

REGIONAL FORESTER SENSITIVE SPECIES (RFSS)-AQUATIC

Monitoring Conducted

In 2007, the Superior National Forest (SNF) completed several population inventory and monitoring projects and stream habitat improvement projects that directly or indirectly benefited Regional Forester Sensitive Species (RFSS), including creek heelsplitter and black sandshell mussels, northern brook lamprey, and lake sturgeon (Photos 1 and 2). The 2007 projects included the Namakan Lake Sturgeon Project, RFSS Mussel Surveys, Stream Crossing Improvement Monitoring, and continued monitoring of the Dark River Habitat Improvement Project. Established stream channel monitoring reaches were also surveyed in the Dark River watershed to evaluate potential effects of land management activities and effects to water quality and aquatic organisms (See Watershed-Riparian Chapter).

2007 Lake Sturgeon Project

This 2007 Lake Sturgeon Project was a cooperative study with Voyageurs National Park, Ontario Ministry of Natural Resources, Minnesota Department of Natural Resources, South Dakota State University, Quetico Provincial Park, and the SNF. Project objectives included: (1) Establish baseline information on presence and distribution of lake sturgeon in the upper Rainy River watershed. (2) Identify major spawning areas and habitats in the Namakan, Loon, and Vermillion Rivers, and Crane, Sandpoint, and Namakan Lake. (3) Gather population characteristics of fish captured (age/sex/size structure). (4) Make inferences on the relative importance of individual spawning locations, movements between lakes and spawning sites, population size and characteristics, and genetics.

RFSS Aquatic Summary Points

- * Regional Forester Sensitive Species surveys and monitoring projects have been useful for identifying new RFSS populations and monitoring population abundance.
- * Future RFSS surveys should continue to occur annually at new and established locations.
- * Stream crossing and habitat improvement projects have continued to improve aquatic habitat for RFSS and their host fish species.
- * Future stream crossing and habitat improvement projects should continue to be prioritized by RFSS and aquatic organism passage needs.



Photo 1. Sphagnum Creek stream crossing.



Photo 2. 2007 Lake Sturgeon Project, Crane Lake, Minnesota.

The SNF and partners identified several important lake sturgeon areas on and near the Forest in 2007. In Vermilion Gorge, Crane Lake, 56 Rapids, and Loon Falls (both SNF and State of Minnesota lands), the SNF and MNDNR captured, tagged, and released 16 adult sturgeon. Twenty-two sturgeon were also captured, tagged, and released by Voyageurs National Park in Sand Point Lake, Namakan Lake, and Kabatogama Narrows. Thirty-seven sturgeon were captured and tagged in the Namakan River (in Ontario). During the entire study, 30 lake sturgeon were implanted with coded acoustic telemetry transmitters to track movement in the river systems. The Lake Sturgeon project will continue in 2008 and include additional fish capture, tagging, telemetry, and movement studies. Future work may also include identification of important spawning and rearing habitat on and adjacent to the SNF.

Mussel Surveys and Monitoring

The SNF completed 11 mussel surveys on four streams, rivers, and lakes in 2007. Five surveys occurred at existing monitoring sites and six surveys were completed at new locations. Creek heelsplitter mussels were documented at 6 survey locations including 3 new sites on the Little Isabella River. Creek heelsplitter mussels were again observed at known sites except at one location in the Cloquet River. Relative abundance of creek heelsplitter mussels increased at two monitoring sites, remained the same at two sites, and decreased at one site (Cloquet River). Based on surveys completed in 2005 and 2007, it appears that creek heelsplitter mussels are primarily occurring in flowing stream habitat conditions including riffles and runs with coarse substrate material including sand, gravel, cobble, and boulders. It is anticipated that future surveys and monitoring efforts will provide further evidence of important RFSS mussel habitat and relative abundance.



Photo 3. 2007 Lake Sturgeon on measuring board. Crane Lake, Minnesota.



Photo 4. 2007 Standard mussel survey transect on the Superior National Forest.



Photo 5. Creek heelsplitter mussel.

Stream Crossing Improvement and Monitoring Projects

In 2007, the SNF completed stream crossing improvement projects at four locations including Arrowhead Creek (FR380), Fawn Creek (FR608BA), Sphagnum Creek (FR1472), and Sylvania Lake (FR379). The projects were designed to improve aquatic organism passage, stream flow, riparian function, and watershed conditions. Benefits to RFSS included improved fish passage and connectivity for freshwater mussel host fish species and northern brook lamprey. These projects also addressed Forest-wide and District road maintenance, engineering, and watershed concerns. Since 2005, the SNF has improved 13.5 miles of stream habitat as a result of 17 stream crossing improvement projects, multiple riparian plantings, and the Dark River Habitat Improvement Project.



Photo 6. Arrowhead Creek Stream Crossing Improvement Project.

The SNF and The Nature Conservancy also continued monitoring the success of a stream crossing improvement project on Laird Creek in the Sand Lakes Seven Beavers Area in 2007. This project was originally identified during watershed analysis conducted by the Nature Conservancy and SNF. The stream crossing was considered a barrier for fish passage and improperly sized to accommodate stream flows. Established monitoring stations, including multiple stream cross sections and a longitudinal profile were surveyed in 2006 and 2007 to evaluate stream channel conditions following the completed project. Monitoring results indicated that the stream channel had responded positively by readjusting and further establishing connectivity between upstream and downstream reaches. Fish passage for RFSS mussel host fish species had remained adequate over the two-year period (Figures 7 and 8).



Photo 7. Laird Creek stream crossing in 2005.



Photo 8. Improvement to the Laird Creek stream crossing.