NCASI Fact Sheet

IMPACT. SCIENCE. SOLUTIONS.

Forestry BMPs Protect Aquatic Biodiversity in the Florida Panhandle Critical Biodiversity Area

FEBRUARY 2020

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 minimizing sediment, nutrients, and chemical delivery to streams during forest management. Forestry BMPs refers to a practice or combination of practices that has been determined to be the most effective and practicable means of controlling nonpoint source pollutants (e.g., sediment, nutrients) during and after silvicultural activities. State agencies have the lead role in collaborating with forest landowners and workers to implement BMPs to prevent water quality issues resulting from forest management activities.

The Florida Panhandle Critical Biodiversity Area (FPCBA) 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 FPCBA include using BMPs to contribute to conservation of aquatic biodiversity. This factsheet highlights the ability of BMPs to conserve aquatic biodiversity within the FPCBA.

Forestry BMP Implementation

The FPCBA lies almost entirely within the state of Florida, which has routinely monitored and reported BMP implementation biennially since 1981. Since 1995, Florida Forest Service (FLFS) monitoring has repeatedly documented levels of BMP implementation exceeding 95%, and today BMP implementation in Florida averages 99.81% (FLFS 2018). Rates for forest road, stream crossing, streamside management zones (SMZs), and chemical application categories all exceeded 99%. The report surveyed 40 harvest sites in counties making up the FPCBA, with 39 of the sites scoring 100% BMP implementation (FLFS 2018). Overall, the high BMP implementation rate in Florida is largely due to efforts of the FLFS and forest certification programs to develop education, outreach, and training programs across the state (Cristan et al. 2018).

Forestry BMPs Protect Aquatic Biodiversity

Numerous studies have demonstrated that BMPs maintain water quality during and after forest management activities (Cristan et al. 2016). Within the FPCBA, Vowell (2001) monitored water chemistry, habitat for aquatic species, and overall stream condition at sites associated with a stream adjacent to intensive silviculture treatments. No treatment effects were observed on the harvested section of the stream, demonstrating that habitat for aquatic species, water quality, and stream biota were not affected by

silviculture operations that used Florida's BMPs. Additionally, Warrington et al. (2017) noted that forestry BMPs contribute to protecting water quality and aquatic species through 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 US Fish and Wildlife Service (Service) has recognized that privately-owned, managed forests that implement BMPs can be an important component of conservation strategy for aquatic biodiversity in the FPCBA. The examples below demonstrate that forest management coupled with BMPs on private, working forests can be an important tool for conserving FPCBA aquatic biodiversity. For example, on March 16, 1998, the Service announced endangered species status for the fat threeridge (*Amblema neislerii*), shinyrayed pocketbook (*Lampsilis subangulata*), Gulf moccasinshell (*Medionidus penicillatus*), Ochlockonee moccasinshell (*Medionidus simpsonianus*), and oval pigtoe (*Pleurobema pyriforme*), and threatened species status for the Chipola slabshell (*Elliptio chipolaensis*) and purple bankclimber (*Elliptoideus sloatianus*) (63 Fed Reg 12664–12687). These seven freshwater mussels are endemic to streams of the Apalachicola River Basin of southeast Alabama, southwest Georgia, and north Florida. In the announcement, the Service recognized that "current silvicultural activities following best management practices are compatible with the continued existence of the species," referring to all seven mussel species (63 Fed Reg 12681). Thus, the Service determined that silvicultural activities would not result in a violation of Section 9 of the ESA when "carried out in accordance with existing regulations, permit requirements, and best management practices" (63 Fed Reg 12686).

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. In addition to the work by Vowell (2001), additional studies outside the FPCBA have also documented the value of forestry BMPs, and specifically SMZs, for conservation of riparian and aquatic species (NCASI 2019). Regulatory agencies have recognized the importance of BMPs and have noted the contributions of privately managed forests where BMPs are implemented in conserving aquatic species. Because forests typically yield better surface water quality than other land uses, maintaining working forests where management activities are implemented with BMPs represents a clear, actionable, and scientifically sound approach for conserving aquatic species in the FPCBA.

References

Cristan, R., Aust, W.M., Bolding, M.C., Barrett, S.M., and Munsell, J.F. 2018. National status of state developed and implemented forestry best management practices for protecting water quality in the United States. *Forest Ecology and Management* 418:73-84. https://doi.org/10.1016/j.foreco.2017.07.002.

Cristan, R., Aust, W.M., Bolding, M.C., Barrett, S.M., Munsell, J.F., and Schilling, E. 2016. Effectiveness of forestry best management practices in the United States: literature review. *Forest Ecology and Management* 360:133-151. https://doi.org/10.1016/j.foreco.2015.10.025.

FLFS. 2018. *Silviculture best management practices 2017 implementation report*. Tallahassee FL: Florida Forest Service. Available at: https://www.fdacs.gov/Forest-Wildfire/Silviculture-Best-Management-Practices.

NCASI. 2019. *Forestry best management practices and conservation of at-risk species in the southeastern United States*. Cary NC: National Council for Air and Stream Improvement, Inc.

Vowell, J.L. 2001. Using stream bioassessment to monitor best management practice effectiveness. *Forest Ecology and Management* 143:237-244. https://doi.org/10.1016/S0378-1127(00)00521-1.

Warrington, B.M., Aust, W.M., Barrett, S.M., Ford, W.M., Dolloff, C.A., Schilling, E.B., Wigley, T.B., and Bolding, M.C. 2017. Forestry best management practices relationships with aquatic and riparian fauna: a review. *Forests* 8(9):331. https://doi.org/10.3390/f8090331.

For More Information Contact

Erik Schilling at eschilling@NCASI.org