

The effects of dams and invasive species on community structure and trophic interactions of stream crayfishes

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Crayfish are among the most imperiled freshwater taxonomic groups

~1/3 species threatened globally

~1/2 of species threatened in North America

~1/2 of Alabama crayfishes of conservation concern



Photo Credit: Guenter Schuster

Photo Credit: Chris Lukhaup

Invasive crayfish

- Effects on receiving ecosystems well studied



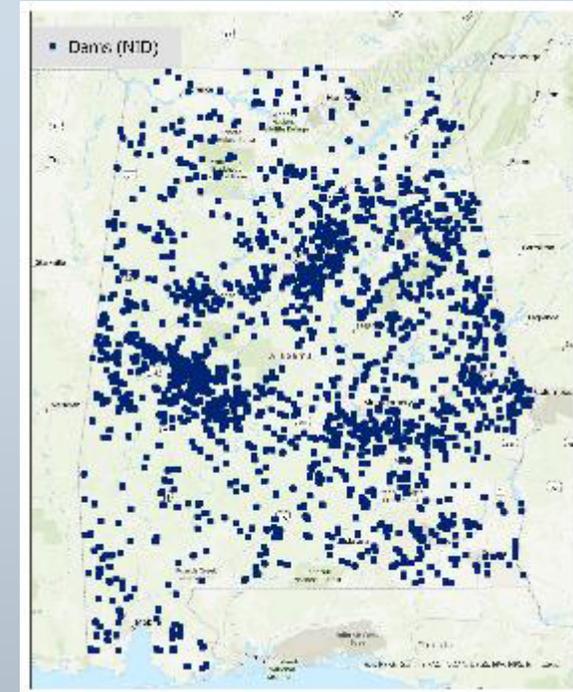
Photo Credit: Chris Lukhaup



Photo Credit: Carl Williams

Dams/ Impoundments

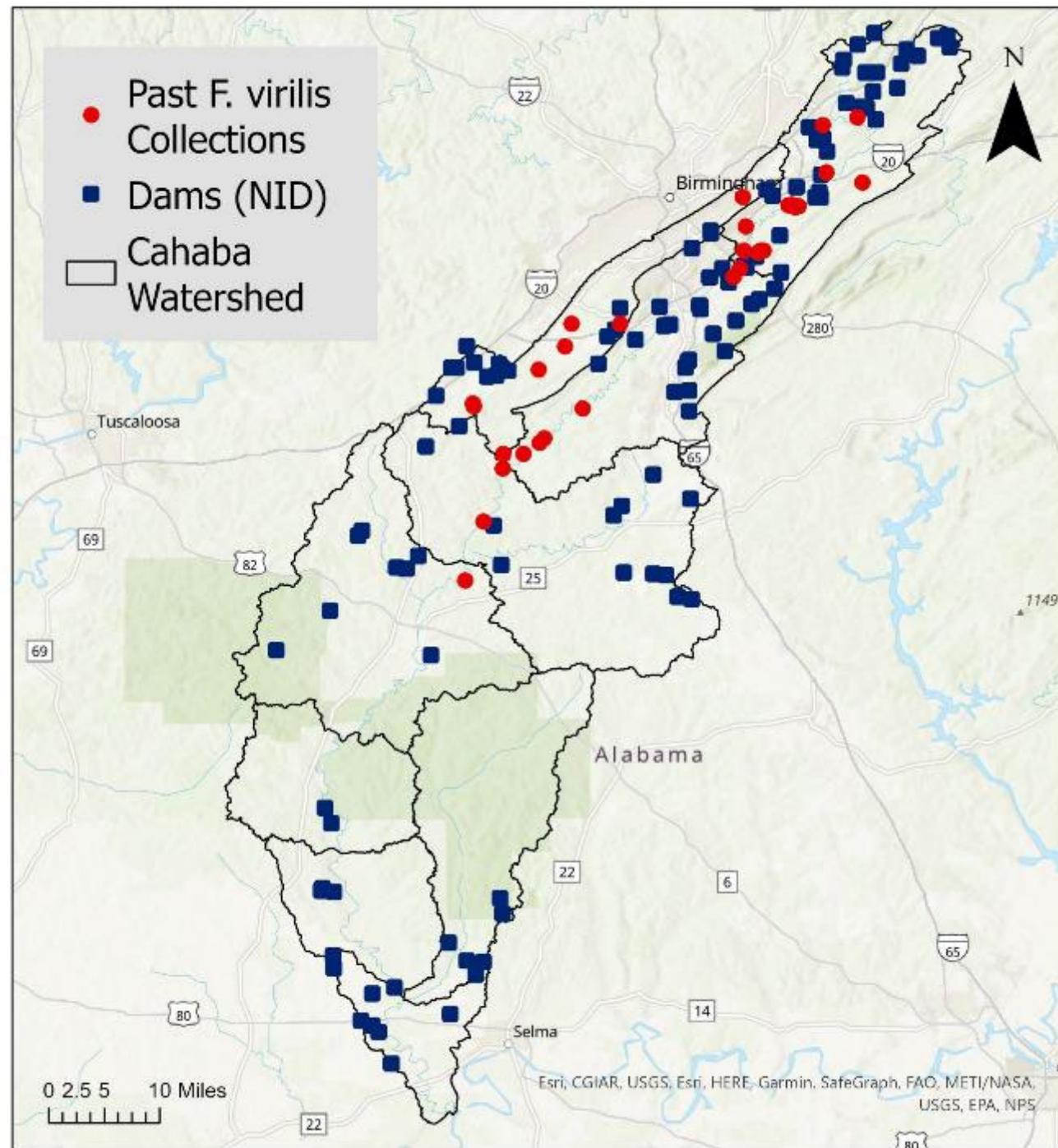
- Effects of dams on crayfishes has received little attention despite prevalence and extreme nature of alterations



Synergistic effects

- Have not been assessed together
- Interactions could be significant

Cahaba River Watershed



Faxonius virilis



Photo Credit: DEP
Montgomery County, MD

Overall Objective

- Investigate the effects of dams and the invasive crayfish, *Faxonius virilis*, on native crayfishes in the Cahaba Watershed



- **Trophic Position**

- Stable isotope ratios ($\delta^{15}\text{N}$) to estimate trophic position

- **Diet/ Prey Selectivity**

- Gut Content Analysis (GCA)
- Measure macroinvertebrate availability and compare to GCA

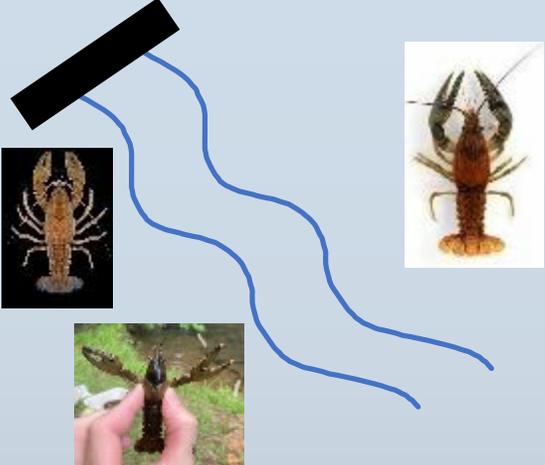
- **Crayfish Assemblage / Stream Habitat**

- Triple-pass electrofishing surveys

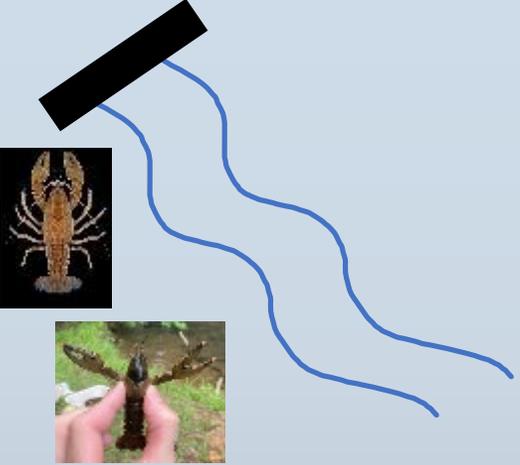


Design of Study

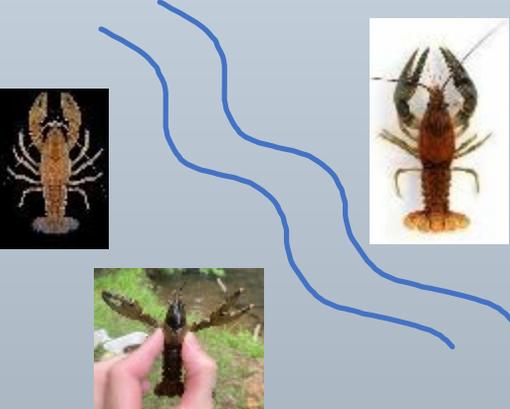
Impounded w/ *F. virilis*



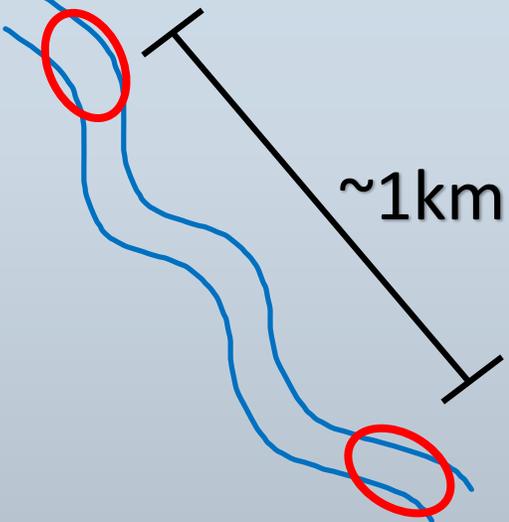
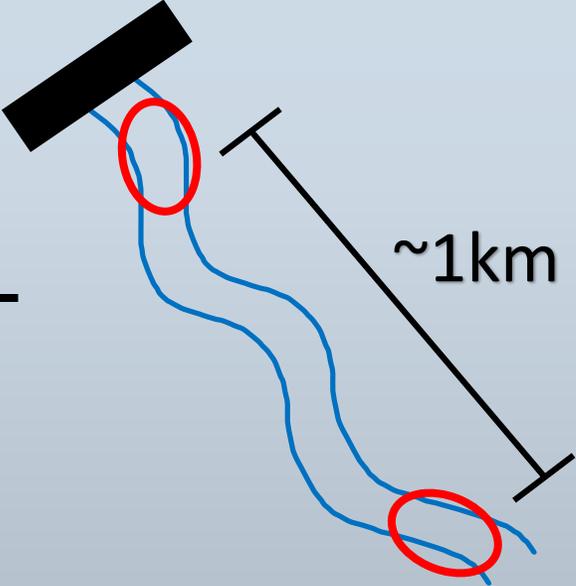
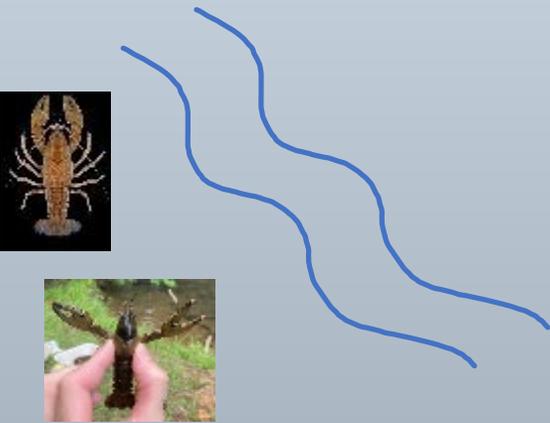
Impounded w/o *F. virilis*



Unimpounded w/ *F. virilis*



Unimpounded w/o *F. virilis*

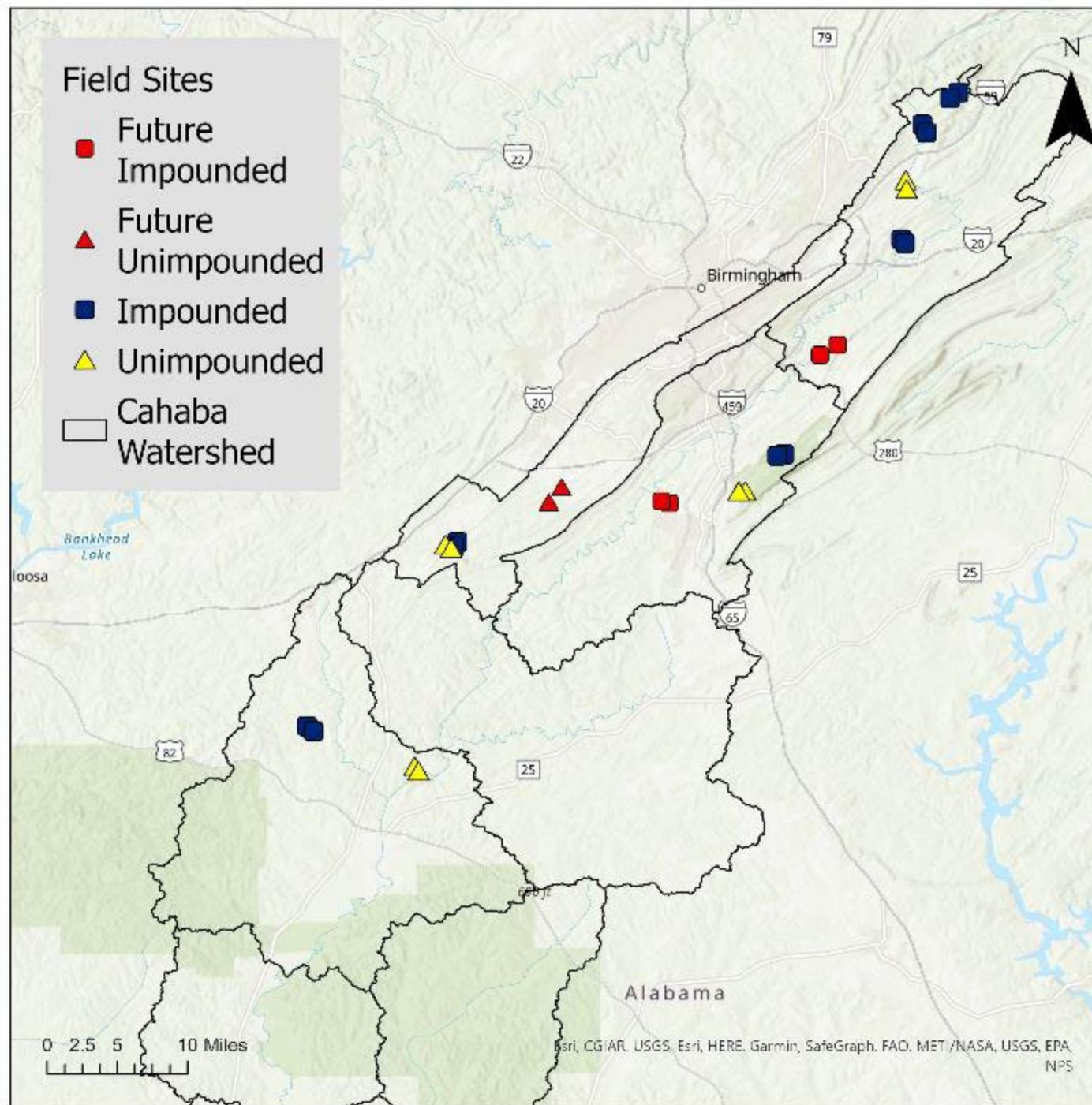


Summer 2022

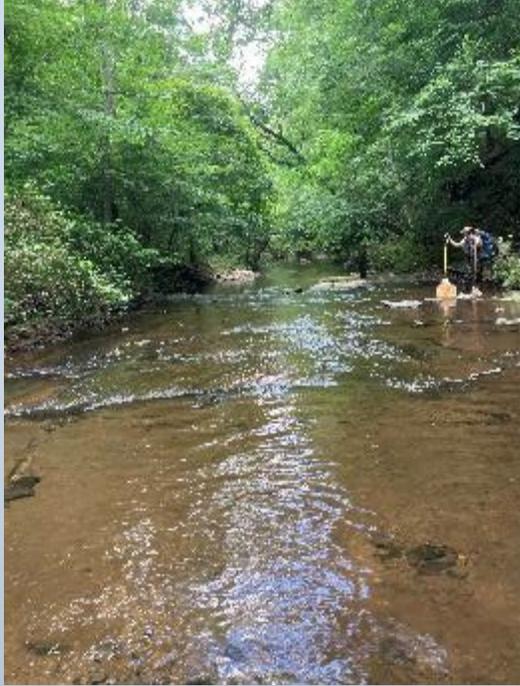
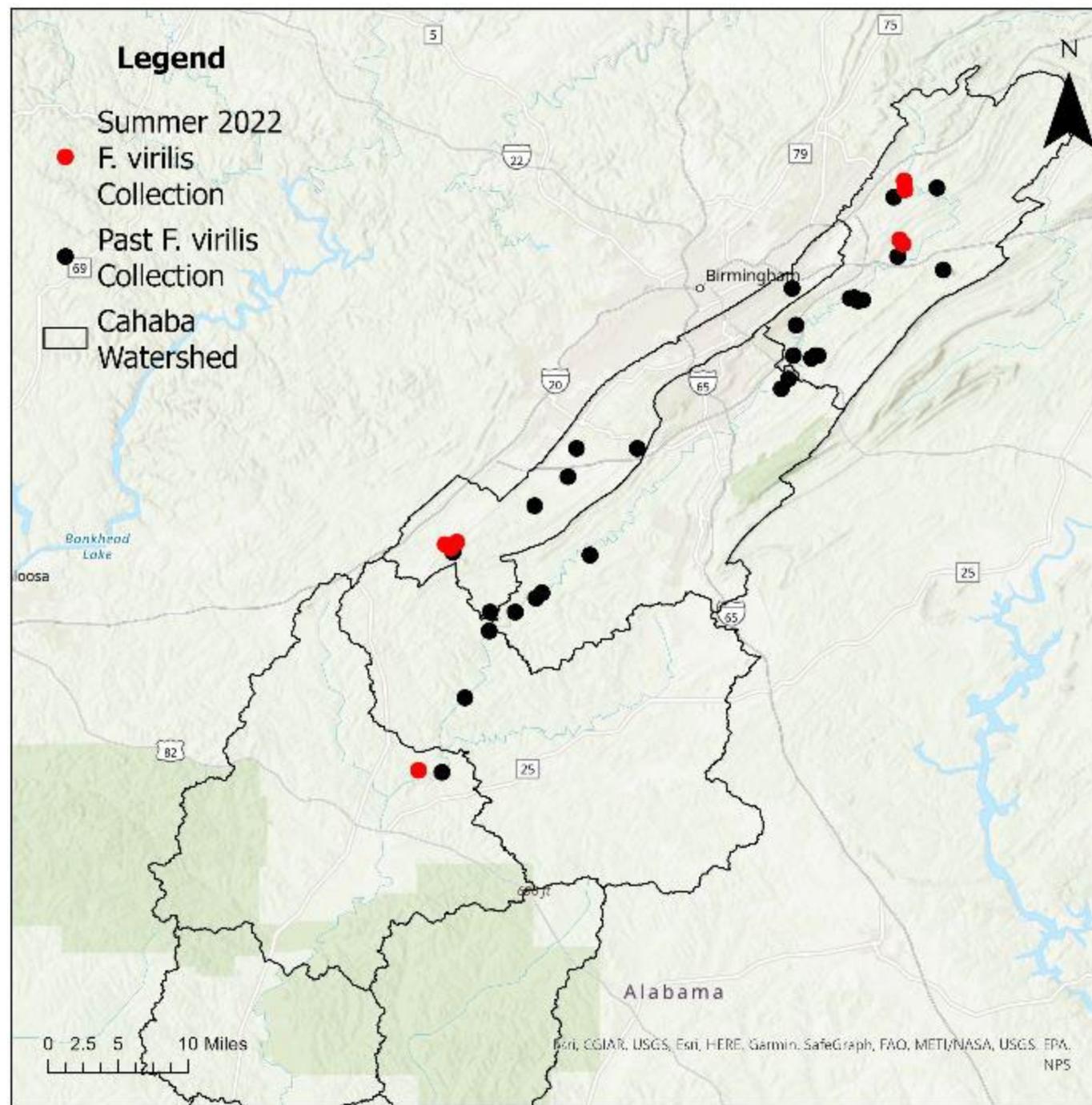
- Prioritized SIA/ GCA collection
- Sampled 6 imp, 4 unimp streams (20 total sites)

Looking forward...

- Plan on sampling 2 larger impounded and unimpounded streams
- Plan on completing surveys next summer



Summer 2022



Acknowledgements:

- Rose Horn and Seth Clemmons, Troy University
- Dr. Brian Keener and Joan Rundles, University of West Alabama, Cahaba Biodiversity Center
- David Butler, Cahaba Riverkeeper
- Rebecca Bearden and Stuart McGregor, Geological Survey of Alabama

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