Position Statement

Managing for Biodiversity in Northeastern Forests

Sustainable forest management strategies can promote a mosaic of forest structure and age-classes across a landscape and create various habitat types, which contribute to the maintenance of biological diversity. Biological diversity is the natural variation of organisms among genetic-, species-, and ecosystem-levels that are influenced and interconnected by environmental conditions and ecological processes. In the northeastern United States, land use changes, such as natural succession and development, have created an underrepresentation of both early- and late-successional habitat, and a predominance of secondary growth (40-100 year-old forests) across the region. Practices that more closely mimic natural processes and promote both early-successional stands and late successional/old-growth characteristics can increase biological diversity across forested landscapes. Such management can and does lead to uneven-aged forest structure on a landscape-scale that, given prudent planning, can accommodate the widest variety of wildlife species.

Prior to European settlement, forests in the northeastern United States were subject to climate variability and various forms of disturbance, such as wildfire, beaver activity, flooding, wind, and manipulation by Native Americans that reverted succession and created diverse mosaics among plant communities. As a result of the extensive and unsustainable logging of the late 19th century, farm abandonment, suppression of natural disturbances, and a shift away from regeneration harvests in many areas and ownership types, age-class distributions have shifted in northeastern forests. Today, second growth stands of 40-100 years dominate the landscape in most areas of the Northeast, which has subsequently increased forest homogeneity across the region. Sustainable forest management is successful when a comprehensive understanding of forest stand development and natural disturbance is achieved. However, such management must take into account considerations of stand-, property-, and landscape-level scales among ecological, economic, and socio-cultural spheres to achieve greatest success.

Reduction and degradation of young and old-growth forest habitat in the northeast is a major factor associated with population declines of various wildlife species. Factors contributing to these trends include loss of cover, breeding, and foraging habitat for species dependent on these respective habitat types. However, innovations in sustainable forest management practices that incorporate disturbance ecology and natural stand development into silviculture practices can help address and remedy forest stand age disparities, create habitat benefiting young and old-growth dependent wildlife, and promote biodiversity across the region.

The policy of The Northeast Section of the Wildlife Society regarding biodiversity of forest ecosystems is to:

- Advocate the creation and management of forest heterogeneity on public and private lands.
- Support planning strategies that benefit biological diversity and ecosystem health, while also involving stakeholder groups to address economic, societal, and cultural objectives.
- Support forest management operations that conserve biodiversity and its associated values, water resources, soils, and unique ecosystems.
- Encourage outreach efforts to educate and inform public perceptions on the ecological importance of young and old-growth forest habitat.
- Encourage outreach efforts to educate consulting foresters and forest landowners about the ecological benefits of sustainable forest management.
- Advocate for research of habitat requirements of forest-dependent species and monitoring their response to forest changes to better inform management decisions.
- Encourage the utilization of Forest Stewardship Council standards while conducting forest management operations.

Literature Cited

Buffum, B., S. R. McWilliams, and P. V. August. 2011. A spatial analysis of forest management and its contribution to maintaining the extent of shrubland habitat in southern New England, United States. Forest Ecology and Management 262:1775–1785.

Cronon, W. 2003. Changes in the Land: Indians, Colonists, and the Ecology of New England. Hill and Wang, New York, NY.

DeGraaf, R. M. and M. Yamasaki. 2003. Options for managing early-successional forest and shrubland bird habitats in the northeastern United States. Forest Ecology and Management 185:179–191.

Dessecker, D. R. and D. G. McAuley. 2001. Importance of early successional habitat for forest game birds. Wildlife Society Bulletin 29:456–465.

Franklin, J. F., T. A. Spies, R. Van Pelt, A. B. Carey, D. A. Thornburgh, D. R. Berg, D. B. Lindenmayer, M. E. Harmon, W. S. Keeton, D. C. Shaw, K. Bible, and J. Q. Chen. 2002. Disturbances and structural development of natural forest ecosystems with silvicultural implications, using Douglas-fir forests as an example. Forest Ecology and Management 155:399–423.

Keeton, W.S., 2005. Managing for old-growth structure in northern hardwood forests. In: Peterson, C.E., Maguire, D.A. (Eds.). Balancing Ecosystem Values: Innovative Experiments for Sustainable Forestry. USDA Forest Service, General Technical Report PNW-GTR-635. pp. 107–117.

Lambert, J. D., B. Leonardi, G. Winant, C. Harding, and L. Reitsma. 2017. Guidelines for managing wood thrush and scarlet tanager habitat in the Northeast and Mid-Atlantic regions. High Branch Conservation Services, Hartland, VT.

Lincoln, R., J. Boxshall, and G. A. Clark. A dictionary of ecology, evolution and systematics. Cambridge University Press. New York, NY.

Litvaitis, J. A. 2003. Are pre-Columbian conditions relevant baselines in managed forests of the northeastern United States? Forest Ecology and Management 185:113–126.

Lorimer, C.G. and A.S. White. 2003. Scale and frequency of natural disturbances in the northeastern United States: implications for early successional habitat and regional age distributions. Forest Ecology and Management 185: 41–64.

Natural Resources Conservation Service [NRCS]. 2016. Conservation practices benefit golden-winged warblers in Appalachia.

https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1303489.pdf. Accessed 2 April 2017.

New Jersey Department of Environmental Protection. 2010. New Jersey Statewide Forest Resource Assessment and Resource Strategies. http://www.nj.gov/dep/parksandforests/forest/docs/NJFSassessment.pdf. Accessed 5 May 2017.

Sauer, J. R., W. A. Link, J. E. Fallon, K. L. Pardieck, and Ziolkowski, D. J. Jr. 2013. The North American Breeding Bird Survey 1966–2011: Summary analysis and species accounts. North American Fauna 79:1–32.

Society of American Foresters [SAF]. 2013. Position statement: Biological diversity in forest ecosystems. http://www.eforester.org/Main/Issues_and_Advocacy/Statements/Biological_Diversity_in_Forest_Ecosystems.aspx. Accessed 9 August 2017.

Trani, M. K., R. T. Brooks, T. L. Schmidt, V. A. Rudis, and C. M. Gabbard. 2001. Patterns and trends of early successional forests in the eastern United States. Wildlife Society Bulletin 29:413–424.