

SECTION 5

CONCLUSION

The restoration efforts that were conducted in the Brasstown Creek watershed have been highly successful and have resulted in many improvements in stream health. Before these projects were undertaken, there were many areas where banks were eroding and critically threatening the health of the stream. Most of the stream banks are now thickly vegetated and extremely stable, and this has numerous positive effects on water quality and aquatic habitat.

In-stream structures that were built during the restoration effort have held up well and this has resulted in a stable stream channel and improving substrate conditions throughout most of the reaches. The alterations in stream morphology persisted throughout the monitoring period, with riffles, pools and thalwegs generally remaining in their intended locations. Campbell is the only site where structures have failed; this site provides lessons for future restoration efforts.

Planted trees and shrubs had high survival rates throughout the restored area, and riparian vegetation is becoming well established. Mature remnant trees are extensively represented on most projects, and these will serve as good seed sources for continued natural regeneration. Herbaceous cover is generally diverse and dense, and these three vegetation layers combine to create vegetative structural complexity and habitat unusual among young stream restoration projects in North Carolina.

Benthic macroinvertebrate populations increased initially and then declined somewhat, but both diversity and abundance have remained stable during the monitoring period with the exception of Campbell. Stream bed substrate is becoming coarser, and this improved invertebrate habitat should allow populations to continue to do well. Conducting repair work at Campbell will hopefully result in improvements in the macroinvertebrate populations there over time.

Overall, suspended sediment has decreased along the restored reaches, indicating that less silt is being washed in to the stream channel. In the areas where sediment is still accumulating along the restored reach, it is fairly clear where the unwanted turbidity is coming from. At Bell there are two unrestored tributaries entering the channel which contribute sediment, and at Hyatt there is one. These tributaries drain land in Georgia where HRWC has not been successful in identifying funding sources for similar restoration work. At Campbell, sediment is coming from bank erosion within the reach, as well as upstream sources. Conducting repair work at the site should help reduce the TSS along this reach.

The restoration of Brasstown Creek and some of its tributaries has improved the overall conditions of the watershed and resulted in both a healthier biological community and improved geomorphology. The monitoring that took place during 2005, 2006 and 2007 provided invaluable information regarding the ongoing condition of the stream channel, and sound recommendations that should result in continued improvement.

Recommendations at most sites focus primarily on the removal on invasive species and installing more live stakes in short stretches of bank. Other recommendations include monitoring a few of the structures, and closely observing areas where there is high near-bank shear stress.

Recommendations at the Campbell site are more extensive and include close evaluation and possible repair of structures, control of invasive species, and re-vegetation of many areas of the banks. Specific recommendations for each site can be found in Section 4 of this Report, as well as the annual reports. Implementation of these recommendations should continue to improve the health of the Brasstown Creek watershed.