

# Comparative demographics of creek-dwelling loggerhead musk turtles, *Sternotherus minor* at Nokuse Plantation (Walton County, FL)



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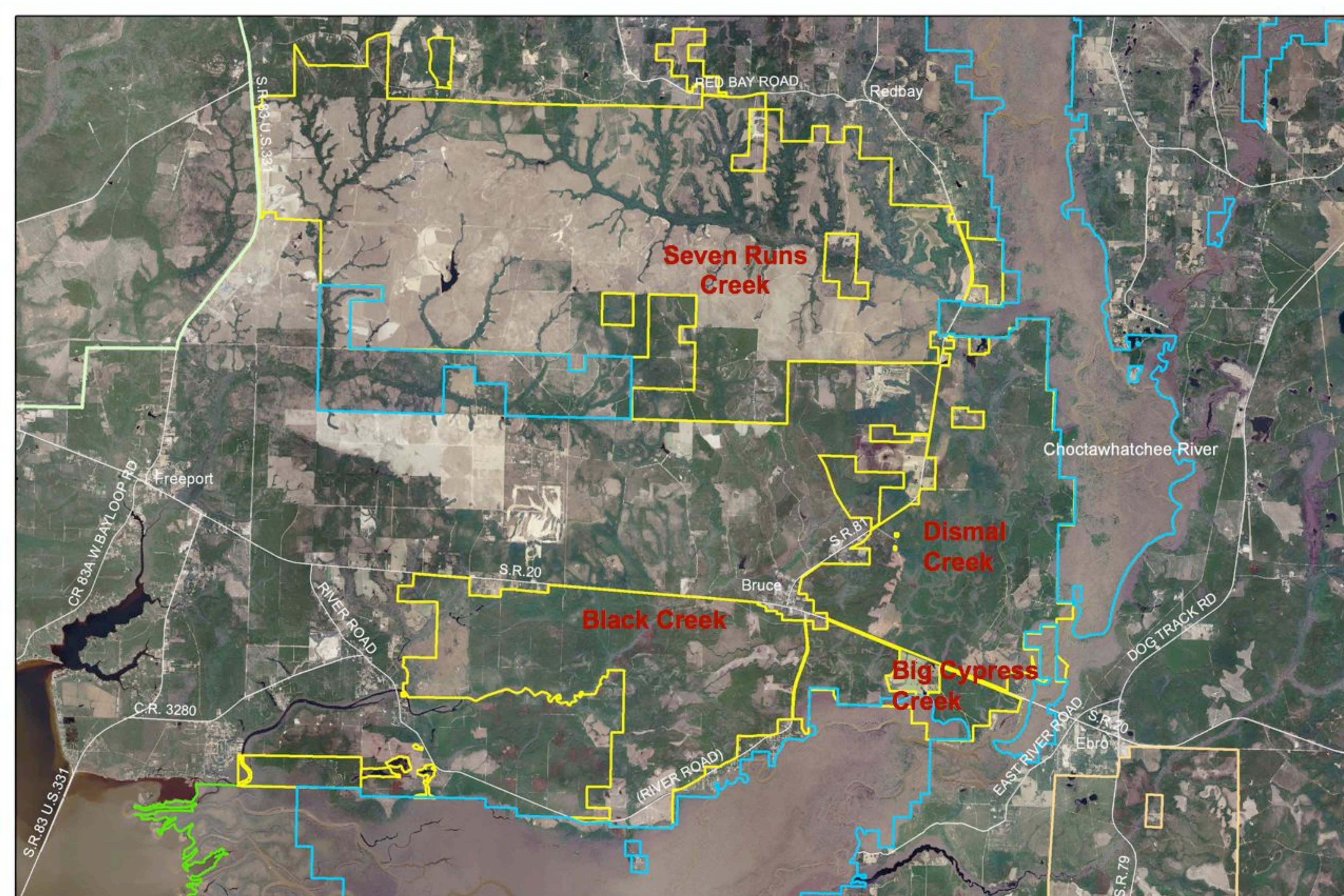
**ABSTRACT:** Nokuse Plantation is a 21,000-hectare private conservation tract in the western Florida panhandle. The property borders the lower Choctawhatchee River and the region, eastward to the Apalachicola River drainage and westward to Mobile Bay, hosts the richest diversity of freshwater turtles in the United States. The most ubiquitous chelonian in lotic Nokuse habitats is the loggerhead musk turtle, *Sternotherus minor* ssp., which exhibits influence of the *peltifer* race (stripe-necked musk turtles). Turtles were surveyed intensively in four creeks via hoop nets, modified crayfish traps, and hand-capture. Morphometric data were recorded and turtles were marked for recapture; chelonian communities varied greatly by stream. Seven Runs Creek is a clear running sand-bottomed seepage stream fed by numerous steepheads. Dismal Creek and Big Cypress Creek are slow-moving floodplain swamp-fed blackwater creeks. Black Creek is a blackwater stream with stronger current, a sand-bottom and is fed in part by seepage. Physical and chemical differences appear to influence diversity and abundance of freshwater turtles.



Post-hatchling loggerhead musk turtle: a *minor* threat.

**RESULTS / DISCUSSION:** Trapping yielded contrasting results among study creeks; data indicate differences in omnivorous chelonian assemblages as well as abundance disparities within species. Seven Runs Creek trapping efforts suggest the lowest turtle richness - only *Sternotherus minor* was captured. Black Creek produced two species: *S. minor* and *Trachemys scripta*. Big Cypress Creek surfaced with *S. minor*, *T. scripta*, and *Sternotherus odoratus* (3 species). Dismal Creek yielded the highest omnivorous chelonian diversity (4 species): *S. minor*, *S. odoratus*, *T. scripta*, & *Chelydra serpentina*. Herbivorous turtles were observed but not trapped and are not included in this analysis.

Water quality sampling was conducted in June, July, and August in collaboration with the Choctawhatchee Basin Alliance and the FL Dept. of Environmental Protection LAKEWATCH program. These data will be compared to biological data for trends or correlations. Hand-captured turtles and chelonian species identified beyond the 0.5 km research areas will be considered in detail in other aspects of this study.



Total number (n) of individual *Sternotherus minor* by creek:

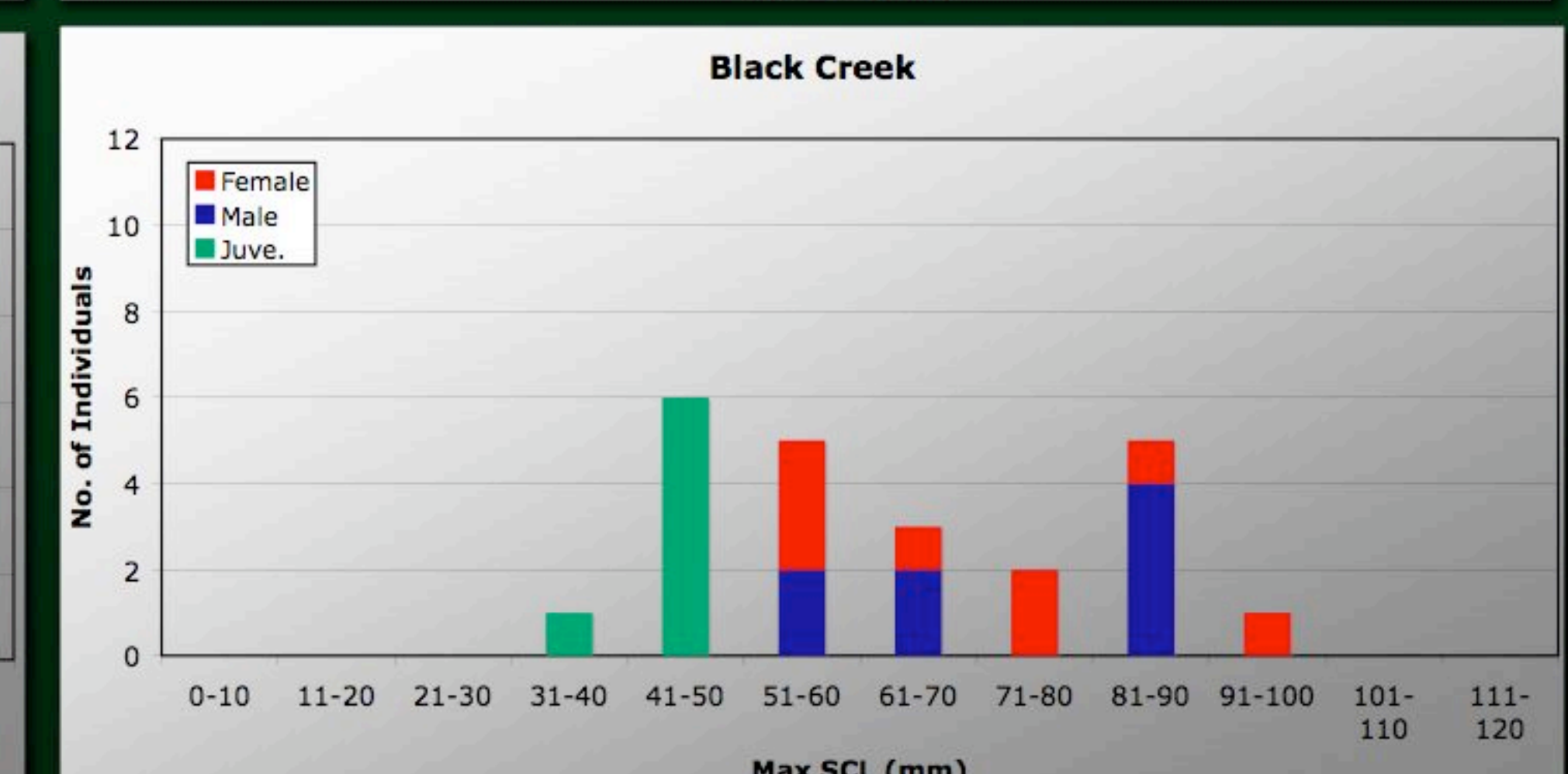
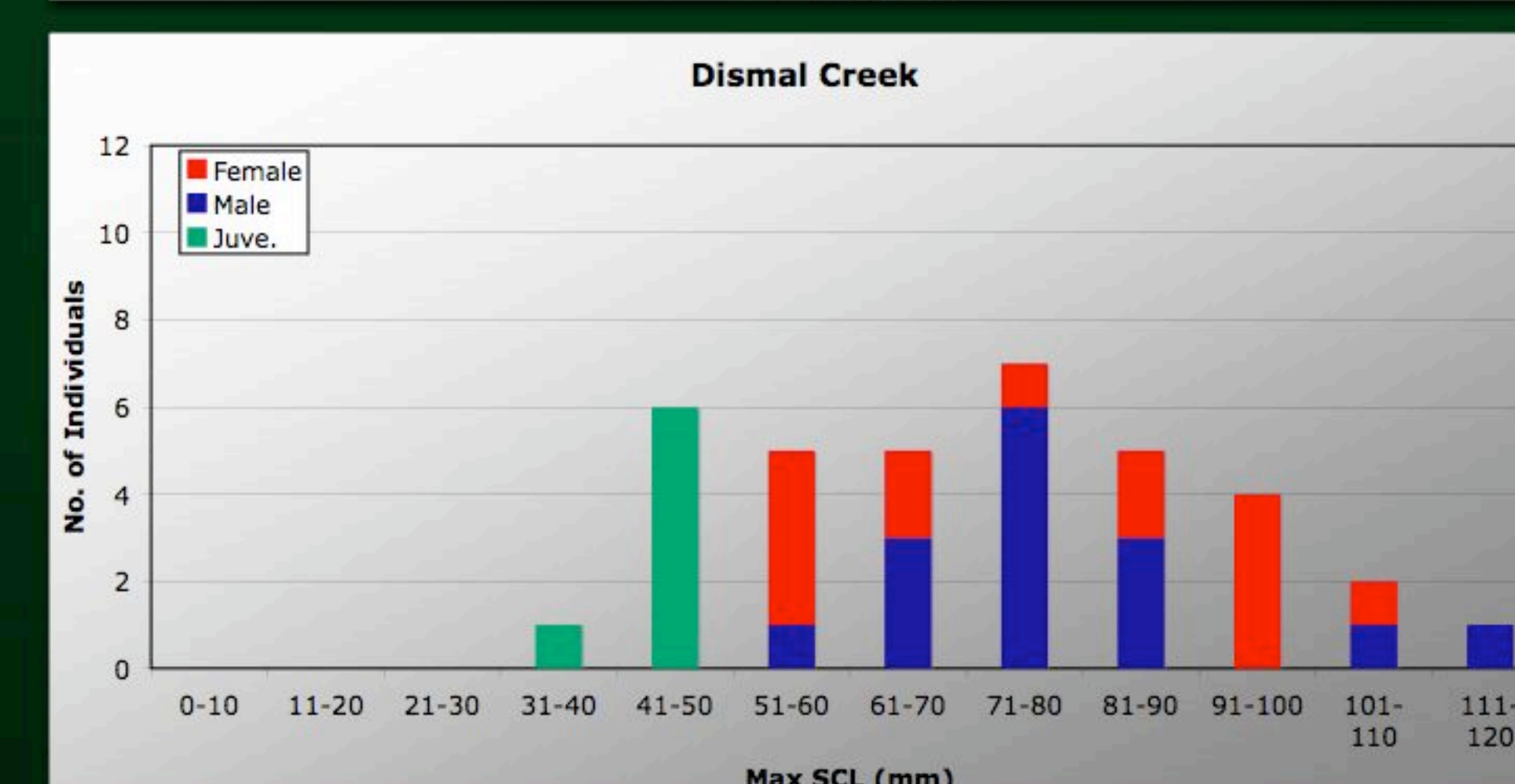
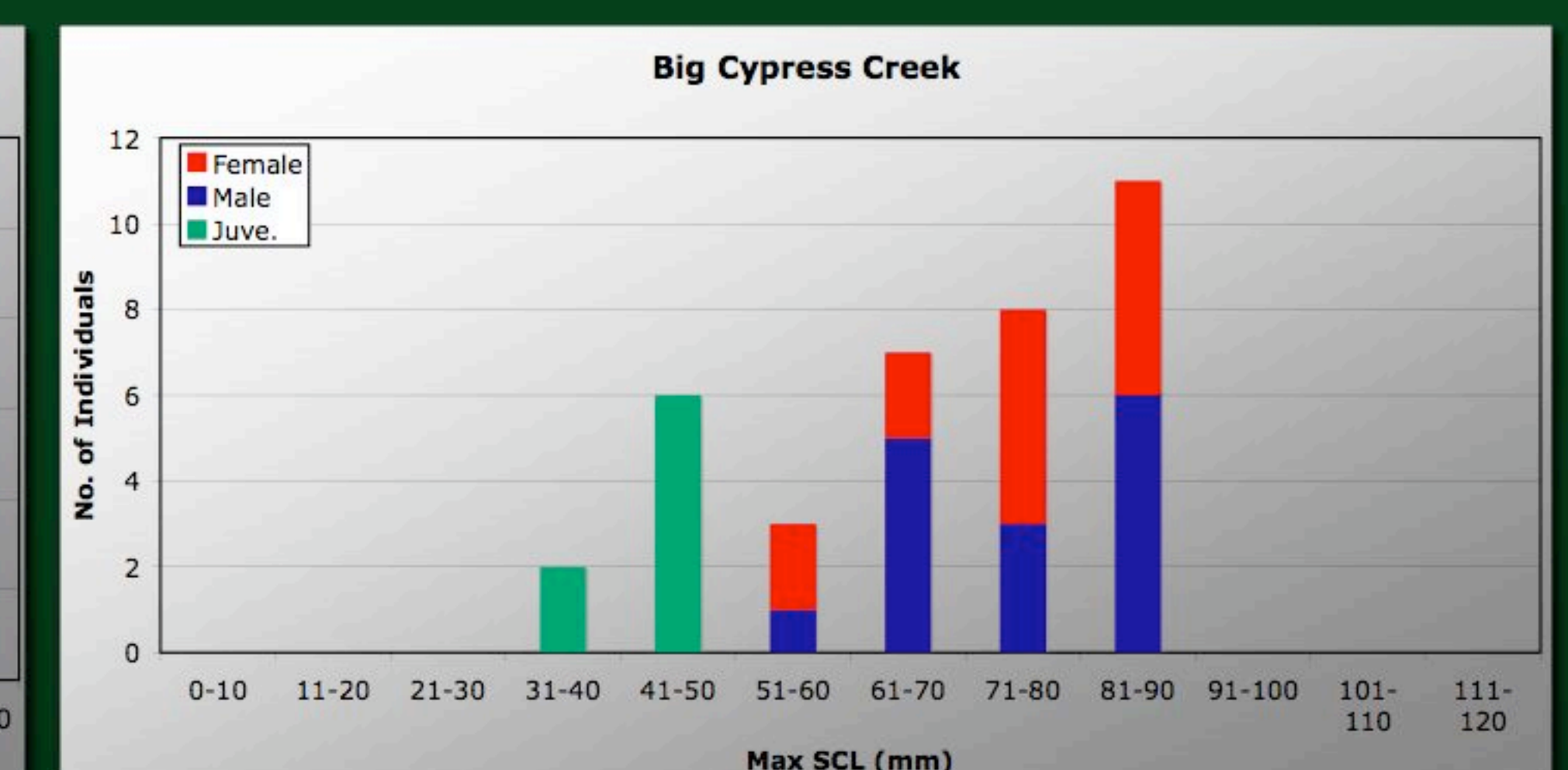
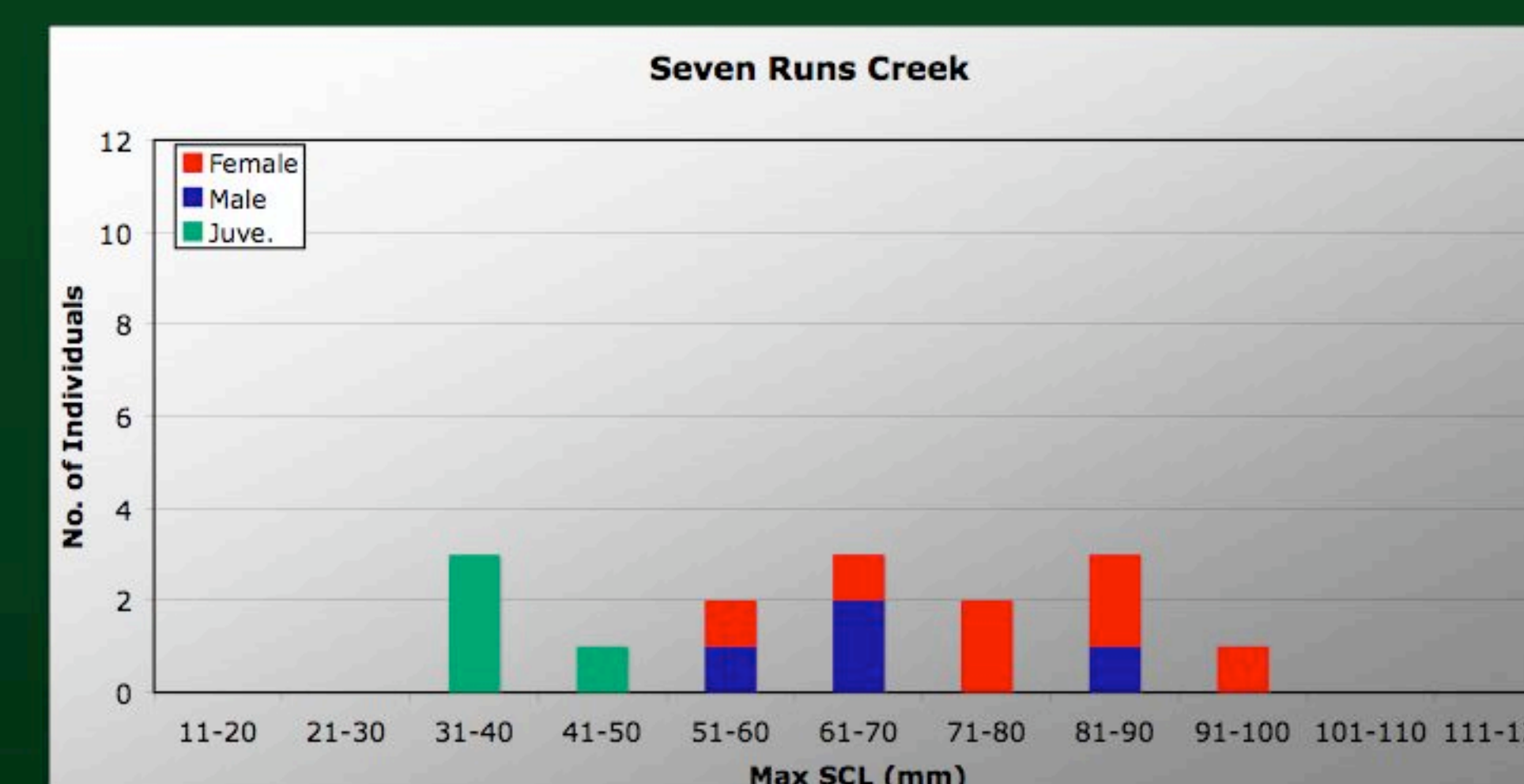
Seven Runs Creek (n=15)

Black Creek (n=23)

Dismal Creek (n=36)

Big Cypress Creek (n=37)

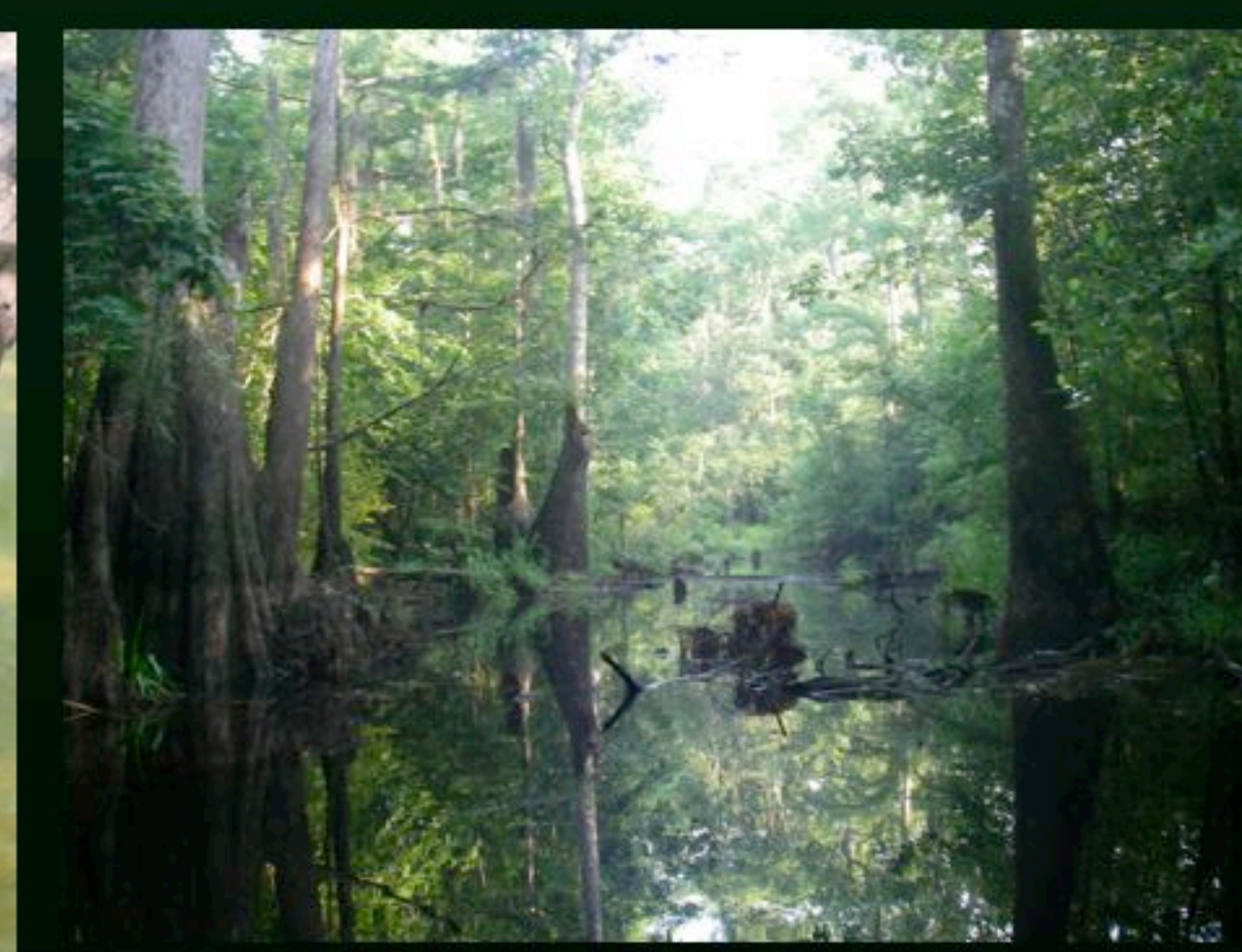
Right: trap-captured *S. minor* per creek by size class



Results of *Sternotherus minor* individual trap-captures during 80 trap-nights (per creek).



Seven Runs Creek



Big Cypress Creek



Dismal Creek



Black Creek

**METHODS AND MATERIALS:** Turtle-trapping was conducted from 3 June 2008 through 13 August 2008 at Nokuse Plantation. Four hoop nets (two ~76.0cm and two ~91.0cm diameter hoops) and four modified crayfish traps were utilized per sampling effort (eight traps per array). A randomized design was employed: trap styles were alternated, and traps were set at approximately 62.5 meter straight-line distance intervals at each of four creeks (8 traps x 62.5m = 500 m) for 0.5 km, "as the crow flies". The sampling effort was replicated at each creek ten times (8 traps x 10 trap-nights = 80 trap-nights per creek). Creeks were sampled in rotation to avoid seasonal and weather-based biases. Trapping data represent a total of 320 trap-nights for the combined study creeks. Hoop nets were baited with fresh-cut locally caught fish; crayfish traps were baited with canned sardines.



**ACKNOWLEDGMENTS:** I am indebted especially to my graduate studies advisory committee: Drs. Max Nickerson, Perran Ross, & Kelly Reiss. For logistical support, insight, and opportunity I am grateful to Drs. Matt Aresco and Margaret Gunzburger, and MC Davis (Nokuse Plantation). I also thank Nokuse Plantation staff members Bob Walker, Frank Cuchens and Don Graff for field and/or technical assistance. Herb von Kluge, Jason Butler, and Meaghan Bernier provided assistance and encouragement. Choctawhatchee Basin Alliance and LAKEWATCH made water quality sampling possible. Turtle research was conducted under FL Fish and Wildlife Conservation Commission scientific collecting permit #WV08218 and UF Animal Research Committee protocol #004-08WEC.

