

EXECUTIVE SUMMARY

Between 1999 and 2004, the Hiwassee River Watershed Coalition (HRWC) used funds granted by the North Carolina Clean Water Management Trust Fund to restore more than 30,000 linear feet (approximately 5.7 miles) of stream in the Brasstown Creek watershed. Restoration work was conducted on 14 separate stream reaches. Each project involved extensive planting of native vegetation in 30 to 50-foot wide strips along stream banks, and a total of 121 in-stream structures were built to reduce erosion and improve the geomorphology of the stream.

HRWC was granted additional funds in 2004 to monitor and evaluate its restoration work in the Brasstown Creek watershed over a 2-3 year period. Staff and students of the North Carolina State University (NCSSU), Department of Biological and Agricultural Engineering conducted comprehensive monitoring at 10 of the 14 individual restoration sites. Monitored projects included four sites on Brasstown Creek, four on Little Brasstown Creek, and two on smaller tributaries to Brasstown Creek. They represent a wide range of drainage sizes and channel types and range from recently constructed to seven years old. Additionally, they represent the work of several different design teams and construction contractors. Each project was monitored with regard to channel stability, riparian vegetation, macroinvertebrate populations, and suspended sediment.

Restoration efforts at nine of the monitored locations have been highly successful in terms of improving habitat, re-vegetating the riparian area and improving the physical condition of the stream channel. Most banks are now stabilized and erosion has been greatly reduced. In-stream structures installed during restoration work have held up well and maintained their intended function throughout the monitoring period. Planted and naturally recruited vegetation is thriving and macroinvertebrate populations appear to be stable. The substrate throughout most of the reaches improved over time, providing better habitat for both invertebrate and vertebrate life.

One restored site was not as successful in terms of improving stream conditions; this area provides lessons for future restoration projects. While all other sites contained structures made of rock, this site utilized log structures and nearly all of them failed. Bank erosion continues to be a problem and negatively affects the macroinvertebrate populations in that reach, but conditions have improved since restoration was conducted.

Restoration efforts in the Brasstown Creek watershed resulted in many improvements in terms of both the biological and physical health of the watershed. All of the sites require ongoing observation to ensure that the efforts made to restore the watershed continue to improve water quality. There is still work to be done at each of the sites, including removing invasive species, planting some remaining bare areas, and continuing to monitor both biological and physical parameters of stream health.