Project Title: Changsha Island
Project Location: Changsha, Hunan Province, China
Sub-Category: Planning & Analysis

Purpose of Project: This two mile long river island is designed to accept seasonal river level fluctuation, Changsha Island is shaped into a series of linear berms and terraces. The directional nature of the landform allows for rising waters to flow through and over the island. The sides of the island are stepped to create wetlands planted with various species, and act as a protection buffer against river currents. At higher elevations, the wetlands give way to bermed forest planted with majority of native trees and grasses. Higher terraces are created for meeting facilities, pavilions, and museum. The south wetland area contains a blend of wetland islands and small wetland peninsulas that are linked by a meandering boardwalk network. Their elevation is slightly lower than the island to allow seasonal flooding of the marshes during the high water season and support various emergent wetland plants.

Role of Landscape Architect: The landscape architect played a key role both as designer and multi-diciplinary team leader. Working with the local Changsha government, the landscape architect first envisioned an island park built around the local ecology, incorporating and learning from the resiliency of river islands. Various terracing and berming strategies were led by the landscape architect, and tested by our ecological consultant and local engineers. The landscape architect also played a key role in the design of architectural elements through schematic design, including the bridges, pavilions, and villa meeting facilities.

Significance: *A Journey of Discovery***:** Changsha Island is a riverfront public space that successfully blends natural systems, local culture, and art. The island provides a tranquil escape from the city, and accommodates recreational, education and research needs. The meandering landform and Metasequoia forest serves as a framework for a system of trails and gardens. An extensive trail, boardwalk, and bike path system provides access to the island's wide variety of discovery activities. 'Dragon Gardens' recall the rich history of Changsha, a large bamboo garden hides a secret tea house, while the Children's Garden is anchored by a large tree house, rope swings, and slides. A series of ponds provide additional habitat for smaller aquatic species.

Special Factors: *Stabilizing the edge***:** The east edge of the island parallels high velocity river flows, where erosion has been a consistent condition. To stabilize this bank, a submerged series of engineered embankments are built, allowing for the establishment of wetland terraces at the waterline. A continuous strip of aquatic shrubs and deeper rooting wetland plants, such asphragmites and typha species, serves as the green screen along the east bank where erosive forces are the greatest. The west edge is influenced by lower river velocities and higher degrees of sedimentation. Thus, the existing condition is dominated by natural wetlands. These are preserved and extended, with additional meandering wetland terraces and slopes created at varying elevations per the seasonal flooding regime.

River systems like the Xiang River historically had large quantities of wood along its river bank. The southern wetland provides an important opportunity to integrate large woody debris into the restoration design providing both structure and habitat. These structures dissipate flood water forces, protecting the structural integrity of the island and the diverse wetland communities.

Water Fluctuation: The River fluctuates annually from elevation 30m to 36m. Berms and terraces are designed to allow for water to move through and across the island, and celebrate the seasonal changes thru adaptive wetland grass selections.

Sensitive Grading: Based upon existing island topography, the grading design minimizes cut & fill across the length of the island, maximizing the river carrying capacity at flood season.

Elevation Defines Plant Community Type: The planting design is sensitive to fluctuating water levels, local soil types, habitat diversity, and aesthetic landscape value. The wetland area consists of multiple wetland grass communities intermingled with clusters of low shrub and marsh zones, and transitioning to a seasonal forest at the upper elevations. This wetland network provides foraging, nesting, and rearing habitat for migratory birds, fish, amphibians, and beneficial insects.