US Department of the Interior

Giving the Land a Voice: Documenting Prechannelization Conditions on Big Cypress Reservation Using LIDAR, Paleontology & Dendrochronology (Tribal Proposal)

The Seminole Tribe of Florida (Tribe) has set aside over 14,000 acres in Big Cypress Reservation to remain in native, undisturbed condition. Additionally, the Tribe has multiple active wetland restoration projects in Big Cypress Reservation. Data representing pre-channelization hydrologic and ecologic condition would assist the Tribe in documenting changes verbalized by members of the Tribe, as well as provide a focused goal for wetland protection and restoration efforts. The Seminole Tribe of Florida proposes to partner with the US Geologic Survey (USGS) to collect and perform multi-proxy analysis (pollen, charcoal, carbon accumulation, and geochronology) of sediment cores from disturbed and undisturbed wetland locations within Big Cypress Reservation. The Seminole Tribe of Florida also proposes to partner with the University of Arkansas (UA) Department of Geosciences Tree Ring Laboratory to perform tree-ring chronologies dendrochronology) on Big Cypress Reservation cypress trees. This project would compare the USGS paleohydrologic information with the UA tree ring information collected in Big Cypress Reservation to cross-reference and calibrate a historical record of hydrologic and ecologic conditions in Big Cypress Reservation. Finally, the Seminole Tribe of Florida recently collaborated with the USGS National Geospatial Technical Operations Center (NGTOC) to collect Light Detection and Ranging (LiDAR) data for Big Cypress Reservation. The Seminole Tribe of Florida proposes to provide to a qualified professional contractor the raw LiDAR data set to create a three dimensional model of Big Cypress Reservation today (post-channelization). A pre-channelization three dimensional model of Big Cypress Reservation will also be developed incorporating historic aerials. The prechannelization aerials will be compared with the current LiDAR for reference areas and combined with the data obtained through the pollen study and tree-ring data to create a three dimensional model of Big Cypress Reservation pre-channelization. The model will be used to define and document pre-drainage hydrologic and ecologic conditions in Big Cypress Reservation to fill the data gap of "lack of historical data". This model will also be used to define and document the post-channelization changes to Big Cypress Reservation to provide the best available science for future Tribe water management operations, protection of existing natural systems, and wetland restoration activities. Requested funding amount: $790,200