

Forestry BMPs Protect Aquatic Biodiversity in Southern Appalachian Critical Biodiversity Area

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Introduction

The Clean Water Act established national goals and a legal framework for protecting the physical, chemical, and biological integrity of waterbodies. Forestry best management practices (BMPs) have been developed and approved by states as the primary mechanism for controlling sediment, nutrients, and chemical delivery to streams during forest management. Forestry BMPs refer to a practice or combination of practices that have been determined to be the most effective and practicable means of controlling nonpoint source pollutants (e.g., sediment and forest chemicals) during and after silvicultural activities. State agencies have the lead role in collaborating with forest landowners and workers to implement BMPs to protect water quality during forest management activities.

The Southern Appalachian Critical Biodiversity Area (SACBA) has been identified as an area of specified risk under the Forest Stewardship Council National Risk Assessment for the Conterminous United States of America (FSC-NRA-USA V1-0). Options to mitigate risk in the SACBA include using BMPs that contribute to conservation of aquatic biodiversity. This factsheet highlights the ability of BMPs to conserve aquatic biodiversity within the SACBA.

Forestry BMP Implementation

State forestry agencies in the SACBA routinely monitor BMP implementation and use the results to identify problem areas and document improvement over time. Implementation rates in the SACBA have increased steadily over time (SGSFs 2019). This is largely due to efforts of state forestry agencies and forest certification programs to develop education, outreach, and training programs across the SACBA (Cristan et al. 2018). In 2019, the Southern Group of State Foresters (SGSFs) reported that the overall BMP implementation rate for the region was 93.6% (SGSFs 2019). In Alabama and Georgia, the two states that intersect the SACBA, overall BMP implementation averaged 98% and 93%, respectively (SGSF 2019). Rates of BMP implementation in Alabama for forest road, stream crossing, streamside management zones (SMZs), and chemical application categories all exceeded 95%.

Forestry BMPs Protect Aquatic Biodiversity

Numerous studies have demonstrated that BMP use maintains water quality during and after forest management activities (Cristan et al. 2016; Tatum et al. 2017). Additionally, Warrington et al. (2017) noted that forestry BMPs contribute to protecting water quality and aquatic species by retaining SMZs. These SMZs provide a forested buffer along streams that protect water quality and in-stream structure that benefits aquatic biodiversity (NCASI 2019). The U.S. Fish and Wildlife Service (Service) has recognized that privately-owned, managed forests that implement BMPs can be an important component of conservation strategies for aquatic biodiversity in the SACBA. The examples below demonstrate that forest management coupled with BMPs on private working

forests can be an important tool for conserving SACBA aquatic biodiversity.

In 2018, the Service announced endangered species status for the Black Warrior waterdog (*Necturus alabamensis*), an aquatic salamander occurring in high-gradient streams above the Fall Line in northern Alabama, with known populations limited to river systems of Black Warrior Basin within the SACBA (83 Fed. Reg. 257–284). The Black Warrior waterdog listing rule described negative water quality impacts related to forest operations occurring before the modern BMP era and noted that modern forestry operations in Alabama are most likely not currently significant contributors to nonpoint source pollution (83 Fed. Reg. 263). The Service also noted that BMPs could protect the physical or biological features essential for conservation of the Black Warrior waterdog by eliminating, or reducing to negligible levels, the threats affecting the physical and biological features of designated critical habitat units (83 Fed. Reg. 271).

The Georgia pigtoe (*Pleurobema hanleyianum*) is a freshwater mussel currently known from the Upper Conasauga River, the Coosa River, and Hatchet Creek watersheds in the SACBA. While the Service announced endangered species status for this species in the 2010, the final rule noted that water quality and shoals, especially in Hatchet Creek, have improved relative to past historical conditions due to changes in land uses, implementation of BMPs in agriculture and forestry activities in the watershed, and implementation of State water quality standards. Due to these improvements, Hatchet Creek has been designated as an Outstanding Alabama Water (75 Fed. Reg. 67531). The Service stated that silvicultural activities that employ forestry BMPs, which were designed, approved, and implemented under State and local water quality regulations, are among actions that will not result in take of this species (75 Fed. Reg. 67535–67536).

Conclusion

A large body of scientific literature confirms that properly implemented forestry BMPs are effective at protecting water quality and, increasingly, silvicultural practices implemented with BMPs have been noted to protect aquatic biodiversity. Additional studies, outside the SACBA, have also documented the value of forestry BMPs, and specifically SMZs, for conservation of riparian and aquatic species (NCASI 2019). Regulatory agencies recognize the importance of BMPs and have noted contributions of privately managed forests where BMPs are implemented to conservation of aquatic species.

Maintaining working forests where management activities are implemented with water quality BMPs represents a clear, actionable, and scientifically sound approach for conserving aquatic species in the SACBA.

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