Methods

After testing 27 structure types in a controlled pond setting, only structures constructed using either PVC or Bamboo for flotation were successful. Due to problems with nutria grazing on the young plants, most of the structures were fenced to allow the plants time to establish without osiermo pressure.

Field Site

Four sites were selected at Mandalay National Wildlife Refuge in an area that was a Paille Fine (Panicum hemitomon) marsh in the mid-1900’s but has converted to a shallow pond. Two sites were located in relatively sheltered settings in small marsh ponds (sites 1 and 3) and the other two sites (2 and 4) were located in a relatively exposed setting in a large marsh pond.

Site Locations

At each site 50 PVC structures and 25 Bamboo structures were tethered to several posts.

Site layout

Site 2 June 2007

Results

• Establishment with potted plants resulted in quicker cover increases than establishment from stems. However by the end of the first growing season, differences in cover between establishment techniques were small, especially in the sites that had the longest growing season.

• Panicum hemitomon cover decreased during the third growing season as the fences that protected it from grazing rusted. However, several other species colonized and total cover remained high. Tropical storms at the end of the 2008 growing season resulted in decreased cover at the southern sites.

• 37 species other than P. hemitomon were observed in the structures over time. Species diversity increased with time.

• Salinity measurements show that salinity is generally higher at the two southern sites. The southern sites also experienced high salinity pulses during tropical storms. P. hemitomon growth is significantly impaired at salinities exceeding 4 ppt.

• All structures remained buoyant and structurally intact in the first two growing seasons. An apparent boat strike near the beginning of the third growing season affected the buoyancy and structural integrity of some of the bamboo structures at site 4, ultimately leading to the sinking of three structures. Two strings of ten PVC structures vanished from site 1 after Hurricane Gustav, but 81% of the monitored structures and 100% of the unmonitored remained structural intact.

Additional Information
