

Woodpecker Nest Tree Characteristics in Upper Midwestern Oak Forests

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Characteristics of woodpecker nest trees have been widely studied in some regions of North America. However, there is little research from the Upper Midwest. Forest managers need information on woodpecker nest tree characteristics so they can recommend leaving during harvest trees that meet the needs of cavity-dwelling wildlife. Information specific to the Upper Midwest is especially important given that declines in several species of cavity nesting birds have been predicted by an environmental analysis of timber harvest in Minnesota. Our purpose was to identify attributes of nest trees used by primary cavity-nesting birds. We compared nest trees to unused trees and examined differences in nest trees among woodpecker species. We found 166 active woodpecker nests in upper midwestern oak forests in 1997 and 1998. For each nest tree, we recorded height, diameter, status, and aspects of tree decay. We also measured four potential nest trees (non-nest trees, within size requirements of cavity-nesting birds, with ≥ 2 indicators of heartwood decay) closest to each active nest tree. Additionally, we recorded these measurements for 137 randomly selected potential nest trees. Using paired *t*-tests and chi-square analysis, we found each woodpecker species had a unique set of characteristics that separated nest trees from potential nest trees. Using an extension of the McNemar test for related samples, we found woodpeckers as a group used trees that were larger, both in diameter and height, more often elm (*Ulmus americana*, *U. rubra*) or aspen (*Populus tremuloides*, *P. grandidentata*), more likely to have old cavities present, and with more decay indicators than adjacent potential nest trees. The Yellow-bellied Sapsucker (*Sphyrapicus varius*) differed from the other woodpecker species by nesting in living Trembling Aspens (*Populus tremuloides*) with intact tops, complete bark cover, and heartwood fungus. Diameters of nest trees differed significantly among woodpecker species, but unlike findings from other studies, the height of nest hole and nest tree did not. Woodpecker nest entrances faced south or southeast significantly more often than by chance alone, even when excluding leaning trees. This study suggests that generic forest management for all woodpecker species may not be adequate because individual species have specific nest tree requirements. Management recommendations for cavity-nesting birds need to be tailored to meet the needs of a diversity of species.

Key Words: Woodpeckers, nest site selection, oak forests, timber management, Minnesota.