

Wildlife Populations: Wood Ducks

Background



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The wood duck (*Aix sponsa*) is one of 43 species of waterfowl that nest in North America. It is an important game species, comprising more than 10% of annual waterfowl harvest in the US. In the Atlantic and Mississippi Flyways, it is second only to the mallard in number of birds harvested. It is a small to medium-sized duck with a crested head, broad wings and a large rectangular tail. The sexes are dimorphic; in Alternate (breeding) plumage the male is quite distinctive with an iridescent green and purple head; a white throat with finger-like extensions onto cheek; large red eyes; a long green, purple and white crest; and a burgundy breast. The female is brownish to gray, with a white patch around the eyes, a white chest and a gray crest. Males in eclipse (basic) plumage and juveniles resemble females.¹

The wood duck is a dabbling duck, which means it generally stays on the water surface and “tips up” for food items in shallow water; it is, however, a more efficient diver than other dabbling ducks and does not hesitate to dive for corn or acorns in several feet of water. Wood ducks nest in natural cavities or in nest houses. They are about half the size of mallard ducks; it is believed that they may have evolved their particular size and form to take advantage of cavities created by pileated woodpeckers (*Dryocopus pileatus*), with which they share their breeding range.

Unlike other dabbling ducks, wood ducks are proficient at perching in trees and maneuvering through flight lanes formed by intricate networks of tree limbs. They are also adept at walking on land and often seek food in dry woodlands, agricultural fields and mast-producing orchards that are located several miles from the nearest water. Because of these behaviors, wood ducks are at home in a wide variety of wetland habitats, and they are uniquely adapted to breed in the deciduous forest biome, even to the point of nesting in cities and towns.

Some of the adaptations that allow the wood duck to exploit these habitats are broad wings, large eyes and a long tail. In proportion to its length, the wood duck has the

broadest wing of any species of game duck; this increased wing size is an adaptation for flight among the branches of trees. The eye of the wood duck is the largest of any waterfowl; in addition to being advantageous at low light intensity, it allows wood ducks to perceive details that would not register with smaller eyes; this further enables them to efficiently fly through a maze of branches. The wood duck also has a longer tail than almost all of the other dabbling ducks; this contributes to greater maneuverability during flight, resulting in less risk of injury when navigating through the large number of densely-packed trees that dot its habitat.

Early ornithologists in North America reported robust populations of wood ducks until late in the nineteenth century, after which numbers began to decline, especially near large cities. This decline was likely the result of overharvest, deforestation, and loss of wetland habitats. By World War I, wood ducks were at extremely low levels over much of their range, as was the case with many other species of waterfowl. Because of this, a number of bills were passed nationally to address dwindling populations; these included the Weeks-McLean Bill (1913), which placed custody of migratory birds with the federal government and prohibited the hunting of wood ducks; and the Migratory Bird Treaty Act (1918), which resulted in a nationwide closed season on wood ducks that lasted until 1941. The wood duck’s range, largely confined to areas populated by humans, made it vulnerable for longer periods of time than species that bred in more sparsely inhabited areas. Use of nest boxes, expanding beaver (*Castor canadensis*) populations; which create favorable wetland habitat, regrowth of forested areas, and managed hunting seasons have all contributed to the recovery of the wood duck in North America.²

Today wood ducks are abundant throughout most of New Jersey. Highest densities are reached in forested and scrub-shrub wetlands adjacent to mature forests. Presence of abundant wood ducks in freshwater wetlands is indicative of healthy ecosystems.

Status and Trends

Due to the migratory nature of waterfowl, the research and management activities of the Division of Fish and Wildlife Waterfowl Ecology and Management Program are generally conducted on a flyway or continental scale requiring the participation of numerous state, provincial, federal (US and Canadian) and non-government partners. New Jersey is a member of the Atlantic Flyway Council (AFC), which provides the means to participate in promulgating annual hunting regulations and long-term management plans in cooperation with partner states and the [US Fish and Wildlife Service](#). The primary objective of the Division's Waterfowl Program is to work in a cooperative manner with the numerous government and non-government

agencies responsible for the populations and habitats of migratory game birds.³

The Waterfowl Ecology and Management Program conducts the Atlantic Flyway Breeding Waterfowl Survey each spring along with other AFC partners. This survey is a ground survey, performed using observers in boats, vehicles and on foot. Two hundred and fifty randomly located, one-kilometer plots are traditionally sampled, and the results are extrapolated to estimate the statewide population (Figure 1). In 2013 and 2014 only 105 plots were sampled.

From 1989 to 2015, the long-term average of wood duck breeding pairs in New Jersey is 7,871 as estimated during the Atlantic Flyway Breeding Waterfowl Surveys. The population estimates over time are shown in Figure 1. These estimates indicate a fluctuating wood duck population with a period of apparent increase from 1989 to 1999, then a relatively stable population through 2012. In 2013 and 2014, the Wood Duck population estimates decrease when the number of sampling sites was reduced. In these consecutive years breeding pair estimates were 6,426 and 6,441, respectively. Estimates from the 2011 and 2012 were 9,820 and 9,918, respectively. This represents an averaged 34.8% reduction between the two-year periods. The reduction may in part be due to the reduction in sampling plots from 250 to 105 sites and the increase in variability in extrapolating the statewide population from the reduced number of plots. In 2015, the population estimate appears to once again be comparable with earlier estimates. Continued monitoring is needed to determine if the reduction seen in 2012 and 2013 is due to the extent of sampling or truly represents a declining population.

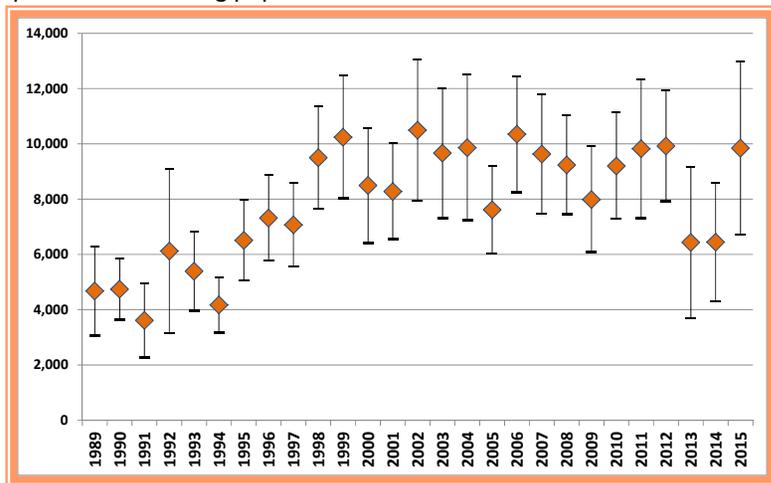


Figure 1: Estimate of breeding pairs of wood ducks in New Jersey during the spring Atlantic Flyway Breeding Waterfowl Survey, 1989-2014

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Environmental Trends Report, NJDEP, Division of Science, Research, and Environmental Health
<http://www.nj.gov/dep/dsr/trends/>

Outlook & Implications

Despite the apparent fluctuation and recent decrease in breeding pairs in New Jersey, population indices from the Breeding Bird Survey, which is performed across a larger spatial scale encompassing the entire breeding range of the wood duck, indicate an increasing population in North America.⁴



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Author: Gentry George, U.S. Fish and Wildlife Service

More Information

http://www.nj.gov/dep/fgw/waterfowl_info.htm

<http://www.fws.gov/migratorybirds/>

<http://bna.birds.cornell.edu/bna/species/169>

References

Unless otherwise cited, the information in this chapter was provided by:

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¹Hepp, G. and F. Bellrose. 1995. Wood Duck (*Aix sponsa*). In The Birds of North America, No. 169 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, DC. (<http://bna.birds.cornell.edu/bna/species/169>)

²Hepp and Bellrose. 1995.

³New Jersey Department of Environmental Protection, Division of Fish and Wildlife. "Waterfowl and Migratory Birds in New Jersey." http://www.nj.gov/dep/fgw/waterfowl_info.htm

⁴Nichols, T. NJDEP Waterfowl Ecology and Management Program (personal communication 6/15/2010).