



COASTAL RESTORATION SERIES

Utilizing Local Native Plants in Coastal Prairie Wetland Restoration

Freshwater coastal prairie wetlands once covered large expanses of the Houston-Galveston landscape. These prairie potholes, characterized by a matrix of mima mounds and low-lying wet basins, provided important ecological services including habitat, flood control and water cleansing. Agriculture and other types of development have largely erased these features from the coastal landscape, and restoration of these wetlands can be a difficult process.

Wetland restoration involves more than replacing what has been disturbed or altered. It may involve the restoration of ecological functions and values (Mitsch and Gosselink 2000). In the case of Sheldon Lake State Park, the original wetland basins, which had been plowed and filled for agricultural purposes, were identified, mapped and subsequently re-excavated. Additionally, low levees were erected to hold water within the basins, mimicking the original hydrology of the area. The final step of planting the basins, restored

the original plant community. Local native fauna, especially black-bellied whistling ducks, immediately congregate to the successfully restored wetland basins—completing the restoration cycle. The time needed to complete the restoration from plant collection to final establishment can stretch over several years.



Pickerel Weed (*Pontederia cordata*) is an excellent choice for establishment in the deeper sections of restored wetland basins.

Identifying Your Sources

Most of the material utilized in the planting process will come from local ditches, private sites where permission is attained, or public road right-of-ways. The guidance established for the collection of prairie plants within a 50-mile radius of the project site is an equally good guideline for

wetland plants (Tallgrass Restoration Handbook 1997). This close proximity to the project site ensures the collected plant material is adapted to local microclimates.

It is critical to investigate many areas within the limits of your project site to identify areas which are not dominated by exotic vegetation. Exotic control can be costly and time



consuming, thus precautionary measures to prevent unwanted introductions are worthwhile (Pimentel et. al. 2000).



Member of the Wetland Restoration Team collect Southern Blue Flag Iris from a local site.

Plant materials will likely be found in groups or clusters of several desirable species within a single

location. Once appropriate collection sites are identified, employing conservation practices to ensure existing populations remain intact allows for collection over a series of years as needed. Collecting a small percentage of the population (up to 20%) promotes the preservation of the native landscape.

It is also worth noting that the lead time for the planting portion of the restoration, alone, should be a year in advance of anticipated first planting. Collection, therefore, should be planned according to the project time frame.

Our Diverse Communities

Establishing a plant cover as quickly as possible should be a primary goal in the restoration process. This establishment is the first line of defense against invasive plants which will multiply at higher rates. For example, cattails (*Typha spp.*) alone can produce an excess of 10,000 seeds per seedhead,



Squarestem Spikerush allows for establishment of other species like the Jamaica sawgrass in the foreground.

and once established within a wetland, cattails are difficult to remove (Fredrickson and Reid, 1988). Likewise, other noxious species (see inset) will establish and physically prevent the recruitment of native plants.

The simplest way to establish the plant community within the restored wetland basins will be to plant fast-growing, heavy-seeding species, such as

delta duck potato (*Sagittaria platyphylla*), squarestem spikerush (*Eleocharis quadrangulata*) and catch flygrass (*Leersia hexandra*). The prolific, hardy nature of these seeding plants recover from transplating quickly and survive adverse conditions. They will grow into large expansive mats or masses, but will also allow for the establishment of other desirable species which can be planted at a later time.

All the plant material for the Sheldon Lake State Park project was collected from a four county region (Harris, Galveston, Brazoria and Chambers). This collection methodology maintains the genetic



Preparation to planting sequence



Enemy Number One: Invasive Plants

Any restoration project will face challenges in the field which may require special action. One such challenge is the likely encroachment of invasive exotic plants or aggressive native plants. It will serve the project outcome well to employ best management practices (BMPs) while collecting plant material and throughout the propagation process. Preventing the introduction of exotic species will minimize any expense needed to

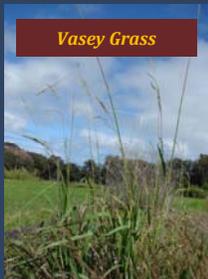


Alligatorweed

eradicate the pests in the future (i.e. herbicide and application labor cost).

Start at the beginning by collecting plant material from areas free of exotic vegetation and where that is unavoidable, collect the desired material and

carefully remove the stems and roots of the unwanted material—making sure to remove all the root material as many exotic species are able to re-establish with minimal root (e.g. Alligatorweed, *Alternanthera philoxeroides*).



Vasey Grass

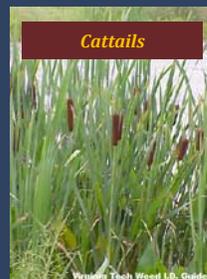
When done at the collection site, it reduces any incidental later introductions at the project site. It is best to “quarantine” the collected material in a controlled pond. A

short growing period will allow exotic weeds to regrow or germinate, and thus be culled. For exotic population established within the

restoration site, it will require management practices like specific treatment with herbicide, mowing, prescribed burn or physical removal. All of these methods will require significantly more effort (staff time) and resources; therefore, planning and preparation during collection is easily justified.



Deep-rooted Sedge



Cattails

increases the overall success rate of the restoration effort.

Collected plants were propagated and maintained onsite at the Park in shallow, artificial grow-out ponds. The extended collection time allows for the collecting of seasonally available desirable species. For instance, southern blue flag (*Iris virginica*), is available and actively growing in December and January and dormant in the summer months, while thin-scaled sedge, (*Carex hyalinolepis*) is most available in late summer. Additionally, the extended collection period allowed the plants to recover from transplant shock. Ideally, plant material collected in advance will also have sufficient time to propagate at least 2-to 4-fold. This decreases the overall amount needed and collected from wild populations—another conservation measure.

Another equally important consideration

integrity of the plant stock placed in the restoration site. In other words, it ensures that only plants adapted for local soil, hydrology and regional conditions are introduced to the site. This precaution

for the planting plan is the potential impact from wildlife. Migratory waterfowl can present a problem for establishing vegetation, as geese and ducks are likely to consume the young plant sprigs. Planting



Native Plant Choices

Deep water plants



Canna glauca

Pontederia cordata

Thalia dealbata

Shallowly inundated



Iris virginica

Sagittaria platyphylla

Eleocharis quadrangulata

Intermediate transition



Leersia hexandra

Hydrolea ovata

Juncus nodatus

Wet Prairie



Spartina patens

Hibiscus moshoetus

Panicum virgatum

early within the year (February) allows for the vegetation to establish a resilient root system, or develop an extensive seed bank within the soil, thus, providing a foundation for re-establishment of the basins before the next influx of migratory waterfowl.

Feral hogs, however, present a more difficult issue and local eradication is likely the only solution. For assistance and guidance on feral hogs, visit:

www.tpwd.state.tx.us/huntwild/wild/nuisance/feral_hogs/

Looking Back

It is worth the time and effort to visit your restoration site post-completion. This visit allows an evaluation of the plant choice and may provide insight into volunteer species which establish on-site. Establishing a monitoring protocol for your site, whether photopoints or transect plots, will also clearly define successful vegetation establishment.

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