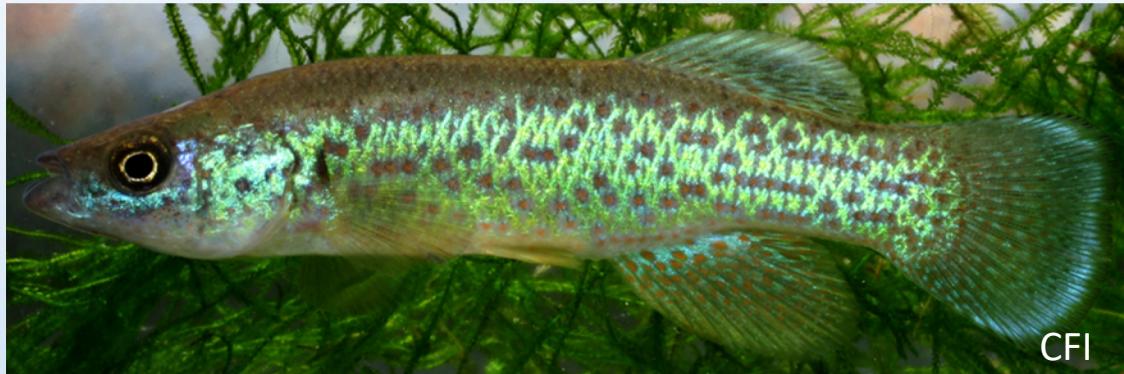


Barrens Topminnow SSA Summary

Lead Biologist, Warren Stiles, Cookeville TN FO

Male



- *Fundulus julisia*
- Up to 3.9"
- Sexually mature age 1
- Spawning May - June
- 2 yr life span
- ~300 eggs/yr
- ~ 1/3 survive to spawn 2x.

Female

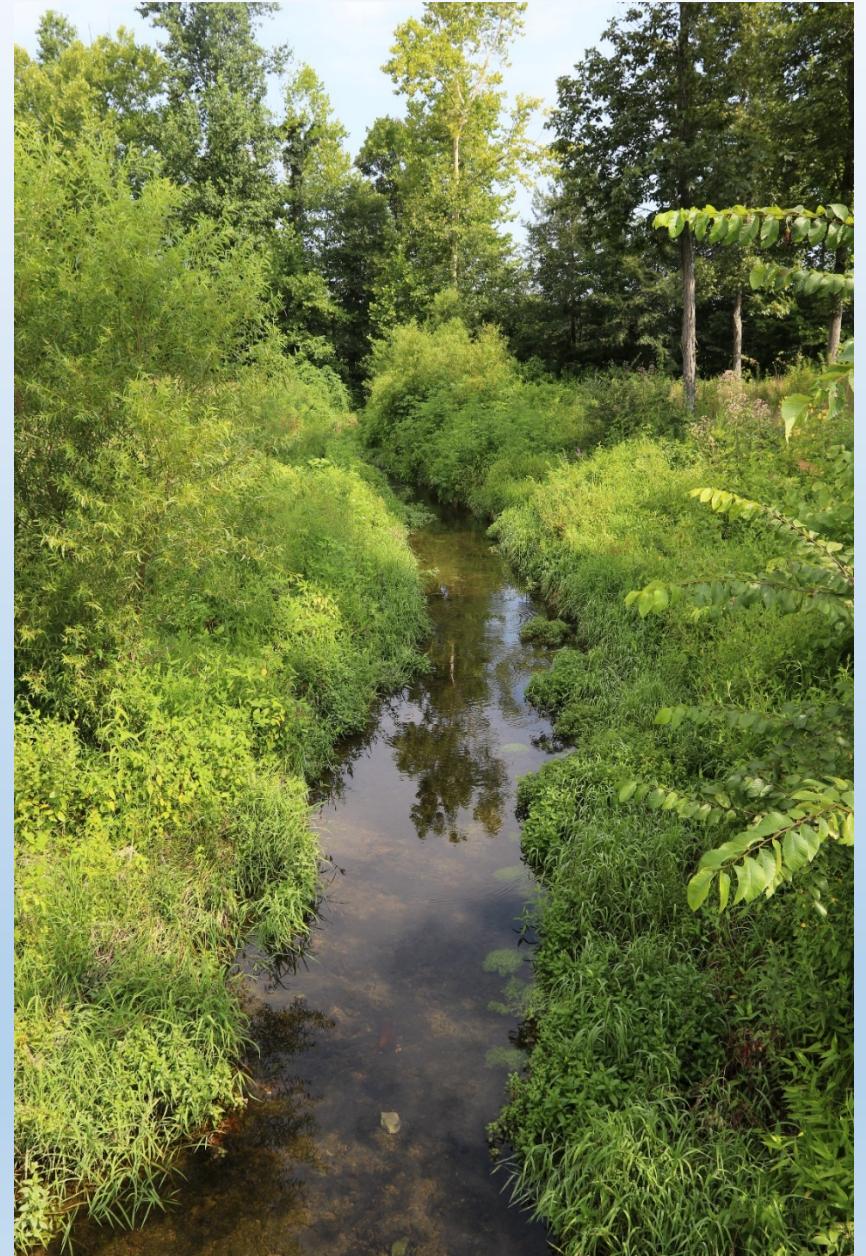


Habitat

- Spring-fed pools and runs (1st and 2nd order)
- Still waters w/ filamentous algae and other plants
- Open canopy

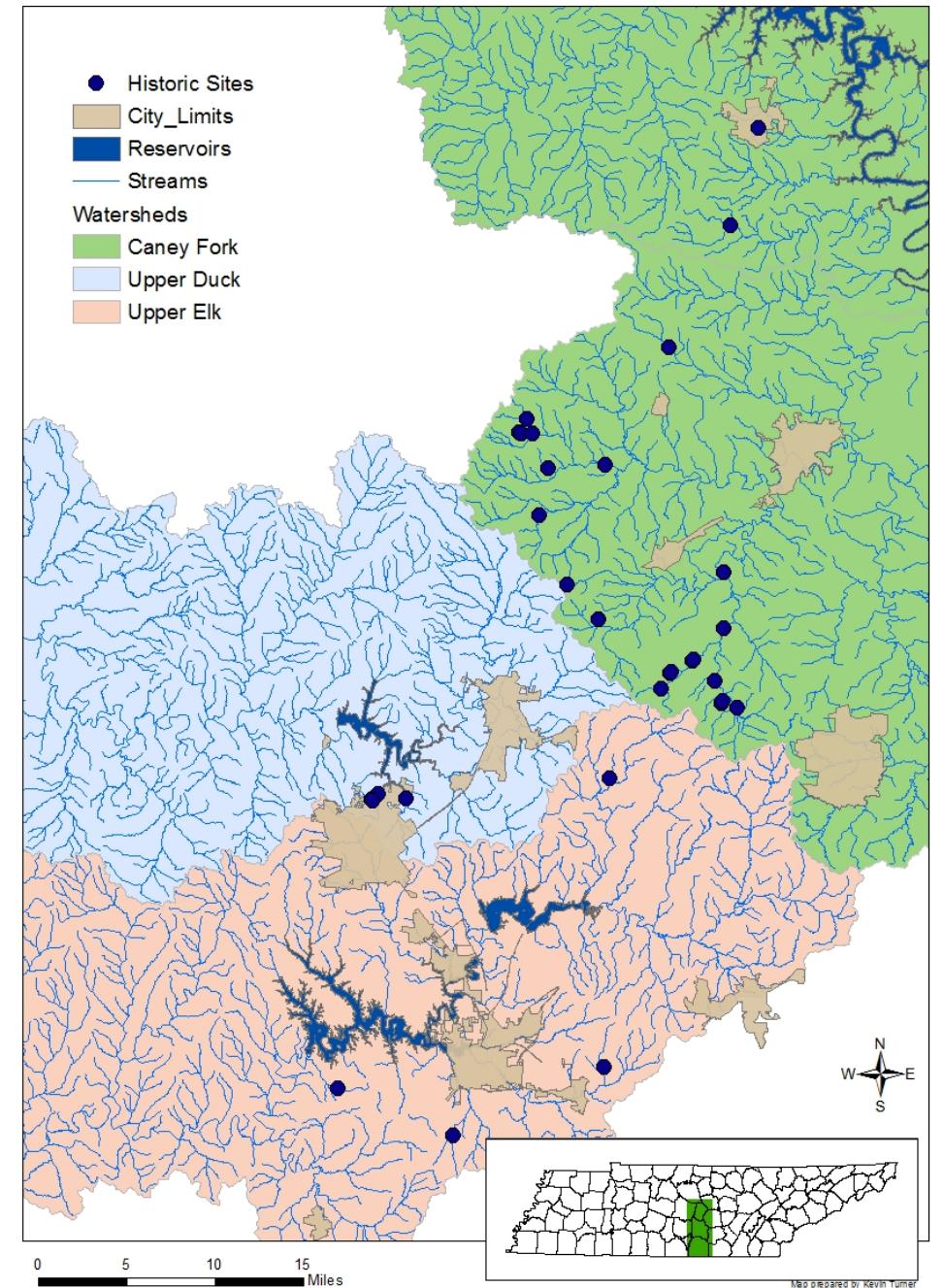


TNACI



Historical Range

- Barrens Plateau portion of the Highland Rim in Middle TN
- 5 counties
- Portions of the Duck, Elk, and Caney Fork River systems
 - Tennessee and Cumberland River basins
 - Populations in the Duck were extirpated in the 1960s



Threats

Western Mosquitofish

- Introduced for mosquito control in 1960s
- Explosive population expansion
- Prey upon larval Barrens Topminnows
- Harass juvenile and adults
- **Barrens Topminnow sites extirpated 3-5 years after mosquitofish presence**



Other potential threats

- Drought
- Restricted Range, small populations, low genetic diversity
- Exacerbate Mosquitofish threat
 - Water Withdrawal
 - Livestock activity



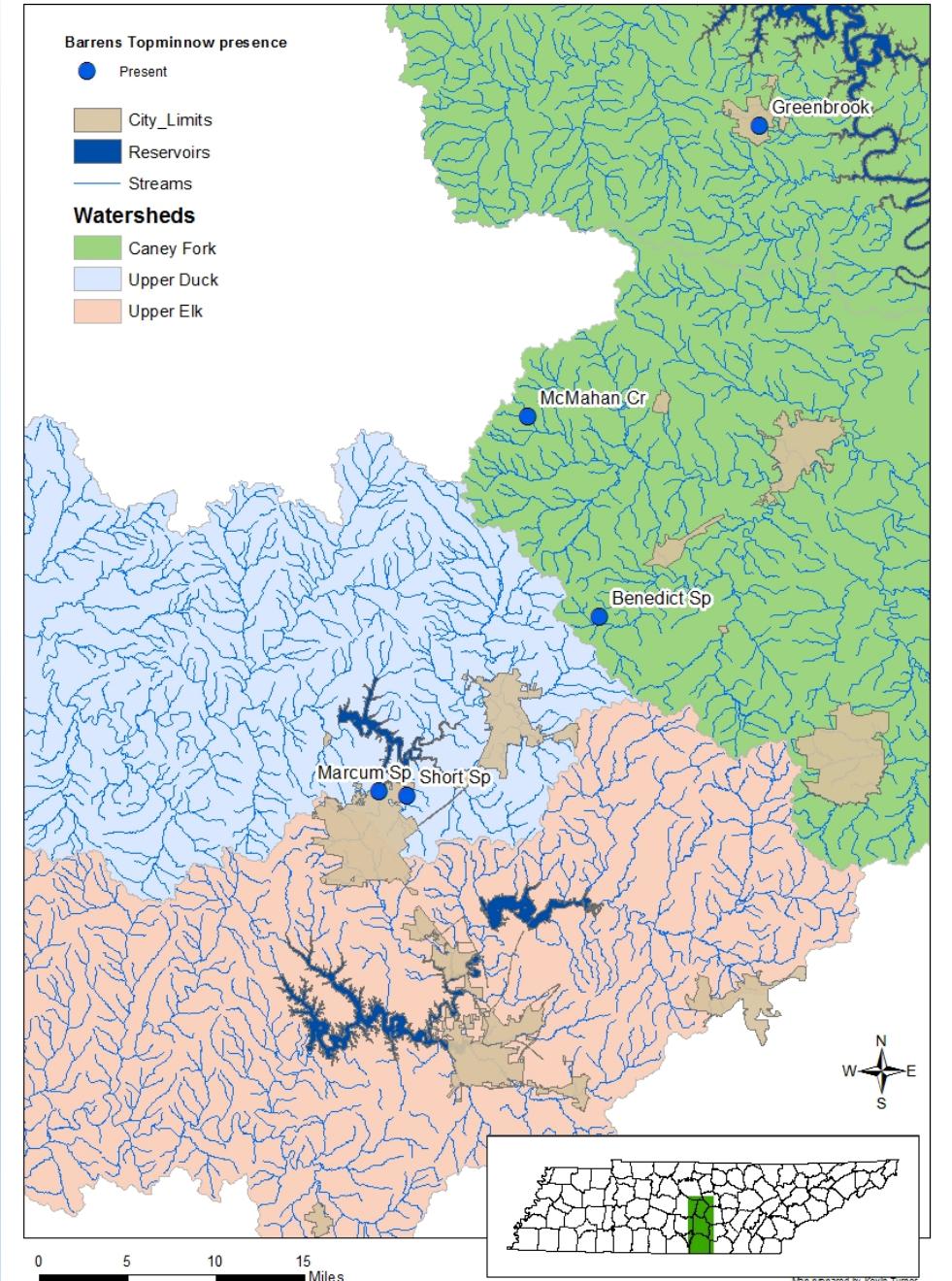
Livestock influence and Riparian Clearing



- Common in the area
- Often drinking source for cattle
- Sedimentation and Nutrification
- Affects breeding
- Can increase disease

Current Condition

- Only 5 sites without mosquitofish and with reproduction, 1 (Greenbrook Pond) outside historic range
 - Only 2 are natural populations (Benedict Spring, McMahan Cr)
 - Only one of these self-sustaining (McMahan)
 - Caney Fork watershed – **Low**
 - Elk River watershed – **Low**/ Arked
 - Duck River – **Extirpated**
-
- **Low Redundancy**
 - **Low Representation**



Conservation Actions

- Stocking from 2001-2016
 - 44,000 fish at 27 sites
 - Most unsuccessful
- Research into mosquitofish exclusion and coexistence
- Livestock exclusion
- Verville property rehabilitation





McMahan Cr Mosquitofish Barrier

Summary

- Three river basins
 - Duck lost shortly after discovery
Has 2 stocked Caney Fk pops.
 - Elk extirpated (only in ark)
 - Caney Fk most stable
2 native pops.
- Only 1 site, McMahan Cr, with a self sustaining, natural population
- Mosquito fish replaces Barrens Topminnows in 3-5 years
- Recommending Endangered Status

