

RESTORING GHOST TREE ISLANDS BY COPYING A NATURAL PROCESS



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Ghost tree islands like Dineen Island (left) are ones that have lost sufficient elevation due to soil oxidation or fire that they are populated by sawgrass instead of trees and have an extended hydroperiod due to their lower elevation. This aerial photo shows the circular head and the ridge-like structure of the remaining area of the island.



Floating tree islands of WCA-1 (right) develop from areas of peat that become buoyant and break free from the bedrock for a sufficient time as to become colonized by terrestrial plants including trees. These can be moved by wind and eventually establish as battery islands.



After two years of varying hydrology, the saplings receiving the low fertilizer treatment showed a significantly greater increase in basal diameter than the controls or the high fertilizer treatment (Fig 3). All other treatment effects were found not to be significant.



Figure 3. Left: pond apple (with fertilizer spike) at planting in October 2013; Right: Same pond apple in May 2016.

We created floating islands using commercial peat bags (Fig 1 & 2) to support one or two potted tree saplings of pond apple, strangler fig or red maple (pot bottoms removed) until they can become established. Testing took place on a simulated ghost tree island at LILA and involved two bag orientations, two levels of fertilization (tree fertilizer spikes), the use of additional flotation and two saplings per bag.

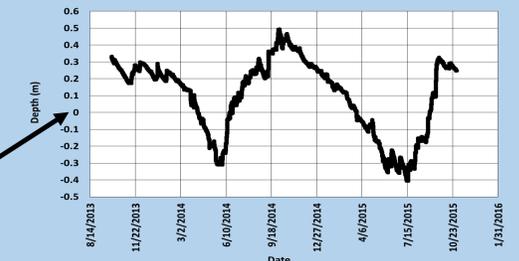


Figure 1. Floating islands created for this study. Left: pond apple in the high profile bag orientation; Center: strangler fig in the same orientation; Right: red maple in a double planting and a strangler fig with a float.



Figure 2. Top: high profile bag orientation and fertilizer treatments; Bottom: low profile, double & float treatments.

The LILA hydrograph shows the variation of stages and island inundation over the first two years.



The bottom of the bags were placed at elevation = 0 m

Next Steps: After nearly three years, the plastic bags, pots, pipes and floats have been removed (below) from many of the created islands to determine whether the peat and root masses maintain integrity. The recommendation from this study is that this approach use the higher bag profile and the low fertilizer treatment.



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The "take home" message: This low-cost planting technique shows great promise as a way to establish anew trees within the footprint of vital habitat lost. Ghost Islands are prime restoration locations as their trajectory towards collapse isn't complete. Reversing the degradation trend at these sites may be a productive and efficient means of tree island restoration where the legacy of the former landscape helps facilitate success.