Willow Staking along the Meramec River Bank 2019 - 2024

Open Space STL

SAINT LOUIS COUNTY
Missouri

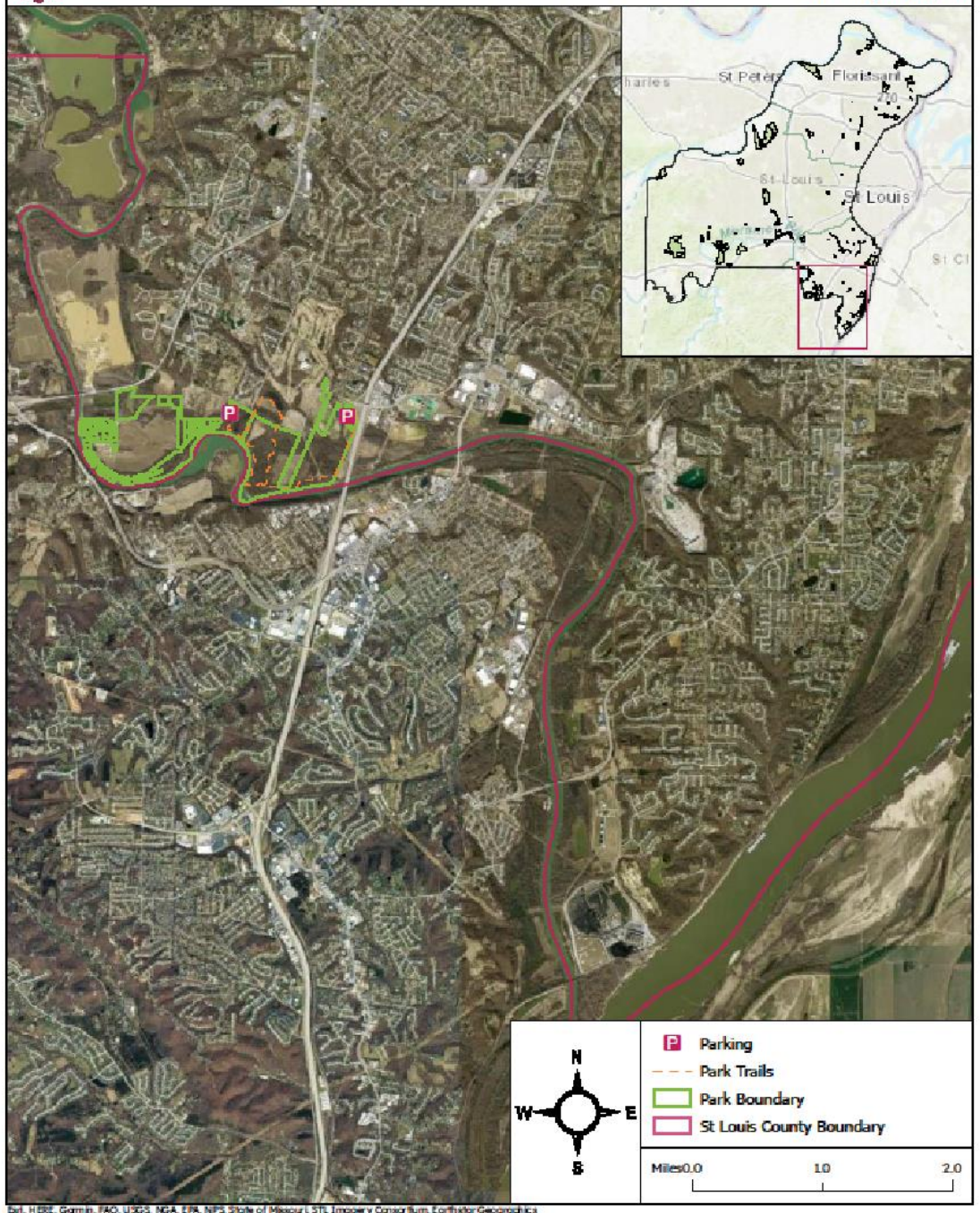
Lower Meramec Parksite

Introduction and Natural History Background

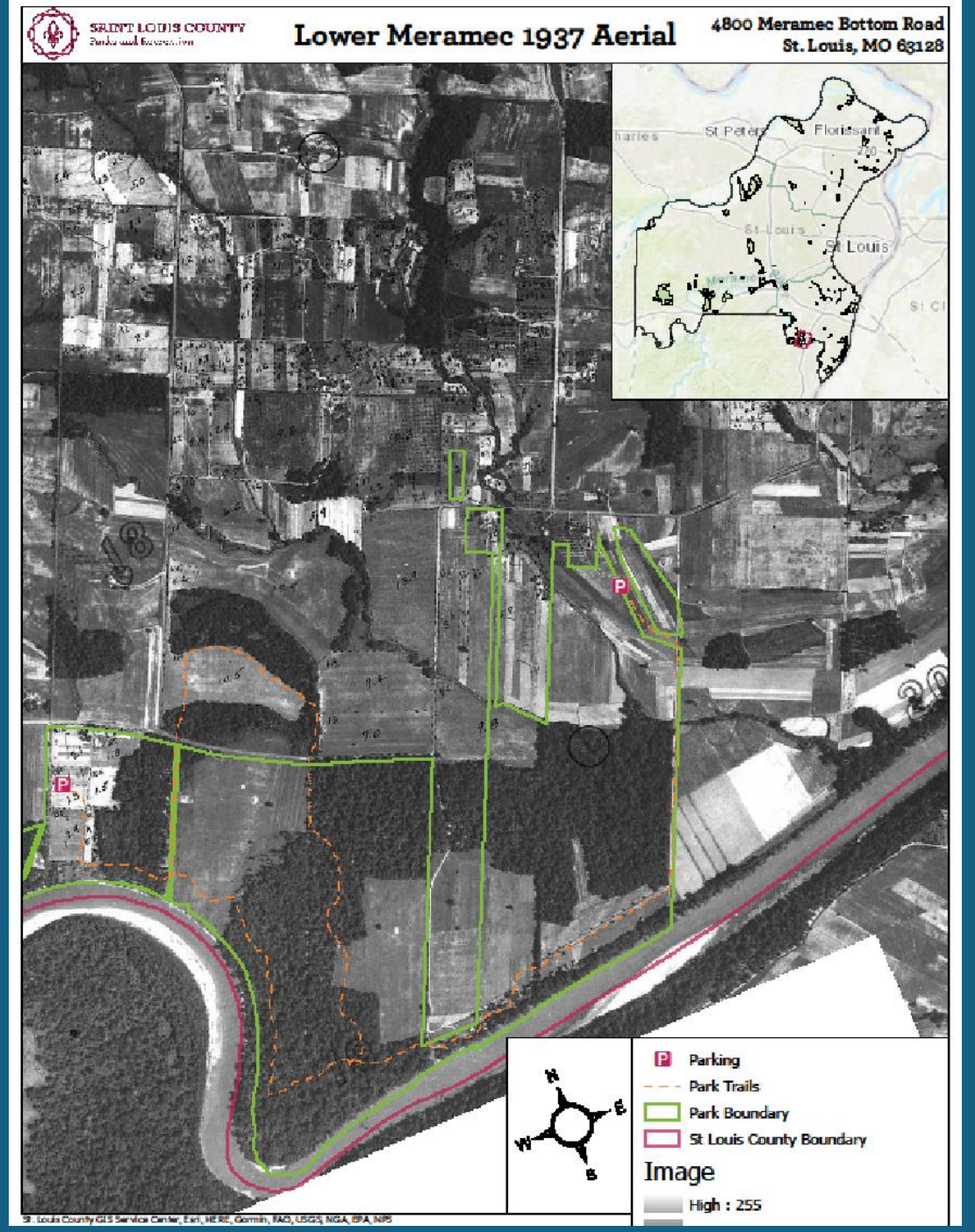
SAINT LOUIS COUNTY
Parks and Recreation

Lower Meramec Locator Map

4800 Meramec Bottom Road
St. Louis, MO 63128



Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS, State of Missouri, STL Imagery Consortium, Earthstar Geographics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Lower Meramec 1937 Aerial
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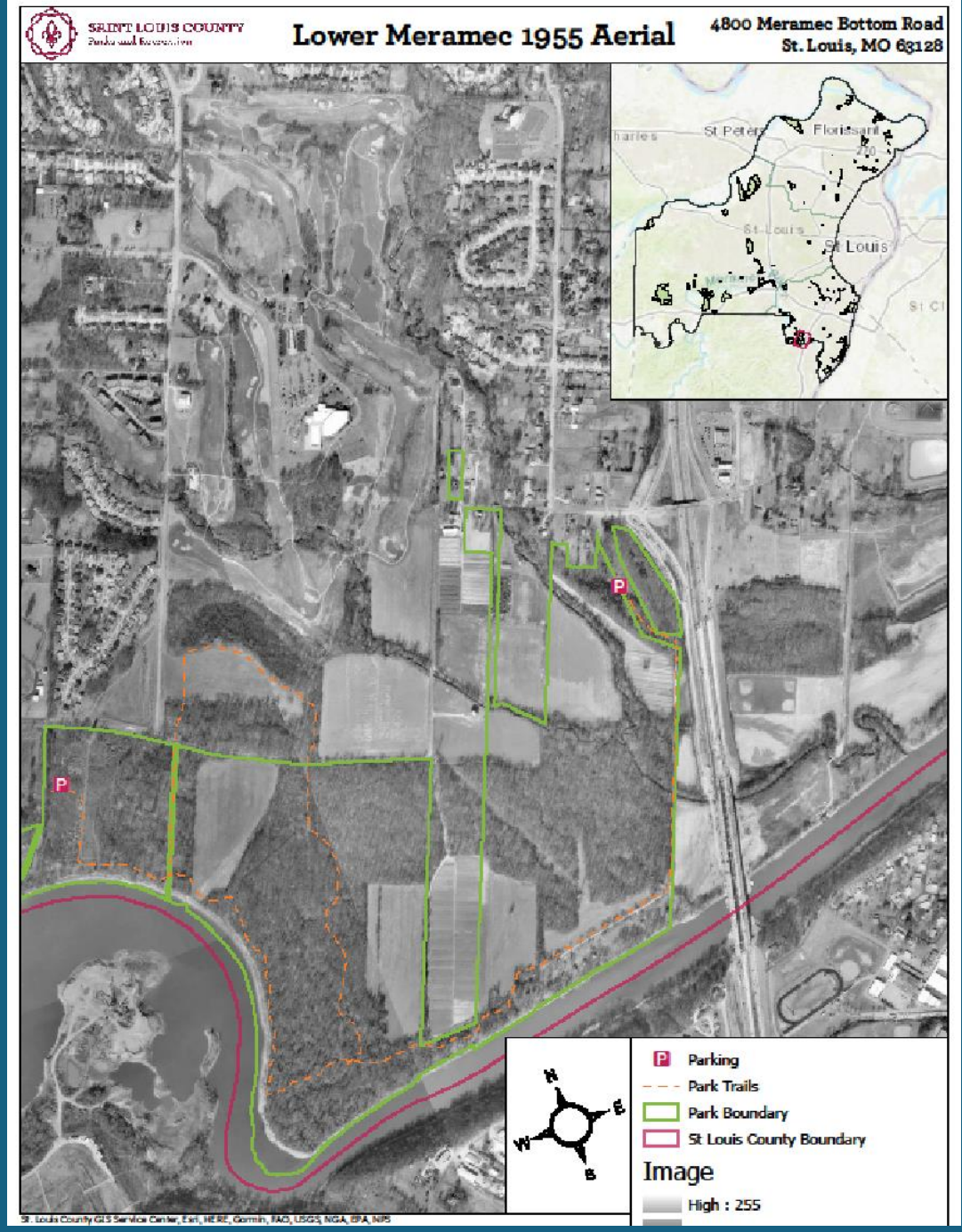
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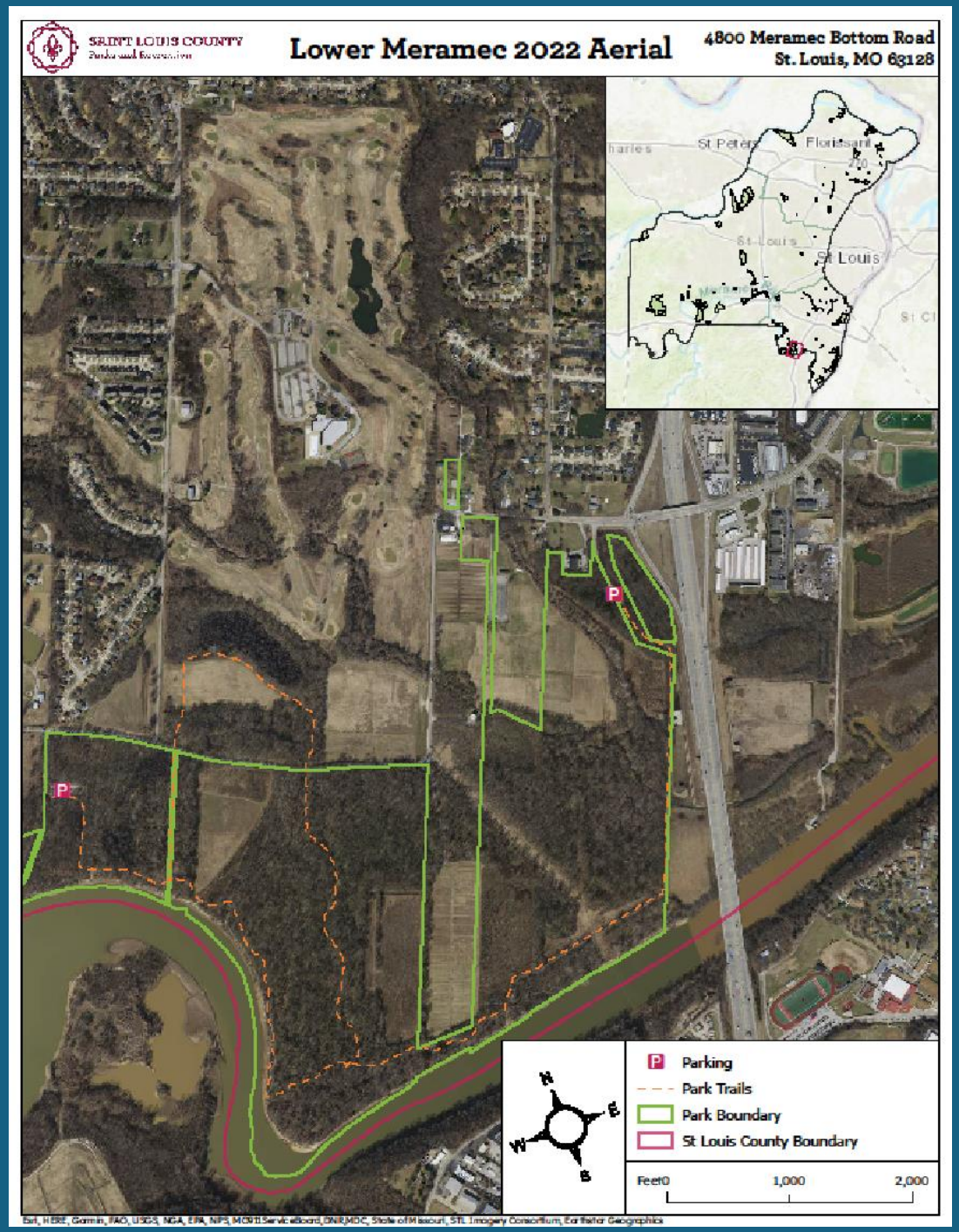
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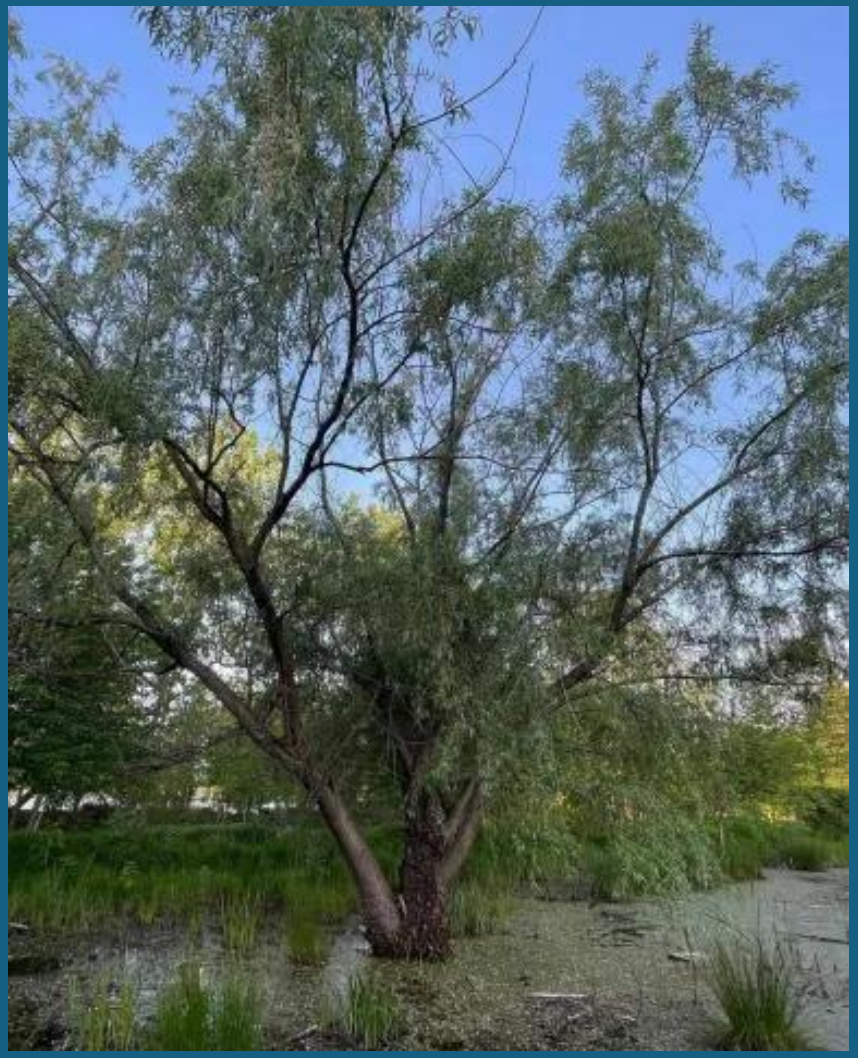
Meramec River bank erosion at Lower Meramec Park

Black Willow (*salix nigra*)

Growing conditions: Adapted wherever ample soil moisture is found. Black willow grows best where the average annual rainfall is 51 inches, of which 20 inches falls during the growing season, April through August.

Wildlife benefits: The willows are among the first plants to provide honey bees, after long winters, with nectar and pollen. Beaver browse on willow leaves in the summer and willow twigs in the winter.

Erosion control: One of the greatest services of the willows is as a soil-binder. Growing along the banks of countless streams, their fibrous roots help to prevent the soil from being washed away.



Willow Staking 2019 - 2024

Date	Number of willows staked
March 2019	350
February 2020	650
December 2020	600
March 2022	325
December 2022	400
December 2023	500
March 2024	650
Total	3,475

Willow harvesting from George Winter Park 2019 - 2022

Willow harvesting from Lower Meramec Park 2023 - 2024

In 2019, we cut stakes 3ft long and planted 3ft radius from each other

18 of 350 showed growth 6 months later when cut at 3ft long

In 2020, started cutting them 1.5ft long and planted 1.5ft radius from each other and ⅔ into ground

Nearly 100% showed growth 6 months later

Flood conditions 2019 - 2024

March 2019 - July 30, 2019 and all of October 2019 above flood stage (24ft)

March 20, 2020 - June 15, 2020 hovered around flood stage

No other prolonged periods of flooding

2022 staking along different section further downstream

2023 staking to fill in gaps

March 2024 staking

2024 monitoring

Yikes!

Swamp Privet (Forestiera acuminata) grows with willows along bank. Forms thickets with intertwined roots, which can take 20+ feet of rapid flood-water and still hold soil in place. A tough species which may help future erosion control efforts.

Swamp Privet (Forestiera acuminata) on Meramec River banks (March 27, 2024)

Conclusion

Volunteers love willow staking but….

Perhaps conditions are too dry? Or not enough were planted “correctly”

The spread of swamp privet , hibiscus, and buttonbush that grow naturally along the streambank may be a simpler approach for streambank stabilization than willow staking.

Investigate sources of swamp privet we could propagate from and also ordering from MDC and Forest ReLeaf

Try a different species of willow that better tolerates dry conditions and limit staking to experienced volunteers

Survey the bank to better understand what is surviving there.

We’d love your feedback and ideas!

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