

The Relationship of Wood Duck Brood Density to River Habitat Factors

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Abstract: To better understand habitat features on rivers that are important to wood ducks (*Aix sponsa*), brood density for sections of 12 rivers (329 km) in Tennessee was determined using nightlighting during spring 1990 and 1991. Sixteen habitat variables were evaluated for each river and the relationship to brood density was tested. Brood density ranged from 0 to 1.8/km ($\bar{x} = 0.7$ on unchannelized rivers). No broods were found on 61 km of channelized rivers. Brood density was positively correlated to aquatic vegetation, mud flats, logs and limbs in the water, large overhanging trees, rapids, and islands and was negatively correlated to exposed mud banks and small trees. River channelization and certain agricultural practices degraded riparian habitat and had a negative effect on brood density. Where habitat for wood duck broods is to be maintained or improved, streams should be protected from channelization and from land management practices which remove tree cover and destabilize riverbanks.

Proc. Annu. Conf. Southeast. Assoc. Fish and Wildl. Agencies 47:000-000

The importance of understanding the ecological requirements of the wood duck were underscored in the 1965 wood duck symposium (Jahn 1966, McCabe 1966, Webster and McGilvrey 1968). Yet, few studies have focused on habitat since then (Frederickson and Graber 1990). The value of river habitat for wood ducks and concern for its loss due to human activities has been stressed (Bellrose 1966, Minser 1968, Barstow 1970, Prokop 1989, Cottrell et al. 1990). River habitats continue to be impacted by construction of reservoirs, channelization, agriculture, and urbanization. My objective was to identify habitat features on rivers which may influence wood duck brood production.

This research was supported by the University of Tennessee, Department of Forestry, Wildlife and Fisheries and the Tennessee Wildlife Resources Agency (TWRA). Thanks are given to T. E. Beddow, J. C. Cole, B. J. Colwick, S. D. Cottrell, E. Z. Harrison, S. M. Henderson, R. M. Nichols and many other TWRA personnel for data collection assistance and to F. C. Bellrose and C. A. McConnell for technical advice.

An Evaluation of a Wood Duck Nesting Program in Eastern Tennessee

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Abstract: Wood duck (*Aix sponsa*) nest boxes ($N = 190$) were placed along the lower Holston River and the lower French Broad River in eastern Tennessee and were maintained and checked from 1976 to 1979. Wood ducks used 1.3% of the boxes inspected during the 4-year study. Night brood counts ranged from 0.42 to 0.68 broods/km of river and did not indicate an increase in brood production. Nest box use and brood production in this study were significantly less than reported for a study on the upper Holston River. We believe that aquatic vegetation, valuable as a food base for wood duck broods, was a more limiting factor in our study than the availability of nest cavities.

Proc. Annu. Conf. Southeast. Assoc. Fish and Wildl. Agencies. 42:337-342

Natural nesting cavity availability has been considered to be a factor limiting wood duck production on the Holston River in eastern Tennessee (Minser 1968, Muncy and Burbank 1975). When a large number of wood duck nesting boxes were made available to the Tennessee Wildlife Resources Agency (TWRA) by the Tennessee Valley Authority (TVA), a wood duck nest box program was begun.

The objective of this management project was to determine if wood duck numbers on the lower Holston River and French Broad River could be increased with an intensive nesting box program. This paper represents an evaluation of that management effort.

We thank the many students of the University of Tennessee Student Chapter, The Wildlife Society and others for providing assistance to TWRA in carrying out this management effort.

Methods

The study area lies in Knox County, Tennessee, and includes the lower 27 km of the Holston River and the lower 19 km of the French Broad River to the point