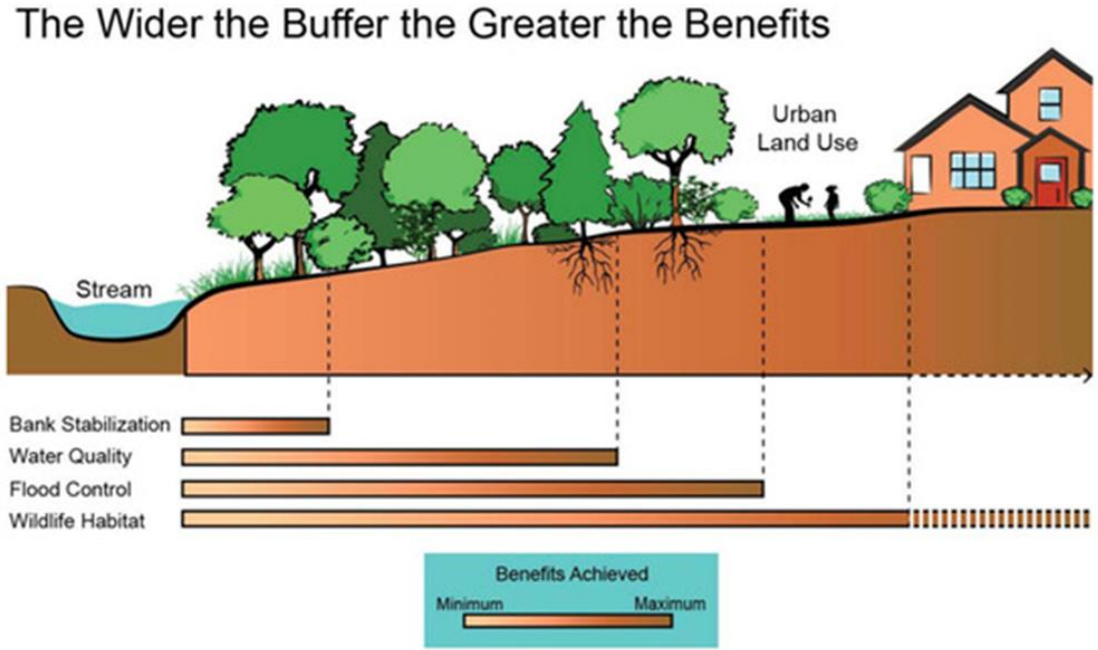
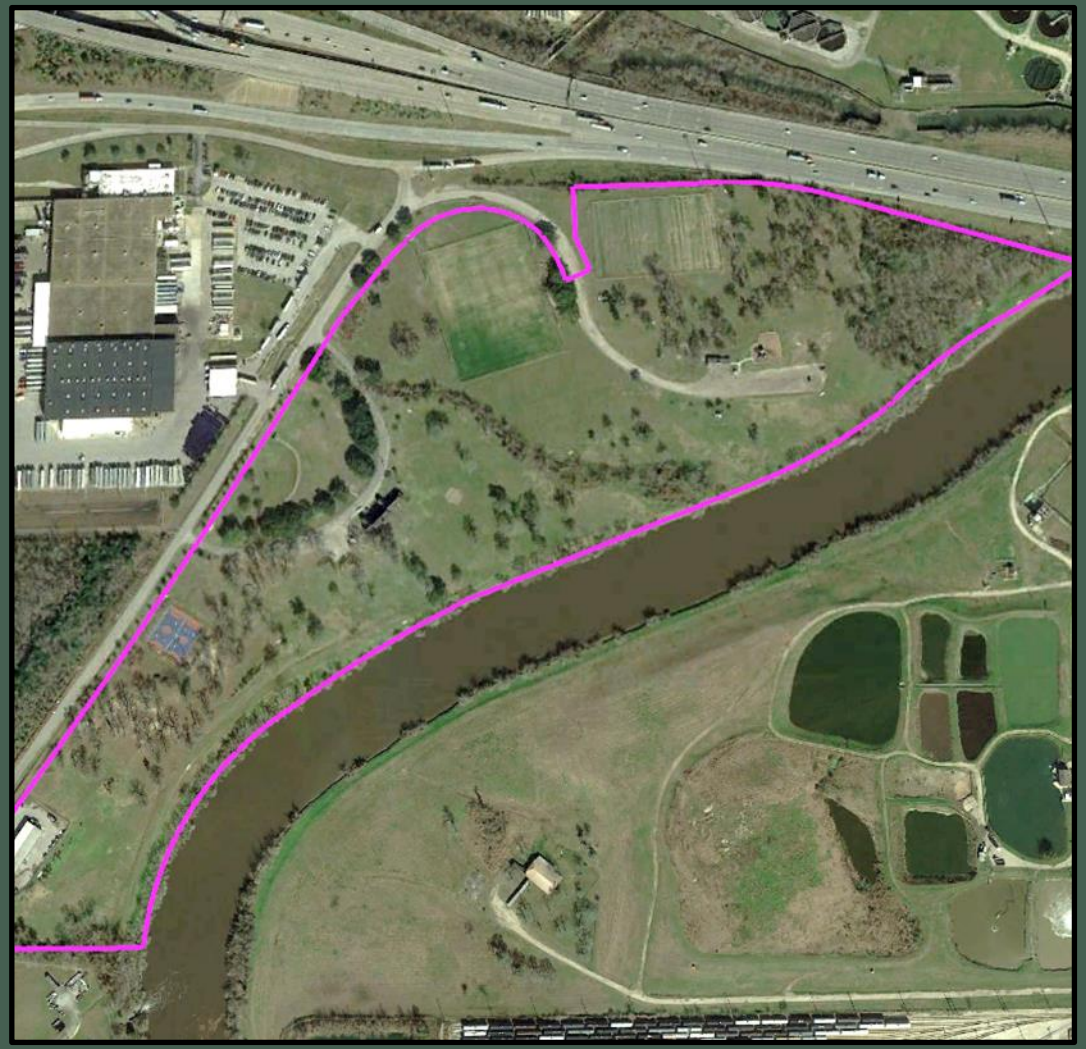


Figure 2. Relationship between riparian buffer width and its functions (adapted from Hawes and Smith, 2005). Distance of benefits varies due to site conditions such as slope.

Creation Site

Milby Park



Before Restoration

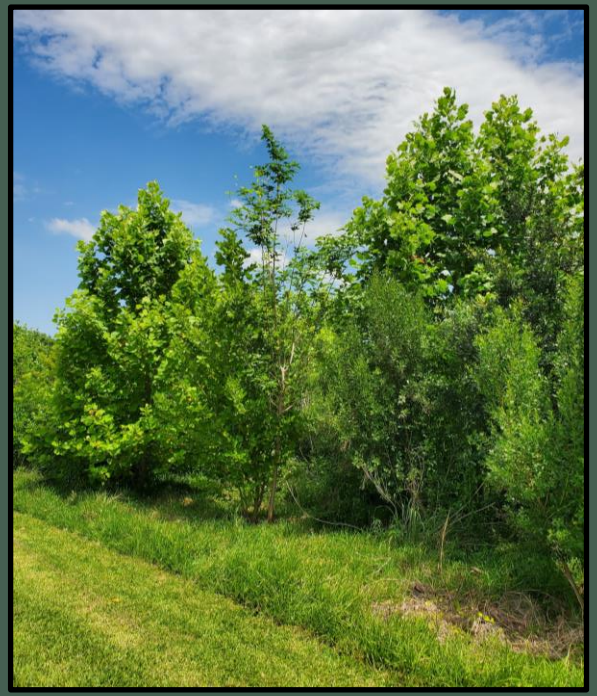
Restoration Process

- 10-ft grid
- 5- and 15-gallon trees
- Volunteer planting events
- Mulching
- Watering

Before and After

2017

2018



2021

Before and After

2017

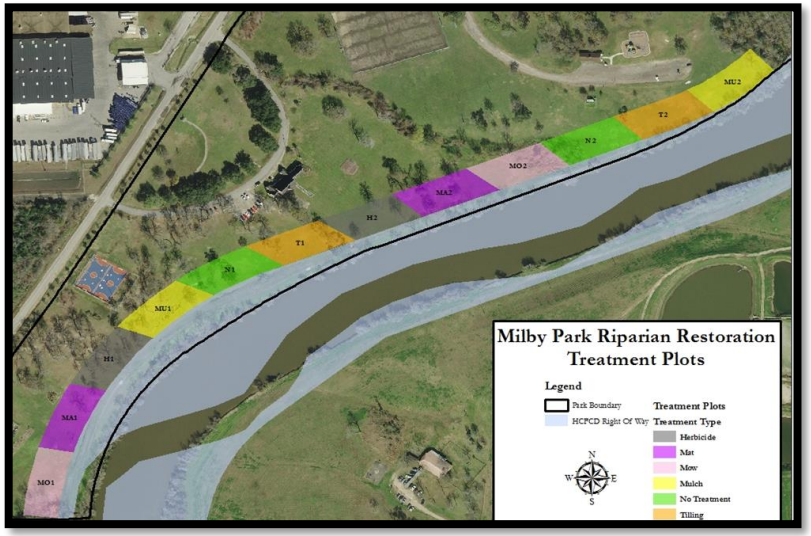
2023

Treatment Plots

What is the best way to reduce herbaceous competition?

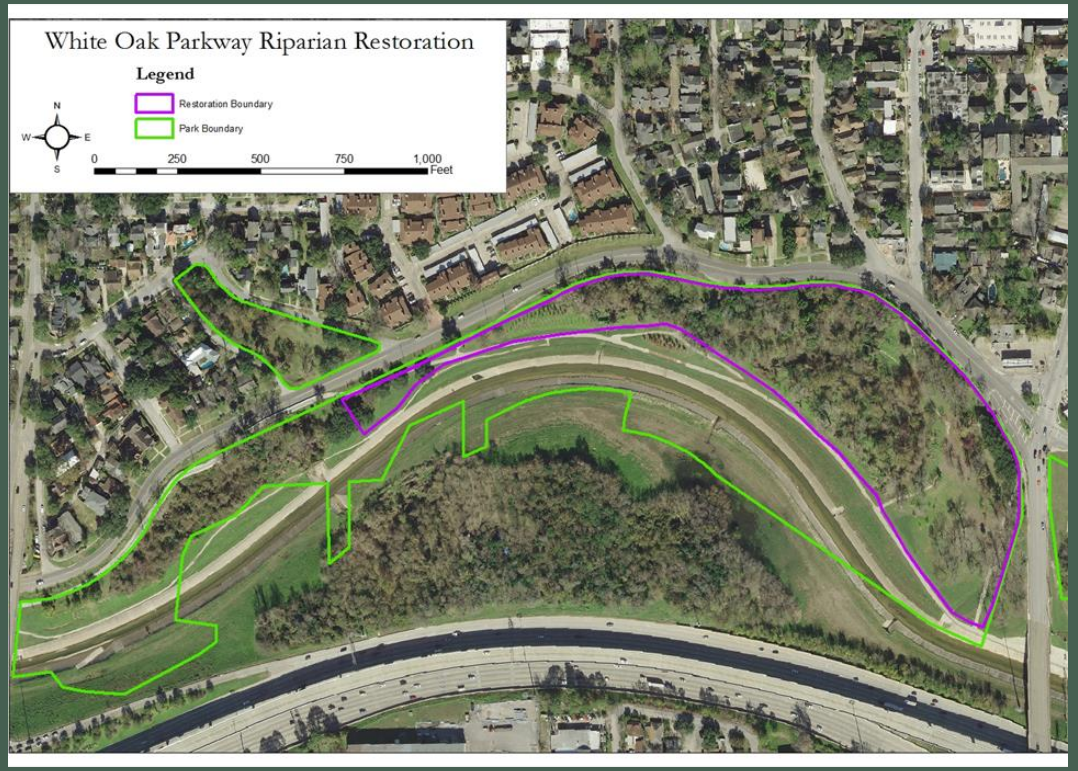
Mowing
Herbicide
Mats
Mulch
Tilling
No Treatment

Winner: Mowing



Enhancement Site

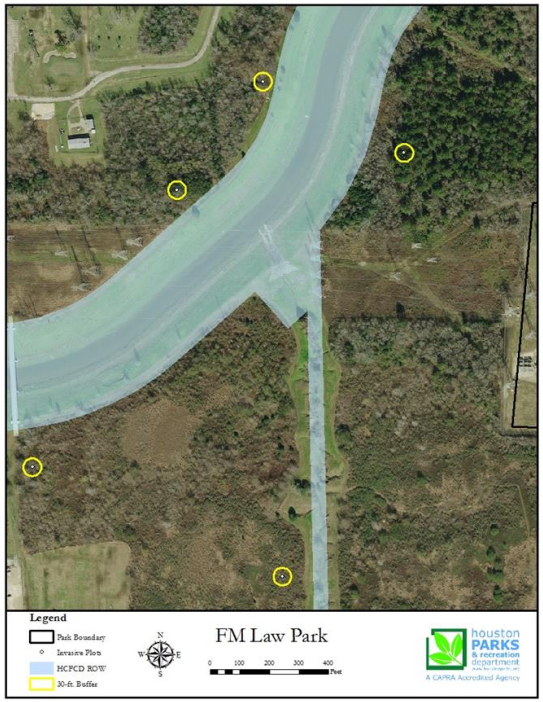
White Oak Parkway



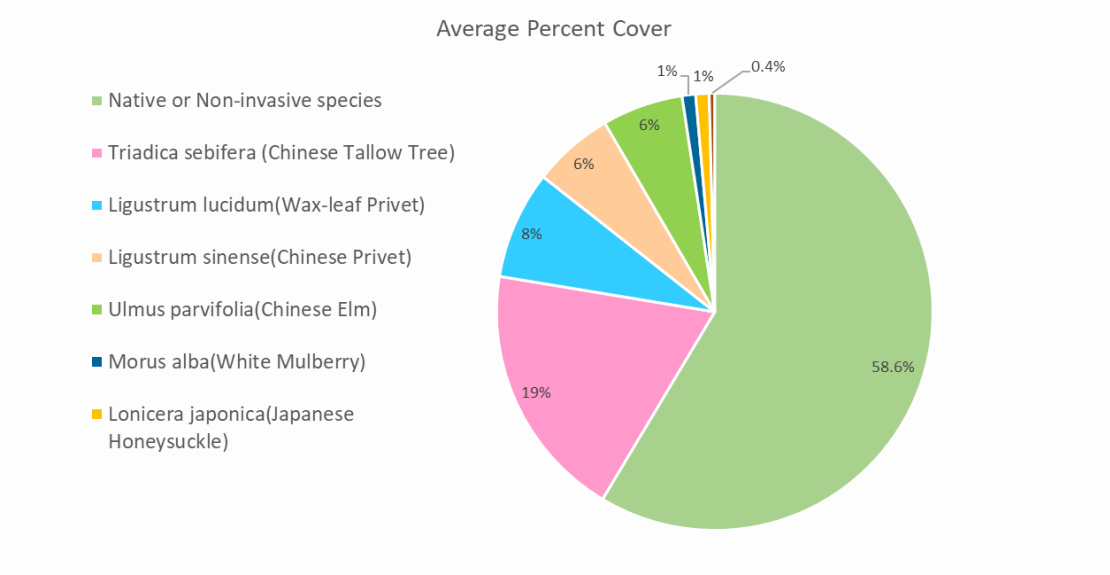
- Nature Preserves
- Invasive Species Removal
- Contractors/Crews
- Tree Planting (seedlings)

Challenges

- Watering
- Tree Damage
- Flooding
- Vines/herbaceous competition
- Invasive species



Percent Cover Invasive Species



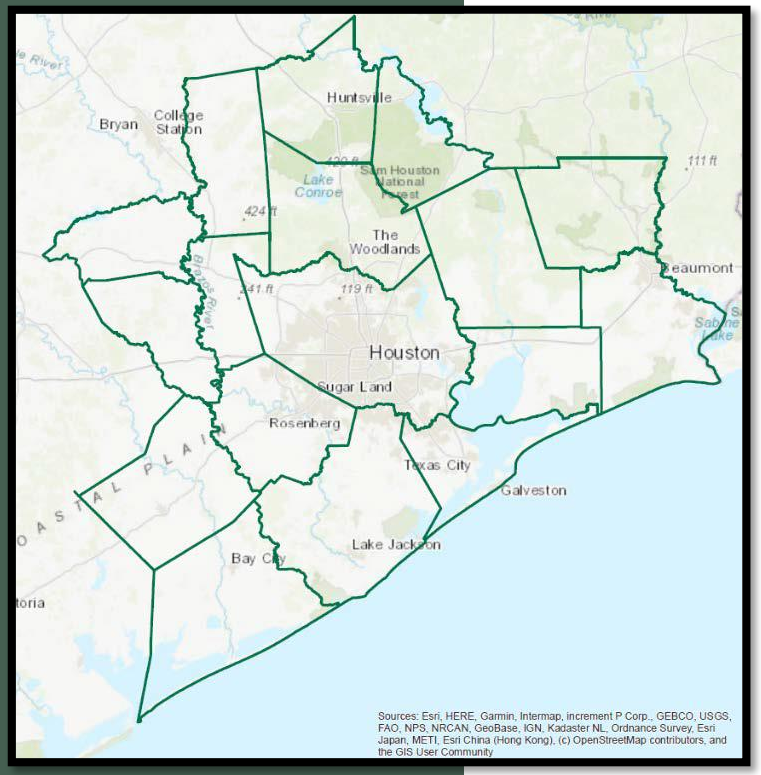
Invasive Species Management

Hydro-Ax

Goats

Manual

Chemical



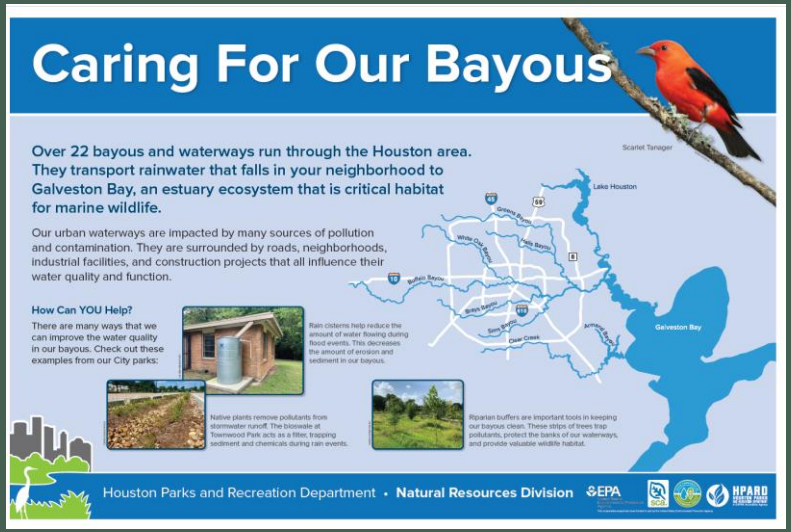
Native Tree List

Native trees provide quality habitat for local wildlife, are well adapted to the conditions of the Houston area, and provide ecosystem services to residents within the region. Native trees have checks and balances that prevent them from becoming invasive species.

Species	
Scientific name	**Common name**
Quercus falcata	Southern Red Oak
Quercus laurifolia	Laurel Oak
Quercus lyrata	Overcup Oak
Quercus michauxii	Swamp Chestnut Oak
Quercus nigra	Water Oak
Quercus phellos	Willow Oak
Quercus shumardii	Shumard Oak
Quercus virginiana	Southern Live Oak
Taxodium distichum	Bald Cypress
Ulmus americana	American Elm
Ulmus crassifolia	Cedar Elm
Cercis canadensis var. *canadensis*	Eastern Redbud
Chionanthus virginicus	White Fringetree
Cornus drummondii	Roughleaf Dogwood
Crataegus marshallii	Parsley Hawthorn
Crataegus opaca	Western Mayhaw
Ilex decidua	Possumhaw
Ilex vomitoria	Yaupon
Morella cerifera	Wax Myrtle
Prunus mexicana	Mexican Plum
Salix nigra	Black Willow
Viburnum rufidulum	Rusty Blackhaw

Legacy Tree Propagation

Interpretive Signage

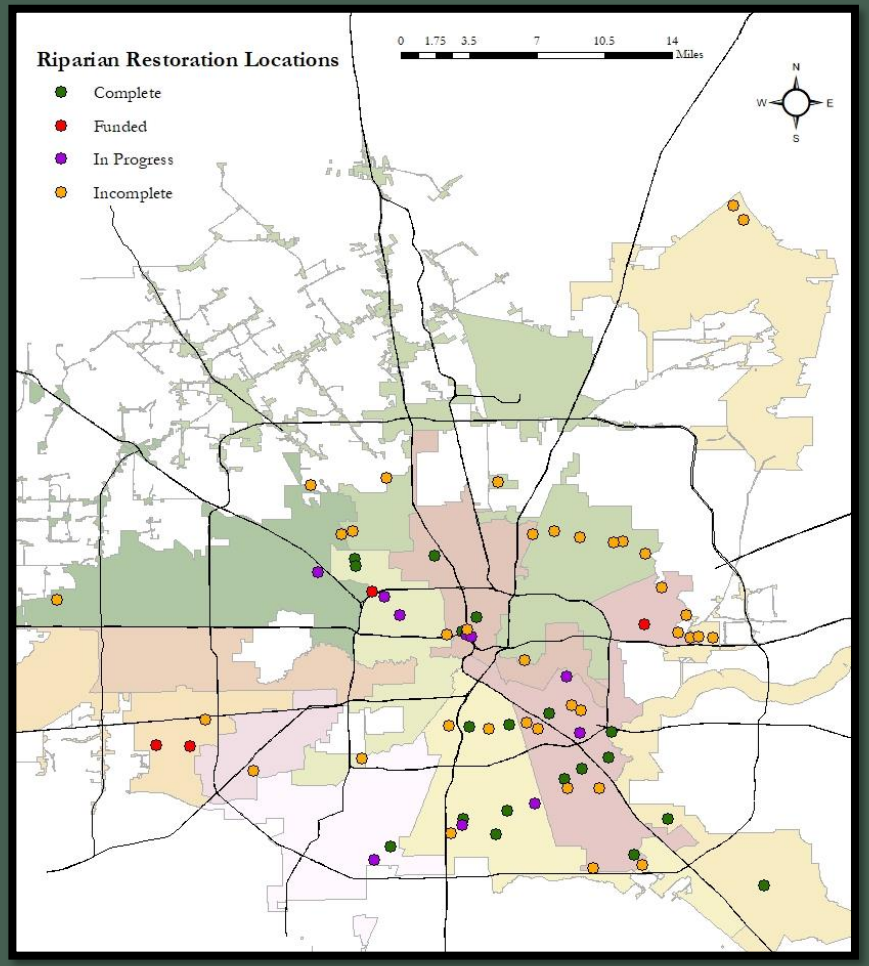


Project Support

- Grants (state, federal, private)
- City match
- Donations
- Partnerships
- Volunteer Labor

Upcoming Projects

- Furman Greenspace
- Little Thicket Park
- Freed Art Nature Park
- Langwood Park
- Timbergrove Manor
- TC Jester/Stonecrest
- Herman Brown Park



Questions?