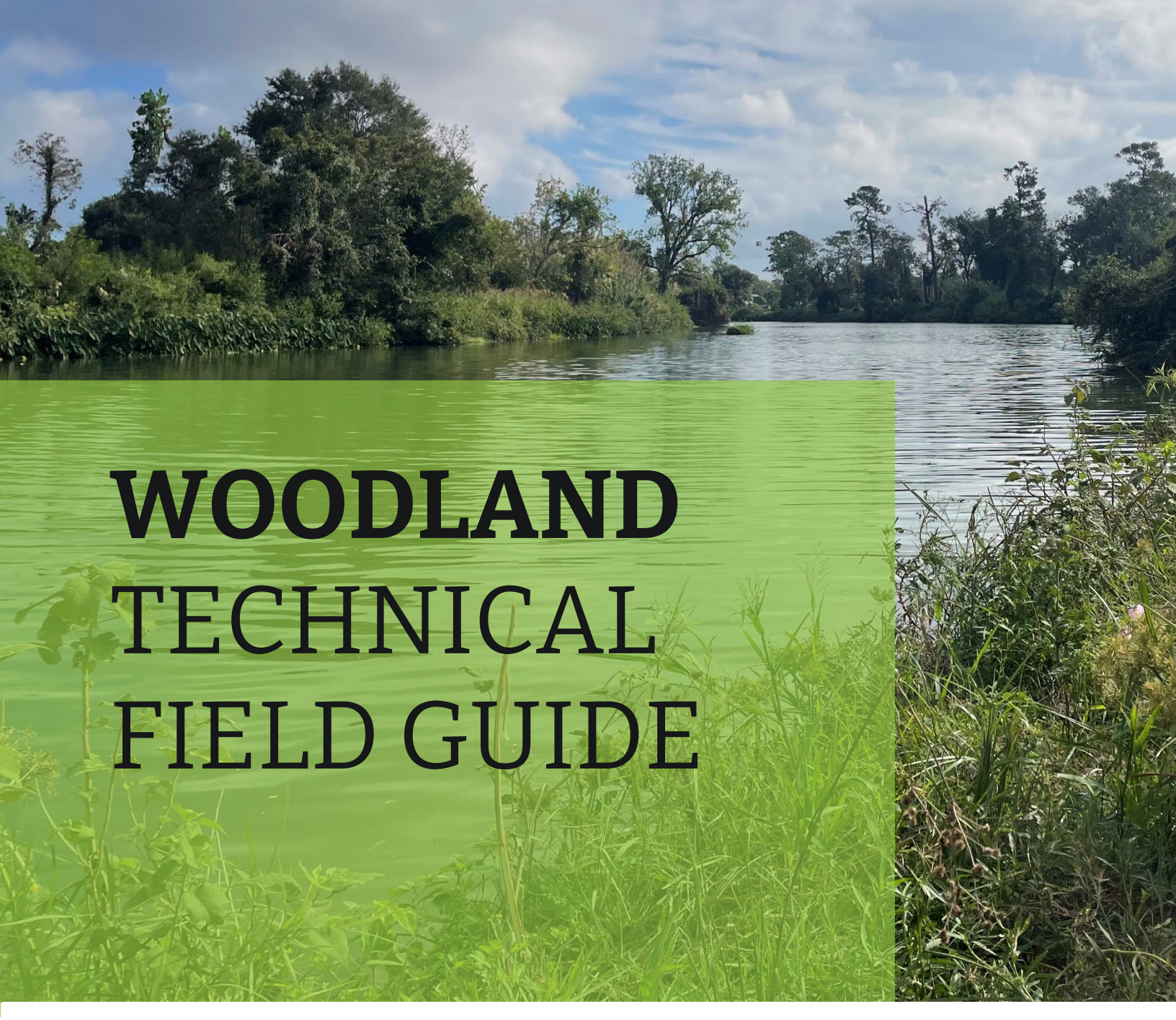

WOODLAND TECHNICAL FIELD GUIDE

HOUSTON PARKS BOARD

BAYOU GREENWAYS

This BMP Field Guide serves as a land management document providing an initial restoration toolbox. The BMPs are broad recommendations and should be viewed as starting the process for restoration. Every site is unique and it will be up to the discretion of the conservation team to implement these BMPs in the most appropriate way given the conditions.

Woodland BMP Field Guide

DEFINITIONS

Woodlands are terrestrial areas dominated by trees with a canopy that is more open than a forest (30 to 100 percent cover), with understory species, and a relatively dense groundcover. Fire is an important part of maintaining woodland habitats. These habitats compare to forests, which are terrestrial areas dominated by trees with closed or nearly closed canopies with understory species adapted to specific light conditions.

PROJECT PLANNING

There are often many questions and pre-construction analyses that should be completed prior to any ground-breaking. To help with the extensive "pre" process, HPB has created a checklist:

CONSERVATION PROJECT DEVELOPMENT CHECKLIST

Use the completed record generated by Survey123 as a basis for developing your site action plan and other project documents.

DETERMINE PROJECT GOALS AND PRIORITIES

Setting specific goals for your project at the onset, can ensure work progresses linearly along an accepted trajectory.

Potential Woodland Goals and/or priorities:

- Increase native plant species diversity
- Increase habitat connectivity in the area
- Promote wildlife enhancement aspects
- Grant and/or other funding guidelines

WOODLAND PROJECT SPECIFIC CONSIDERATIONS

Woodlands, by the nature of their dominant vegetation, require more long-term visioning and planning, as well as a long-term plan for maintenance.

As part of your analysis, you should consider gathering most if not all the following suggested data, with exception made for condition that do not exist (i.e. project site is not wet):

HYDROLOGY

- Map existing streams, wetlands, shorelines, noting current overland flow direction if possible
- Generate a topographic map or note on other maps specific areas of ponding and/or water collection
- Document any existing and/or potential pollution sources and health hazards (on-site and adjacent)
- Identify volume of annual rainfall (Harris County Flood Warning System (harriscountyfws.org)
- Hydrological indicators (**i.e. water/ponding present, aquatic (obligate or fac-wet) vegetation, algal mats)** ERDC/TN WRAP-17-1 "User Guide for Automated Wetland Determination Data Sheets" (oclc.org)

SOILS

- Complete a soil survey (Web Soil Survey - Home (usda.gov)
- Take soil sample and obtain analysis from Texas A&M AgriLife Extension Soil Lab
- Note soil texture (high clay content is required for wetlands, sandy soils will not hold water sufficiently)
- Assess soil compaction (through bulk density or soil cone penetrometer measurements)
- Test soil infiltration
- Assess extent, severity, and type of erosion on-site

VEGETATION

- Map zones of land cover/vegetation type – focus on major grouping of canopy trees and understory groups
- Note invasive species of interest, native communities and relative abundance of each group
- Map vegetation structure (% cover for overstory, mid-story, understory/herbaceous, litter cover, bare soil) and dominant species in each layer
- Identify woodland indicator species

Common Wetland Indicator Plant Species	
Scientific Name	Common Name
Quercus nigra	Water Oak
Ligustrum sinense	Chinese privet
Ligustrum japonicum	Wax leaf ligustrum
Ulmus crassifolia	Cedar Elm
Pinus taeda	Loblolly Pine

OTHER PROJECT CONSIDERATIONS

It is important to note elements surrounding the site that will influence a successful restoration project. Those elements may include the following:

- Parking lots
- Problematic adjacent properties
- Stands of invasive plants
- Major roadways
- Storm drain interceptors
- Proximity to BG trails
- Proximity to other park features

The planning process should include notations of these features, their relative distance to your proposed project and the general size of these features.

Maintenance capacity and logistics should be a design and layout parameter. Elements like pathways can be used to simplify maintenance and delineation of different types of areas.

Grading and reshaping within riparian zones must be carefully considered, as these areas may already be prone to erosion. Earthwork, without careful consideration, may further contribute to erosional issues.

INSTALLATION AND MAINTENANCE

SOILS

- Submitting a soil sample could prove useful for knowing the nutrient content in existing soil
- Soil improvements like adding compost and char may be necessary to help restore the soil food web
- It may be essential to complete an infiltration study on-site to understand how easily soil absorbs water or creates runoff

SITE PREPARATION

- Invasive species control is imperative to project success. Include integrating herbicides, tillage, adequate depth mulching, and, depending upon timeline/approval, prescribed fire.
- It may be better to consider controlled herbicide methods over methods which disturb the soil. Please refer to the HPB Integrated Pest Management (IPM) Manual if herbicide is required.

Common Invasive Woodland Plant Species	
Scientific Name	Common Name
Vitis mustangensis	Mustang Grape
Triadica sebifera	Chinese tallow
Ligustrum sinense	Chinese privet
Ligustrum japonicum	Wax leaf ligustrum
Lagerstroemia indica	Crape Myrtle

- Mulch topdressing will significantly help the long-term survivability of the planted trees. This should be included in the planning of installation.
- Augering holes to an appropriate size is essential for proper planting

INSTALLATION

- Planting window for trees and shrubs: October to early November through February
- Planting zones: grouped by moisture requirements and light regime
- Planting density: verify the final size of the trees on your plant list to determine an appropriate plant spacing. Some trees will be huge over time (i.e. live oaks) verus other trees (i.e. redbuds)
- Consider planting material for canopy and understory to create a more complete habitat structure
- Augered holes should be done prior to any planting effort
- Composted soil or another nutritious blend should be mixed into the native soil as the tree is being planted onsite. This will help with establishment. Rooting hormone may also be considered.

ESTABLISHMENT

- Trees and shrubs, like most plantings, should be watered the day they are planted
- Water weekly for the first couple months but may need water for the first to two years of establishment, especially in drought conditions
- After the two-year establishment period the trees should be watered as needed. Trees generally will require anywhere between 5-10 gallons of water per inch in diameter. At each watering, thoroughly saturate the soil around each tree and ensure proper soil moisture at least 6” below grade.
- Remove invasives immediately to prevent establishment and/or seeding of noxious species
- Bare spots should be addressed immediately with additional plantings

MAINTENANCE/MONITORING

- Each project should have regular establishment monitoring for the first two years with the first year having a minimum of a site visit every two weeks.
- Hand removal can occur, and regular sweeps should be made during inspections to make sure undesired plants are not allowed to go to seed. Site monitoring forms can be completed to initiate these maintenance tasks.
- Any invasive, non-desired plants that are setting seed should be treated or pulled, seedheads or plants bagged, and then bags discarded. Herbicide treatment will be need further approval by HPB.
- If invasive spot treatment occurs and results in dead patches, conservation staff should remove dead material and then replant with fast growing plants. It is imperative to not leave the void unattended because urban areas are vectors for invasive species and could potentially fill the space if native seed or live plugs are not planted as soon as possible.
- Bare spots created by invasive removals MUST be addressed at the time of physical removal or after the REI has expired if herbicide treatment was utilized.