

Freshwater Mussel Survey Report

Bridge No. 45 over the South River on SR 2030

TIP # B-5700

WBS: 45654.1.1

Cumberland County, North Carolina



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Project Development and Environmental Analysis Unit

Natural Environment Section

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April 2016

FRESHWATER MUSSEL SURVEY REPORT

27 April 2016

PROJECT: Protected species survey report for Atlantic Pigtoe (*Fusconaia masoni*) for the proposed replacement of Bridge No. 45 on SR 2030 over the South River within the Cape Fear River Basin in Cumberland County. WBS: 45654.1.1, TIP No. B-5700.

REPORT BIOLOGISTS: Joseph D. Alderman and John M. Alderman

The North Carolina Department of Transportation proposes to replace Bridge No. 45 over the South River in Cumberland County (Figures 1 and 2). The South River is located in the Cape Fear River Basin, Subbasin 18-68-12-(0.5), and is a class C Swamp stream.

The Atlantic Pigtoe is considered a Species of Concern and is being considered for federal protection by the United States Fish & Wildlife Service (USFWS). This species historically occurred within Cumberland County. The Atlantic Pigtoe is a native Southeast United States freshwater mussel species and exists in all major North Carolina Atlantic Slope river basins, including the Cape Fear River Basin.

Historically, the Atlantic Pigtoe has been documented in the Black River in Pender County. The Atlantic Pigtoe normally requires clean sand and pea gravel substrates, and circumneutral pH water. The highest densities recorded for this species existed in silt free, unconsolidated coarse sand and pea gravel within “run” stream reaches. The best populations have been documented from North Carolina Division of Water Resources Outstanding Resource Waters (ORW) stream reaches or within streams potentially suitable for such designations.

Prior to conducting in-stream surveys, reviews of the North Carolina Natural Heritage Program (NCNHP) and NC Museum of Natural Sciences databases were conducted to determine if there were any records of rare mussels within the proposed project study area or receiving waters. These reviews indicated that the closest occurrence of the Atlantic Pigtoe (first documented in 1991 by John Alderman from the Black River in Pender County and later in the same area by Judith Johnson and John Alderman in 1998) was more than 40 stream miles from the project site (NCNHP 2015 data). No dams exist between the planned project site and this Atlantic Pigtoe occurrence.

The North Carolina Department of Environmental Quality (NCDEQ) has records for one minor NPDES permit for the South River in Falcon, which is nearly 40 miles upstream from the project site (NCDENR 2006). The South River is a Class C Swamp stream (NCDENR 2006). It is not on the state 303(d) list of impaired waterbodies. The next major confluence is with the Black River, which is more than 30 river miles downstream from Bridge No. 45.

Alderman Environmental Services, Inc. biologists Joseph D. Alderman (USFWS Permit No. TE28597A-0), John M. Alderman (North Carolina Wildlife Resources Commission

Permit No. 16-ES00009 and USFWS Permit No. TE065756-2), and Dr. Logan Williams completed a mussel survey at the site on 20 April 2016 within 100+ meters upstream and 400+ meters downstream from the Bridge No. 45 crossing over the South River (Figures 1 and 2). Using SCUBA and visual and tactile searches, 12 person-hours were required to complete the survey within this relatively rural area of Cumberland County.

The stream width varied from 10 m to more than 50+ m, and the streambanks were less than 1 m tall. The maximum water depth was 30 feet. The surveyed reach had a mostly closed canopy, and the wooded buffers were wide. The water was cool and slightly tannic, and had a pH of 7.1. Substrates included large woody debris, detritus, sand, and silt. Large woody debris was dominant; however, there were lenses of sand and gravel. Compactness varied. Gnawed sticks provided evidence of beaver activity.

Elliptio species (*E. complanata* and *E. marsupiobesa*) totaled 65 live, and *Uniomereus carolinianus* totaled 6 live. Snail species documented included *Micromenetus* species, *Physa* species, and *Ferrissia* species.

The surveyed river reach had abundant large woody debris and detritus. The Atlantic Pigtoe is not associated with such habitats. In general, the Atlantic Pigtoe is usually found in areas with significant diversity and abundances of mussels. **This survey site had relatively poor habitat conditions, low diversity and abundances of other mussel taxa, and significant distance to any NCNHP element occurrences (see above data). While not federally protected at the time of writing this report, if the Atlantic Pigtoe were to be federally protected, the appropriate biological conclusion associated with this project for this species would be “No effect.”**

References

North Carolina Museum of Natural Sciences. 2016. 26 April 2016 online database search.

North Carolina Natural Heritage Program. 2015. 15 April 2015 Database.

North Carolina Department of Environment and Natural Resources. 2014. GIS shapefiles of 303(d) listed streams and NPDES permits.

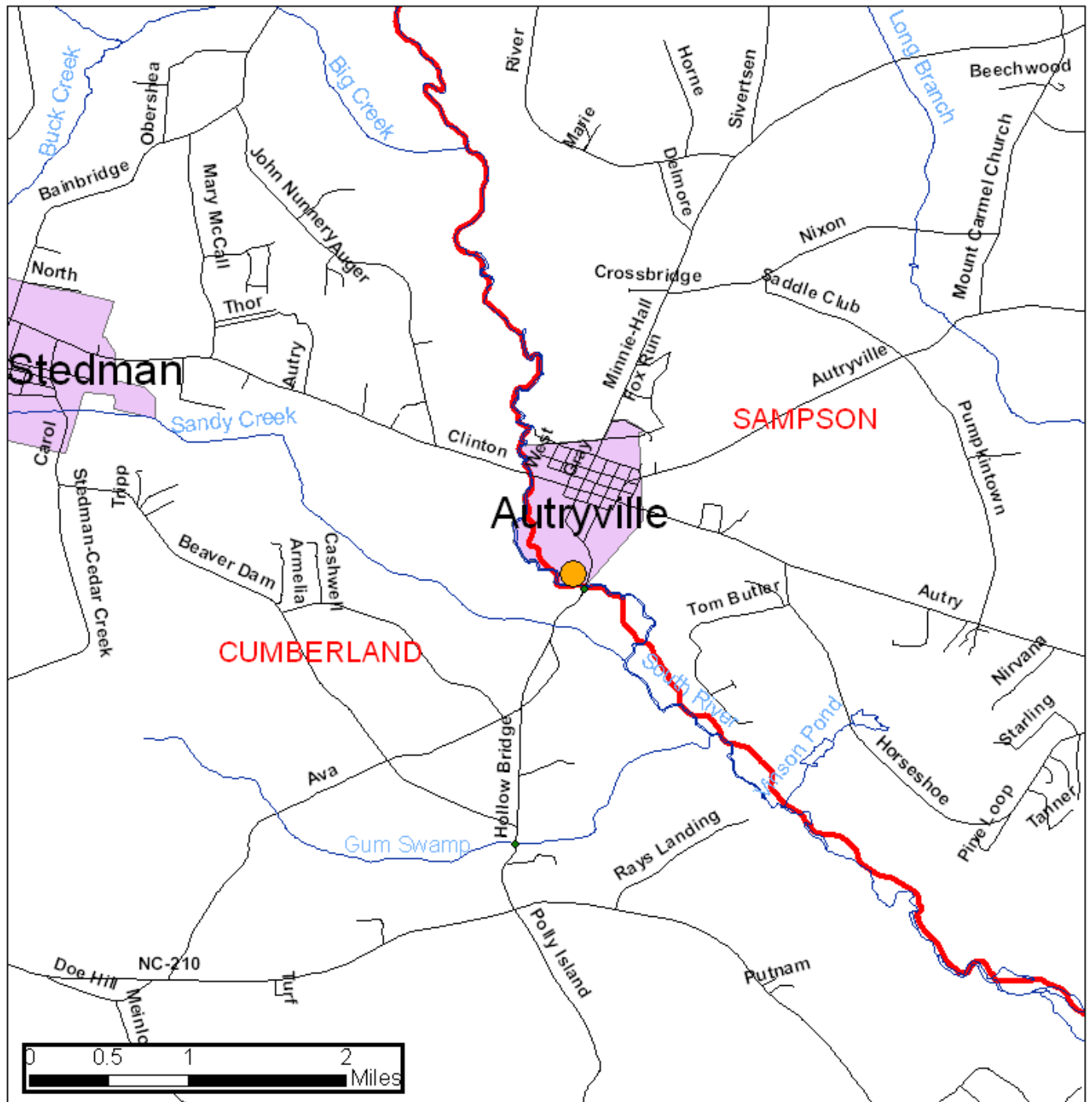
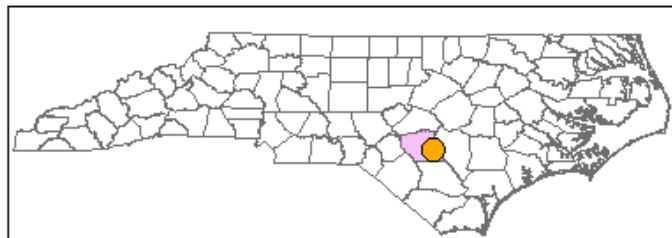


Figure 1
VICINITY MAP
 Cumberland County, NC
 Replace Bridge No. 45
 on SR 2030 over South River
 Project B-5700 (WBS 45654.1.1)

-  NCDOT Bridge Project
-  Streams
-  Roads
-  Counties
-  Towns



Date: 4/27/2016
 By: JMA



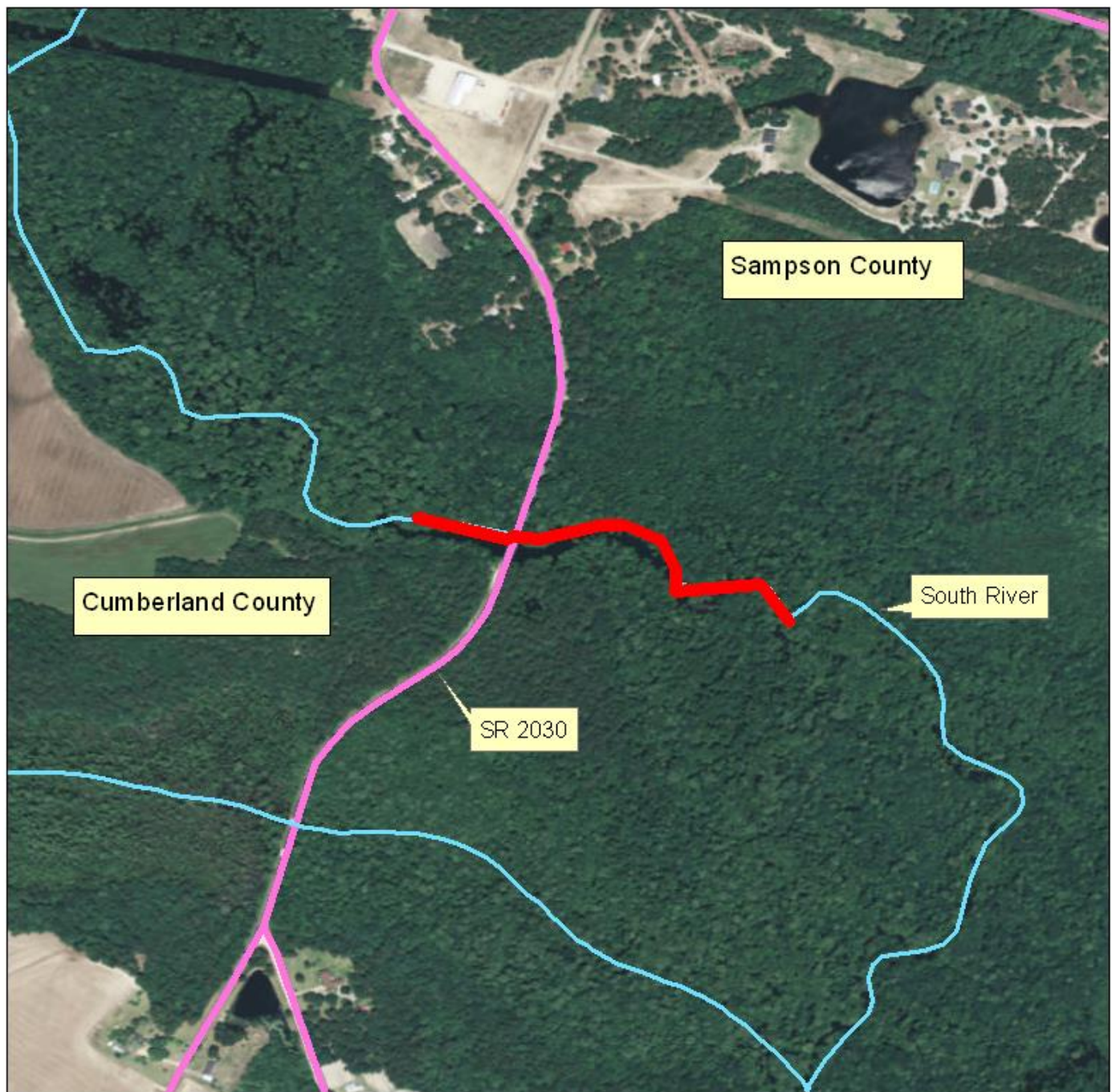


Figure 2
SURVEY AREA MAP
Cumberland County, NC
Replace Bridge No. 45
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