



The Sabal

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Flora of Edinburg Scenic Wetlands and World Birding Center, Part II: Description of Vegetation and Management Implications

by Chris Hathcock

Part I of this article featured a general site description and plant listing of the Edinburg Wetlands. Part II will highlight vegetation in the wetlands and wetland margins, selected exotic and native plant species in uplands, and implications for management.

Lakes and Canal

From a habitat standpoint, the most significant feature of Edinburg Wetlands is its nearly 25 acres of shallow (1-3 feet deep) permanently flooded wastewater treatment lakes and connecting canal. With so few freshwater wetlands, natural or artificial, in our semi-arid region, these are a treasure for nature enthusiasts and wildlife alike.

Though teeming with wildlife, I saw surprisingly small amounts of aquatic plants in the lakes — only some duckweed (*Lemna* sp.)

washed up along shorelines and a few sprigs of muskgrass (*Chara* sp., an algae). Most other permanent wetlands in our area have thick submerged patches of pondweed (*Potamogetton nodosus*), water stargrass (*Heteranthera Liebmannii*), and/or muskgrass. But this wasn't the case here, as far as I could tell without trudging through the muck.

Furthermore, the lakes and canal are almost entirely devoid of any emergent vegetation. This is in stark contrast to our region's drainage ditches, irrigation canals, resacas, and reservoirs. Many of these are replete, at least on the margins, with coastal cattail (*Typha domingensis*), common reed (*Phragmites australis*), or California bulrush (*Schoenoplectus californicus*).

So why are the treatment lakes at Edinburg Wetlands different in terms of abundance of aquatic and emergent plants? One possibility I investigated was that salt concentrations were too high for many species. This seemed plausible given the stagnant nature of the lakes and the high evaporation rates we see in the region. However, the salinity levels in water I

sampled from North Lake and Damselfly Pond in June ranged from 1.5-2.0 parts per thousand. This is intermediate between fresh and brackish and tolerable for the majority of native wetland plants.

A more likely explanation is high nutrient loads from treated wastewater. This leads to low levels of dissolved oxygen and impedes light penetration, preventing many aquatic and emergent plant species from becoming established. Additionally, many wetland plants, particularly those restricted to lake margins, require moist soil for establishment. The steep banks and constant water levels in the treatment lakes and canal provide little of this.

Usually, habitat managers are faced with too much emergent vegetation in wetlands and try to create openings to improve the habitat quality for waterfowl and other wildlife. So is it good that Edinburg Wetlands doesn't have this problem?

Well, not entirely. Emergent wetland plants, including bulrush (*Schoenoplectus* spp.), arrowhead (*Sagittaria* spp.), and several other species, provide food, cover, and nesting sites for wildlife, as well as egg-laying substrates and cover for fish and a whole host of aquatic invertebrates. They also help improve water quality and control erosion. Of course, some plant species are more beneficial and less likely to get out of control than others. Therefore, the trick is achieving a good balance of the right kind of plants and an optimal amount of open water.

Wetland Margins

Because nearly all banks of the lake and canal at Edinburg Wetlands are steep (having a ratio of 2 horizontal:1 vertical or steeper), there is typically a very narrow zone (<2 feet-wide) along the lower banks that is transitional between moist soil and temporarily flooded. The dominant marginal wetland species, therefore, is salt-marsh fleabane (*Pluchea purpurascens*), a plant with low wildlife value that can tolerate slightly higher, drier ground than most other wetland plants. Mid-and upper-bank vegetation is dominated by dry-land shrubs, such as Roosevelt willow (*Baccharis neglecta*), hierba del marano (*Aster subulatus*), and western ragweed (*Ambrosia psilostachya*), and vines, such as climbing milkweed (*Sarcostemma*

cynanchoides) and moon vine (*Ipomoea alba*), a showy escaped cultivar.

An exception to steep banks occurs along the eastern shoreline of South Lake. This area is directly across the walking-trail entrance from the adjacent city park and is easily viewed from a boardwalk and large observation deck. Here, the slope is very gradual, allowing a 30-foot-wide transitional zone ranging from shallowly flooded to moist as the lake level fluctuates, ideal conditions for an array of naturally occurring wetland plants important to wildlife.

The following species occur at this site. An asterisk (*) indicates that the plant is known to provide food (through its tubers, seeds, rhizomes, stems, and/or leaves) for ducks, coots, and moorhens.

Lower Slope

- dwarf spike-rush (*Eleocharis parvula*)*
- spike-rush (*Eleocharis* sp.)*
- water clover (*Marsilea macropoda*)
- water hyssop (*Bacopa monnieri*)*
- white spike-rush (*Eleocharis albida*)*

Mid-Slope

- creeping lovegrass (*Eragrostis reptans*)
- flat-sedge (*Cyperus* – 4 spp.)
- Louisiana cupgrass (*Eriochloa punctata*)
- Neally sprangletop (*Leptochloa nealleyi*)*
- sawgrass (*Cladium jamaicense*)*
- sea purslane (*Sesuvium sessile*)*
- seaside heliotrope (*Heliotropium curassavicum*)
- short-leaf flat-sedge (*Kyllingia brevifolia*)

Upper Slope

- bequilla (*Sesbania macrocarpa*)*
- bundleflower (*Desmanthus virgatus*)
- camphor daisy (*Machaeranthera phyllocephala*)
- hierba del marano (*Aster subulatus*)
- primrose willow (*Ludwigia octovalvis*)*
- Roosevelt willow (*Baccharis neglecta*)
- saltmarsh fleabane (*Pluchea purpureascens*)
- western ragweed (*Ambrosia psilostachya*)

Although none of these species have significant value as cover or nest sites, those on the lower and mid-bank generally have a greater food value for dabbling birds than those on the upper slope. With the exception of water-hyssop and heliotrope, however, all of the species occurring on the lower and middle slope are absent from



Left: The 4-acre Visitor Center landscape features winding trails, thickets of flower and fleshy-fruit-bearing shrubbery, and seven shallow ponds.

Right: This blooming woolly pyramidbush (*Melochia tomentosa*; foreground) is a stand-out in the landscape. Note its contrast with the darker green leaves of goldeneye daisy (*Viguiera stenoloba*; background), betony leaf mistflower (*Conoclinium betonicifolium*; underneath) and sawtooth frog-fruit (*Phyla nodiflora*; bottom right corner).





Left: Creeping lovegrass (*Eragrostis reptans*) is one of three grass (*Poaceae*) species occupying the wet eastern margin of South Lake. Note the white anthers of the male flowers extending above the spikelets.

Right: Great and snowy egrets take advantage of shallow-water feeding opportunities while neotropical cormorants bask on dead retama trunks in South Lake on a typical summer morning. Although saltmarsh fleabane (*Pluchea purpureascens*) dominates the lower edge of the steep southern bank (background), a diversity of wetland plants important to wildlife occur along the gradually sloping eastern shoreline (foreground).



other lake and canal margins. In contrast, the seven shallow landscape ponds support 9 of the 16 species occurring on the lower and mid-slope, well as 8 additional desirable transitional species.

Uplands

Although most of the upland areas are open and grassy with scattered mesquite trees, there are some areas around water that have a more closed canopy consisting of such early-successional (i.e., relatively fast-growing and short-lived) trees as mesquite, sugar hackberry (*Celtis laevigata*), and popinac (*Leucaena leucocephala*). Within some of these more shaded sites are naturally occurring anacua (*Ehretia anacua*; currently just seedlings), coma (*Sideroxylon celastrina*), and other woody species representative of more mature woodlands. Over time, these areas may succeed into diverse and luxuriant close-canopied woodlands.

The establishment of more mature woodlands may be impeded, however, by competition between slower-growing (but longer lived) native trees and shrubs with aggressive exotics. Of the 12 exotic-invasive species currently occurring at Edinburg Wetlands, there are 7 that should be prioritized for control measures due to their abundance, potential to spread further, and negative impacts on native species. These “Dirty Seven” include popinac, chinaberry (*Melia azedarach*), Russian thistle (*Salsola australis*), moonvine, Guineagrass (*Panicum maximum*), Bermudagrass (*Cynodon dactylon*), and buffleggrass (*Pennisetum ciliare*).

The pervasiveness of popinac (a fast-growing tree from South America) might be the reason that its less aggressive native relative, tepeguaje (*Leucaena pulverulenta*), is absent from areas outside the landscape. In addition, the exotic grasses seem to exclude native grasses, especially in less disturbed areas. The only native upland grass species I found away from the trails and mowed areas was silver bluestem (*Bothriochloa laguroides*), represented by a few flowering stalks surrounded by a sea of coastal bermudagrass.

Management Implications

Lack of water is usually a major hurdle in the conservation, restoration, and management of valuable wetlands and riparian woodlands along

the lower Río Grande. With its vast supply of water, the potential for conservation and restoration at Edinburg Wetlands is tremendous. To accomplish wetland management objectives for plants and wildlife, however, will require creative strategies to deal with high nutrient levels in the water and an inability to control water levels.

Based on vegetation currently present, I recommend the following strategies to improve habitat quality for wetland birds: 1) increase the amount of gradually (at least 4:1) sloping wetland margins to support transitional wetland plants, and 2) introduce and encourage taller emergent plant species (e.g., bulrushes or larger spike-rushes) to provide cover and nesting sites, since the plant species currently present do not provide these habitat requirements. Two avian species that would particularly benefit from plants providing appropriate nesting sites and cover are the mottled duck (one of only two species of dabbling duck nesting in the region) and least bittern.

Lastly, establishment of mature riparian woodlands can be facilitated through 1) protection of existing woody vegetation growing on well-drained areas near lakes, the canal, and ponds, 2) targeted additions and encouragement of mid- and late-successional shrub and tree species, and 3) control of exotic plant species.

Chris Hathcock is the Secretary of the NPP Board of Directors and Habitat Restoration Coordinator for Texas Parks and Wildlife Department, State Parks Division in the Lower Rio Grande Valley.

Nature Happenings Lower Rio Grande Valley, Texas

For a comprehensive calendar of Nature Happenings go to RGV Nature Coalition at www.rgvnaturecoalition.org Scroll down to and click on Nature Events Calendar on right side

Sabal Palm Grove Sanctuary— Saturday, October 20, 2007: Wonders of Nature Festival
Call (956) 541-8034. Or go to www.tx.audubon.org/centers/sabal

Edinburg Scenic Wetlands and World Birding Center — Bird Walks and Nature tours.
Native Plant Landscaping. 714 Raul Longoria Rd., Edinburg, TX (956) 381-9922.

Quinta Mazatlan - McAllen Wing of the World Birding Center— 600 Sunset Ave., McAllen, TX. Call Colleen Hook (956) 688-3370 for scheduled events

Bentsen Rio Grande Valley State Park WBC offers butterfly walks, bird walks, nature tours.
Call 956-584-9156 for details and times.

14th Annual Rio Grande Valley Birding Festival, November 7-11 2007 in Harlingen, TX

The Native Plant Project will be selling a variety of Mike Heep's healthy native plants at the birding festival. One-gallon plants are \$6.50 each; 5 or more are discounted to \$5.00 each. If you have questions about growing natives, stop by and get the answers at the NPP booth at the Birders Bazaar.

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The Sabal is the Newsletter of the Native Plant Project and conveys information on the native habitat, and environment of the Lower Rio Grande Valley Texas. Co-editors: Gene Lester and Eleanor Mosimann. You are invited to submit articles for *The Sabal*. They can be brief or long. Articles may be edited for length and clarity. Black and white line drawings -- and colored photos or drawings -- with or without accompanying text are encouraged. We will acknowledge all submissions. Please send them, preferable in electronic form - either Word or WordPerfect - to: Native Plant Project, P.O. Box 2742, San Juan, TX 78589 or contact **Gene Lester @ 956-425-4005, or g-el1951@sbcglobal.net**

See *The Sabal* and our 5 handbooks on our website:
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___ Regular \$15 per year ___ Contributing \$35 per year ___ Lifelong \$250 one time fee per individual. Members are advised of meetings, field trips, and other activities through *The Sabal*. Dues are paid on a calendar year basis. Send checks to Native Plant Project, P.O. Box 2742, San Juan, Texas 78589.

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Comments/ suggestions/ speaker recommendations should be sent to: Native Plant Project, P.O. Box 2742, San Juan, TX 78589 or contact G. Lester (956)-425-4005; g-el1951@sbcglobal.net

Native Plant Project Meetings – October 23, 2007. **Board meeting** at 6:30 p.m.; **General meeting** at 7:30 p.m. **Paul Johnson**, RGV Regional Urban Forester with the Texas Forest Service will present "Champion Trees of the RGV". You may not think "big" when someone mentions trees in the Valley... but we have many state and national champions in the Valley. Come learn where some of our big trees are, how to measure them, and how to nominate a new champion. Who knows you might even have a champion in your own yard.

Board and General Meetings 2007:

September 25
October 23
November 27

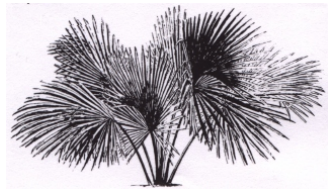
Board and General Meetings 2008:

January 22	April 22	September 23
February 26	May 27	October 28
March 25		November 25

SUMMARY OF THE MINUTES OF THE BOARD MEETING - September 25, 2007

The board discussed the potential of hosting the annual meeting of the Native Plant Society of Texas in 2009 or later. The general feeling was that this discussion should be postponed for now. There were concerns about the event conflicting with the Mission Butterfly Festival and lack of time to organize the event by the board and general members. Griffin reported that she still needs pictures of native plant species for the new display board. Hagne reported that he was a keynote speaker at the Art of the Earth 2007 event at UTPA, from which the NPP will be receiving part of the proceeds.

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