

How can Choctaw Traditional and Scientific Knowledge be Implemented in the Restoration of Oski (Rivercane) in the Kiamichi River Sub-Basin?

Asa Samuels

405-888-4590
Samuels.a@student.sscok.edu

The University of Oklahoma
Biology and Native American Studies

HERS Intern

The South-Central Climate Adaptation Science
Center intern and researcher

KS NSF EPSCoR Award 1656006

Acknowledgments



Formal Acknowledgements

- Dr. Dan Wildcat
- Dr. Jay T. Johnson
- Phillip Cody Marshall
- Dr. Joseph Brewer II
- Dr. Brian Lagotte
- Katrina McClure
- Katie Grote
- Mandy Frank
- April Taylor
- Ryan Spring
- Brian Zettle
- Tyler Delmedico
- HERS mentors
- HERS interns



Introduction

Rivercane (*Arundinaria Gigantea*) in Choctaw is “Oski,” also called American Bamboo. Rivercane is a native plant species inhabiting rivers in the southeastern United States. The Kiamichi River sub-basin in southeast Oklahoma supports evidence of dense Rivercane growth in large areas called canebrakes. The Rivercane research along the Kiamichi sub-basin is being conducted and recorded by biologist and historical researchers of The Choctaw Nation of Oklahoma. The data collected indicates Rivercane is going extinct and restoration strategies are needed. Organizations such as the US Army Corps of Engineers (USACE), the Sustainable Rivers Program, The Nature Conservancy, and Choctaw Nation, are collaborating ideas to recommend Rivercane restoration studies and projects.

Geographical Areas

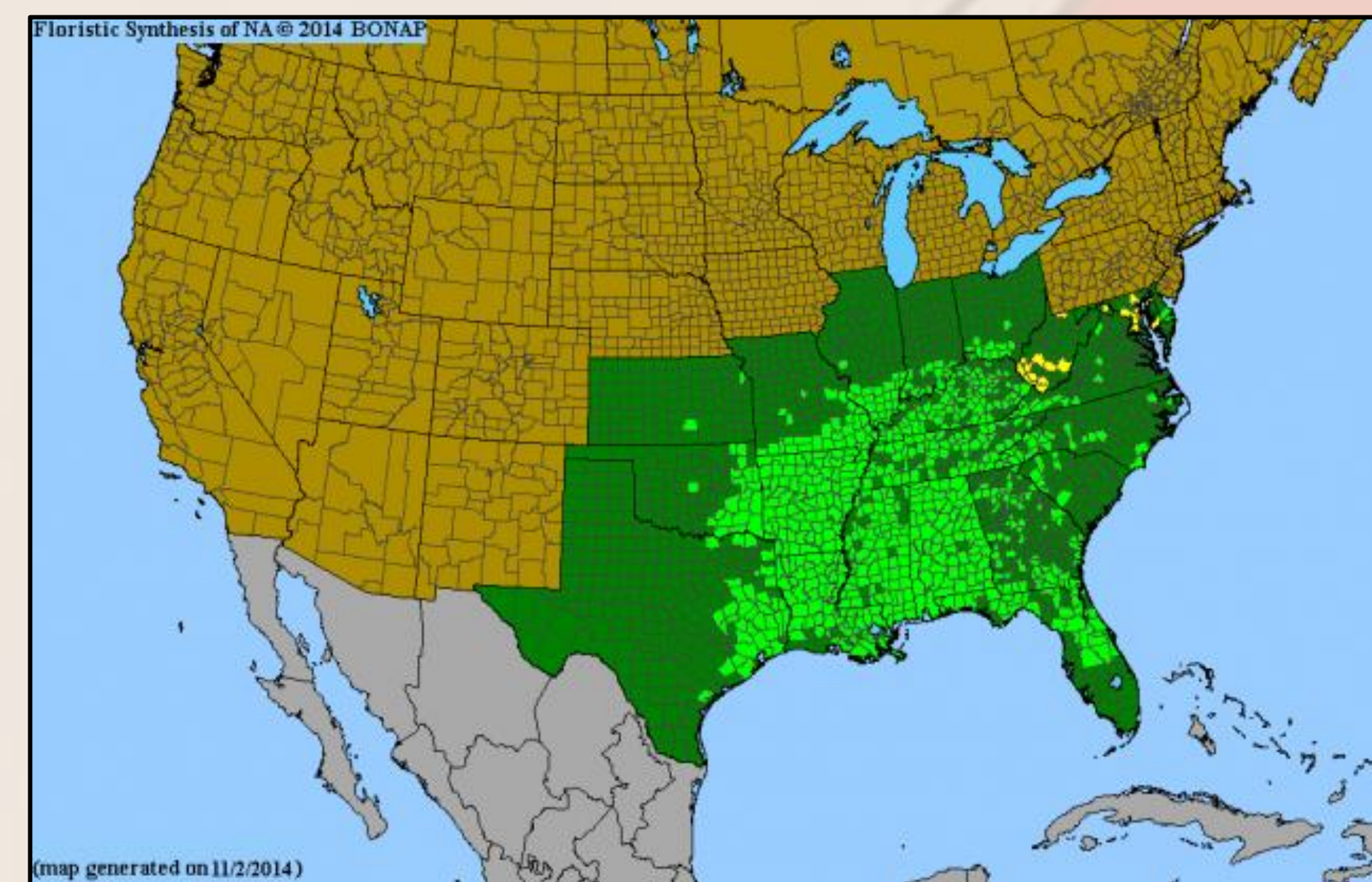


Figure 1: Rivercane growth areas in Southeastern United States (“The Wonders of River Cane” 2017)

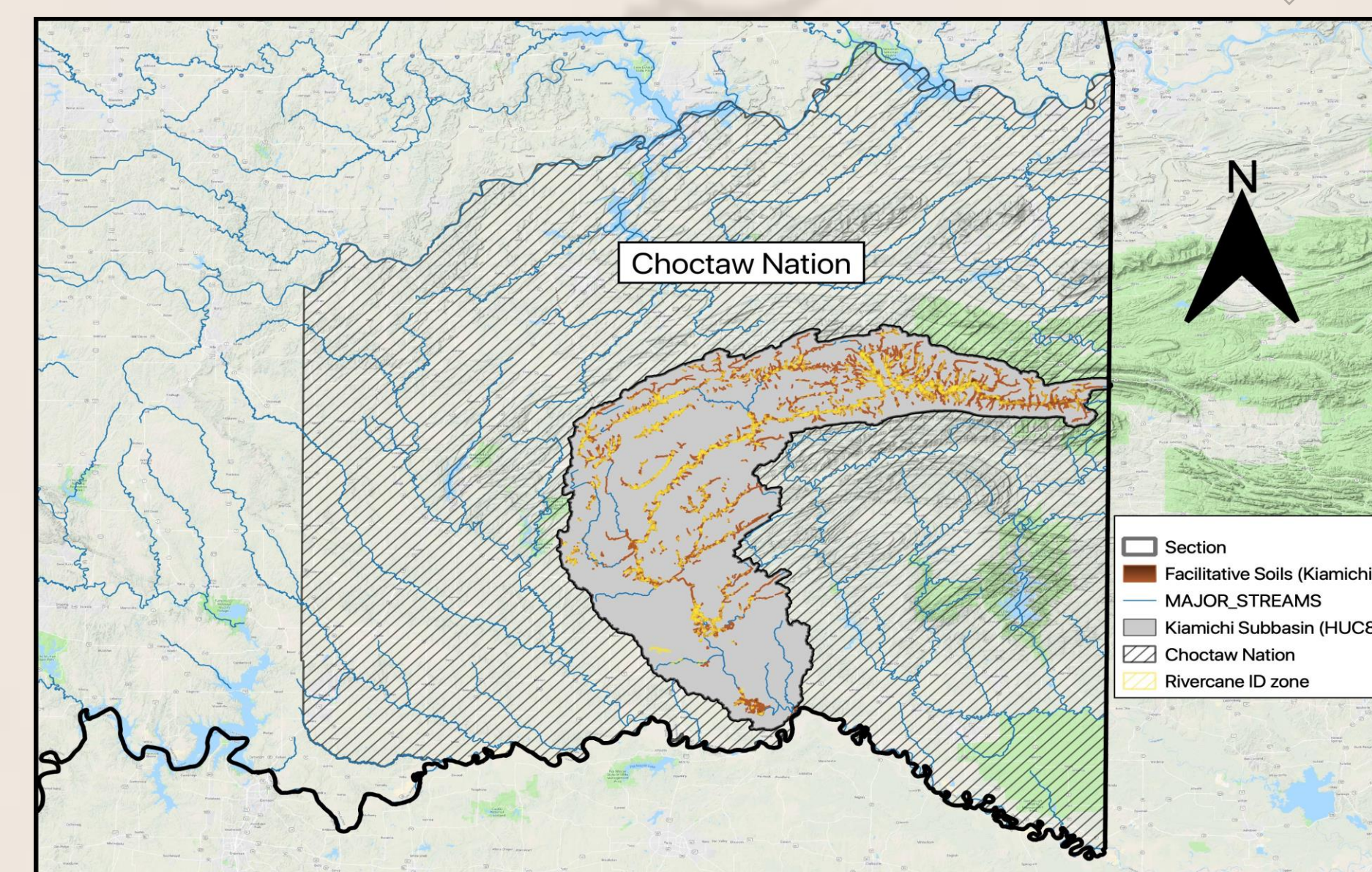


Figure 2: The Choctaw Nation and Kiamichi River Sub-basin Delmedico, Tribal Resilience program. 2019

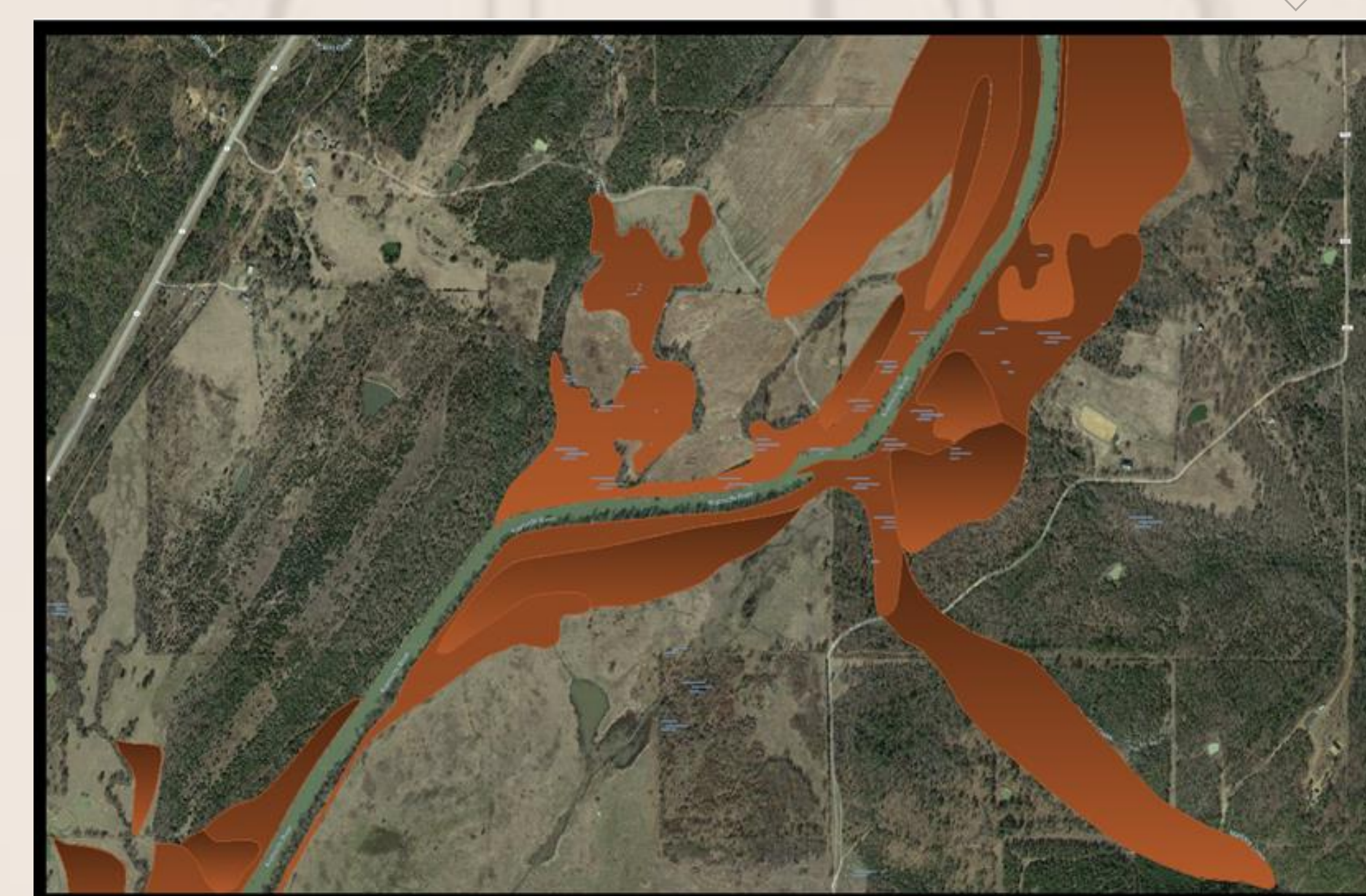


Figure 3: Soil and water quality zones where Rivercane growth is possible. Facilitated soils. Delmedico, Tribal Resilience program. 2019

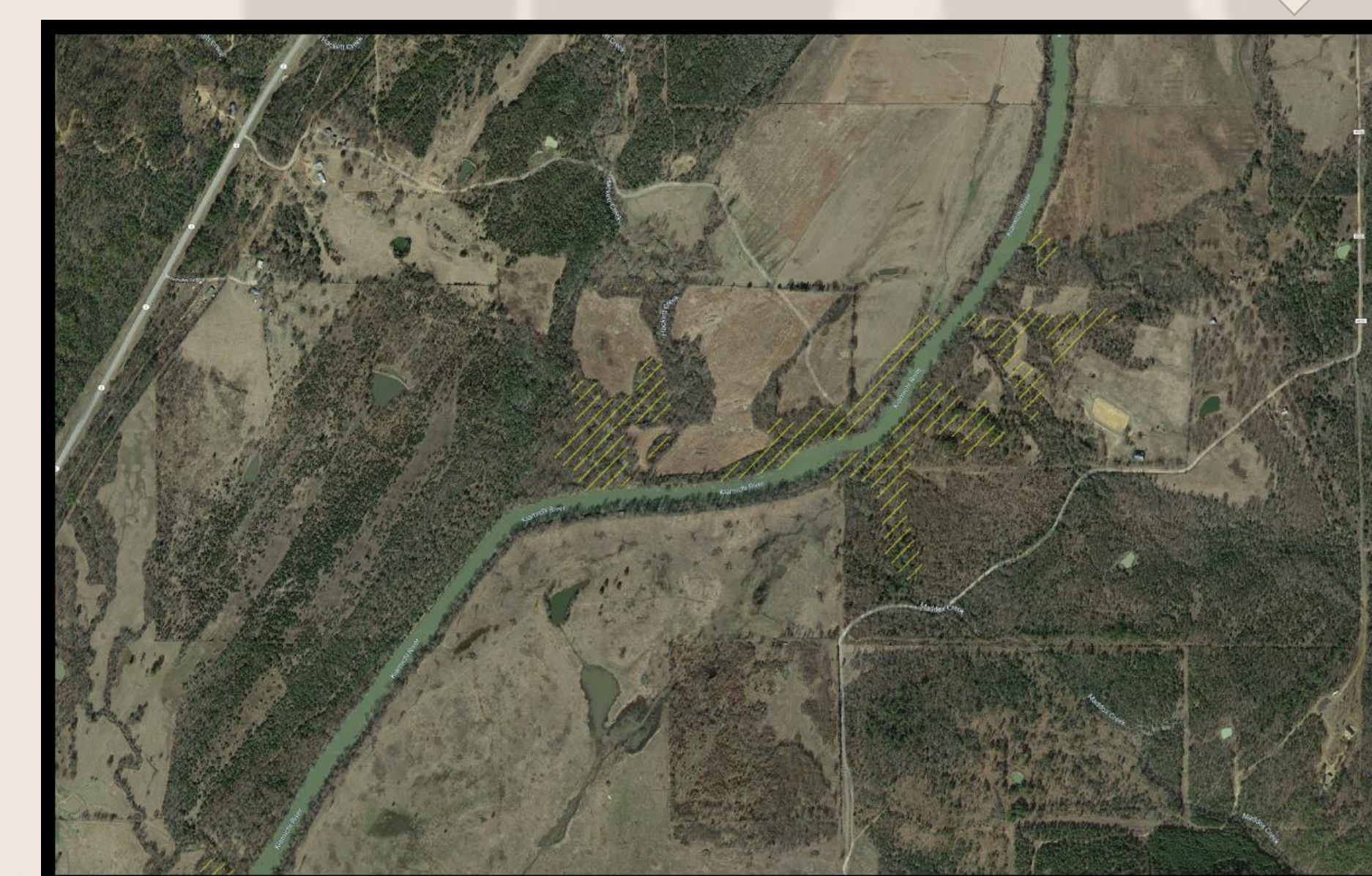


Figure 4: Rivercane growth areas. (In yellow) Delmedico, Tribal Resilience program. 2019

Traditional Knowledge

Traditional Choctaw Knowledges is born from the experiences and observations of Choctaw people over millennia. Each Tribal Nation has their own sacred intellectual knowledges and traditions, which are protected and often discouraged from being recorded.

Traditional and Environmental Uses of Rivercane

Rivercane benefits wetland environment through erosion control, improving water quality, and providing habitat for native fish and wildlife species (“Rivercane Restoration Alliance” n.d.).

Over 60 species of animals, birds, and insects used Rivercane for shelter (“The Wonders of River Cane” 2017).

Hunting and gathering purposes - blow guns, fishing reels, and baskets.

The Decline of Rivercane

European settlement was a major impact on Rivercane growth.

- Deforestation- desertification, soil erosion, flooding.
- Urbanization- introduce non-native species, change in atmospheric disturbance, increase in human activity.
- Water Management- Flood control projects reduced natural flooding cycles that are crucial in depositing nutrients and fertile soil into bottomlands.
- Agriculture- Rivercane is also an indicator for high quality fertile soil which was used to farm with during early European settlement.

Notable: The decline of Rivercane may have hastened the extinction of the Carolina parakeet and Passenger Pigeon (“The Wonders of River Cane” 2017).



Figure 5: Rivercane (*Arundinaria Gigantea*) Bowen, Flickr. Taken in North Carolina, 2007 Olympus E-500 camera

Scientific Knowledge

Science in the general sense is the systematic accumulation of knowledge. Scientific discovery is dynamic, definitive, and culturally relative. Choctaw scientific knowledge has adopted Western methods of scientific knowledge to create original research in tribal studies. Scientific knowledge of the Choctaw Nation would lead to scientific sovereign rights if solutions are found and identified.



Figures 6: 5 Pictures clockwise: Basket weaving, cooking, blow gun, Carolina Parakeet, Passenger pigeon. (“The Wonders of River Cane” 2017)

Methods

Rivercane restoration strategies are currently being planned between tribes and federal organizations in the southeastern United States. The Rivercane workshop is a strategy to identify resources, to identify knowledge/data gaps, to share Traditional Ecological Knowledge and Native American perspectives, to develop a Rivercane conceptual ecological model, and to identify potential restoration sites influenced by water management decisions at USACE reservoirs and/or navigation project (“Rivercane Restoration Alliance” n.d.). For example, The University of Alabama in Tuscaloosa is hosting a Rivercane Workshop by The Rivercane Restoration Alliance and Tribal Nations Technical Center of Expertise in October 2021. Tribal Nations in the Southeastern region, The US Army Corps of Engineers, the Sustainable Rivers Program, and The Nature Conservancy are seeking to exchange ideas to implement Rivercane restoration strategies using GIS/USGS and visual observation (“Rivercane Restoration Alliance” n.d.). Further Rivercane research and studies are promised as the outcomes of the workshop. Specific restoration strategies will likely be reliable but some of the Traditional Choctaw Knowledge is sensitive and protected information that will not be documented.

References

- “Rivercane Restoration Alliance.” n.d. Accessed June 30, 2021. <https://www.spa.usace.army.mil/Missions/TNTCX/Traditional-Ecological-Knowledge/Rivercane-Restoration-Alliance/>.
- “Sacred Roots Rivercane - Saving a Piece of History | NRCS Alabama.” n.d. Accessed June 30, 2021. https://www.nrcs.usda.gov/wps/portal/nrcs/detail/al/newsroom/stories/?cid=nrcs141p2_022922.
- Platt, Steven G., Christopher G. Brantley, and Thomas R. Rainwater. 2009. “Native American Ethnobotany of Cane (*Arundinaria Spp.*) in the Southeastern United States: A Review.” *Castanea* 74 (3): 271–85.
- Brantley, Christopher G., and Steven G. Platt. 2001. “Canebrake Conservation in the Southeastern United States.” *Wildlife Society Bulletin* (1973-2006) 29 (4): 1175–81.
- Linn, Emily Crane. n.d. “The Choctaw v Climate Change: ‘The Earth Is Speaking.’” Accessed July 1, 2021. <https://www.aliaze.com>
- “The Wonders of River Cane.” 2017. December 28, 2017. <https://wayoftheraven.net/2017/12/28/wonders-of-river-cane/>.