Corps restores wetlands along Dallas Floodway Extension

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As part of the Dallas Floodway Extension, Fort Worth District and the city of Dallas are using an innovative approach to return floodplain value to the Trinity River, while improving flood damage reduction.

To improve and restore wetland habitat within the boundaries of overbank flood-management swales and within south Dallas, the district will build seven wetland cells.

Native plant establishment in both temporary and permanently flooded zones were built into each wetland cell with the help of the U.S. Army Engineer Research and Development Center, Lewisville Aquatic Ecosystem Research Facility (LAERF) in Lewisville, Texas. The LAERF has participated in development of numerous strategies for both managing nuisance aquatic plants and establishing desirable native plants in Corps systems, with emphasis on habitat enhancement.

Constructed cells will hold normal pools at a maximum 7 foot depth with native grassland buffers about twice the area of each cell. The district is planting native aquatic plants in zones where the water level can be managed — 1 to 3 feet deep. This provides ideal depths for initial plantings and growth. Once plant colonies begin growing at these depths, implementing moist soil management practices will increase plant community diversity and overall productivity of the system.

Although the floodplain around the wetland cells normally floods multiple times per year, the overbank events are usually of short duration. The area is also prone to prolonged droughts, making it beneficial to have pumps installed to maintain water at levels desirable for sustaining plants.

Water levels, other than during floods, are manageable in the wetland cells. Flood events do move sediments, and silt deposits can influence survival of aquatic plants, especially during the early stages. Most plant species selected for this project are able to withstand and outgrow sediment build up.

Grazing by herbivores has been a problem in aquatic plant establishment efforts conducted by LAERF, with common carp, semi-aquatic turtles, beavers and others all proven capable of eating the plants or altering water quality by increasing turbidity. Plant establishment requires installation of cages to protect plants from herbivores.

Rather than using standard formulas or specifications for protection against herbivores, the team is managing herbivores specific to the cell as the need arises. Once well established, both unprotected and protected plants will spread by seed, overwhelming herbivores and resulting in desirable coverage of aquatic vegetation. This adaptive management approach will increase success of the project while at the same time hold costs to original projections.

Despite several flood events and the development of herbivore populations, mainly turtles, most species have been able to outgrow sediment deposition. Many species, especially emergent plants, do not appear to require protection for initial establishment, with efforts now shifting to planting those species at higher densities rather using resources to build cages.

Although submersed species continue to require initial protection from turtles, they have shown high potential for spread once established. To ensure the highest possible diversity for the ecosystem, the team will continue to plant them in cages.

A year has passed since completion of the first cell, Cell D, and the adaptive management strategy is working.

Lynde Williams, from LAERF, prepares to relocate turtles from a trap at Cell D along the Dallas Floodway Extension to allow newly planted aquatic plants to become established. *(Photo by Gene Rice)*