

WILDLIFE

management guide



Wildlife Management Section
South Carolina Department
of Natural Resources
P.O. Box 167
Columbia, SC 29202

Wood Duck

Wood ducks are dependent upon forested wetland habitat for food and cover, although marshes also are used. Wood ducks must breed in habitat that provides nesting cavities and food near permanent freshwater lakes and streams.



They need brushy or weedy borders for rearing young and swampy areas for roosting. Preferred habitat is mast producing hardwoods bordering streams and permanent freshwater lakes. Wood ducks will also use swamp habitat dominated by cypress and tupelo gum.

Wood duck management is possible on natural lakes and ponds, river cutoffs and oxbows, small man-made reservoirs, and large reservoirs with stable pools and swampy margins. Beaver ponds generally provide ideal wood duck habitat.

HABITAT REQUIREMENTS

▲ *Food*

Food sources of wood ducks include mast and fruit trees, insects, aquatic invertebrates (*mollusks, snails, etc.*), aquatic plants and seeds. Wood ducks will feed on land considerable distances from open water.

▲ *Important Food Plants for Wood Ducks*

Trees

water oak
southern red oak
swamp red oak
cherrybark oak
willow oak
white oak
American hornbeam
green hawthorn
Littlehip hawthorn
parsley hawthorn
wild grape
tupelo gum
swamp chestnut oak
buttonbush
hazelnut
American beech
ash
titi

Forbs/Grasses

common arrowhead
burreed
sedges
*watermeal
*coontail
*duckweed
mannagrass
musk grass
smartweeds
reed canarygrass
pondweeds
white water lily
arrow arum
*water primrose

***Provide a medium for aquatic invertebrates.**

▲ *Habitat*

Three types of habitat are important:

- breeding,
- brooding and
- roosting habitat.

Breeding habitat characteristics:

a. Food:

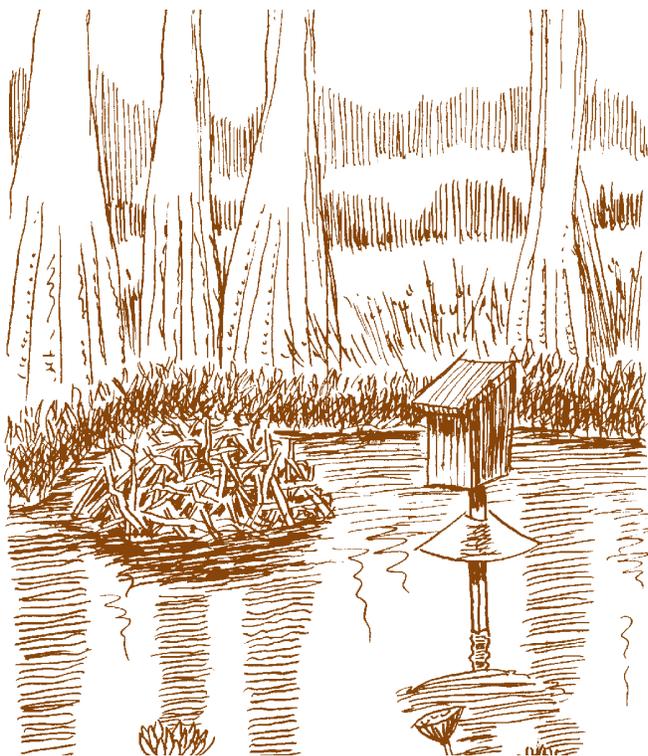
Must be available in adequate quantity and quality.

b. Cover:

- (1) Flooded shrubs, trees, or both in approximately 50-50 ratio of plant cover to open water, or
- (2) Trees or shrubs overhanging streams.

c. Water:

- (1) Depth between 3 inches and 3 feet.
- (2) Flow less than 3 mph
- (3) Available three weeks prior to nesting (*February or March*). Present at least through incubation (*June*).



d. Nesting Cavities:

- (1) Twenty acres of cavity-producing trees to each acre of brood habitat (*nest boxes may be substituted*).
- (2) Within 1/8 mile of water - the closer the better.
- (3) Old growth trees above 16 inches dbh.
- (4) A minimum of one usable cavity per 5 acres of woodlands - the more the better.

Quality breeding habitat should be very close to brood rearing habitat, e.g. within 1/8 mile.

Characteristics of Broodrearing habitat:

a. General:

- (1) Moderate to high fertility of water and soil.
- (2) Best brood areas are larger than 10 acres. Smaller areas are acceptable.
- (3) Maximum edge effect between all components (*see below*).

b. Food: An abundant supply of insects, snails, etc.

c. Cover:

- (1) A ratio of 75 percent cover to 25 percent open water.
- (2) Cover composition of 55 percent emergents, 40 percent shrubs (*alder, black willow, buttonbush*) and 5 percent trees is ideal.
- (3) Must provide overhead protection and allow horizontal movement of broods.

d. Water:

- (1) Must persist through brood season (*May through July*).
- (2) Depth up to 6 feet with 75 percent less than 3 feet.
- (3) Water movement less than 1 mph (*preferably*).
- (4) Open water 5 to 20 feet in width and scattered evenly through the cover.

e. Loafing sites: Logs, stumps, muskrat mounds, beaver lodges, or islands in open water and shorelines.

- (1) Ten to twenty sites per acre, readily available for escape cover.
- (2) Dimensions of at least 18 by 18 inches and 2 to 6 inches above water.

Resident wood duck populations often are limited by the lack of nesting cavities. Generally, preserving natural tree cavities is preferable to installing nest boxes requiring considerable maintenance. However, in areas of plentiful brood habitat, nest boxes can be installed to augment more complete utilization.

Criteria for judging natural cavities are:

	Optimum	Acceptable
Height	20-50 feet	6 feet and up
Entrance size	4 in. x 3 in.	3 1/2 to 12 in.
Cavity bottom	100 sq. in.	8 to 15 in. diameter
Depth of cavity	24 in.	6 to 48 in.

A cavity must drain so that water will not collect in the bottom. The ideal cavity will have its entrance protected from weather.

Protecting previously used nest sites is very important. Once successful, females have a tendency to nest in the same cavity year-after-year.

STANDARD MANAGEMENT PRACTICES

Adjust stand size and age-class patterns in each area used by wood ducks to minimize non-mast-producing age classes (*less than age 20 or 10 inch dbh of crop trees*). In areas with a uniform age class, use harvesting methods to achieve a desirable age distribution.

A stand on one side of a stream, river, slough, or lagoon should not be regenerated unless the opposite stand is of mast-bearing age.

Stand size and distribution patterns are not critical in oak-pine, longleaf-slash, or oak-hickory groups except as the age-class pattern affects stream edges, pond margins, and similar areas.



Strive to develop a balance of age classes in water-edge stands.

▲ Rotation

Because older bottomland oaks, baldcypress, beech, and sweetgum produce higher mast yields and supply more usable nest cavities, a rotation of not less than 100 years is recommended for oak-gum-cypress stands. Stands of oak-pine or oak-hickory fronting water should be retained until age 80.

▲ Regeneration

Shelterwood cuts and two-aged harvesting regimes are recommended for regeneration.

Light scarification or discing of seed beds in late summer just prior to a good seed fall in stands programmed for harvest cutting improves the catch of bottomland oaks.

Always exclude cattle from bottomland hardwood types to protect advance oak regeneration.

Retain all recognized nest cavity trees within 1/8 mile of brood habitat or waterways leading to brood habitat.

Use hand methods or mechanical site preparation to retain species variety and to favor hardwood sprouting along water's edge. Exclude fire and herbicides.

Retain all oaks, regardless of size, if overhanging water.

▲ *Intermediate Treatments*

Thin intermediate stands early and frequently for rapid crown development and heavy mast crops at an early age. Significant mast yields begin at age 20-25 years.

When thinning stands older than age 30, favor stems which show positive indications of bearing fruit or of past production.

Favor a 50 percent+ stocking of oaks in oak types. In the Piedmont favor white, northern and southern red oaks on points and low ridges jutting into elm-ash-maple bottoms. Do not poison grape vines.

Retain and recruit trees with active and potential nest cavities suitable for wood ducks.

▲ *Prescribed Burning*

Exclude fire from oak, oak-gum-cypress and oak-pine types and inclusions bordering streams, ponds and marshes.

DIRECT IMPROVEMENTS TO HABITAT

The following management options represent appropriate methods for encouraging and maintaining suitable wood duck habitat. However, caution should be exercised whenever manipulating wetland areas to avoid destruction of fragile habitat or violation of wetland protection laws.

1. **Plantings:** Plant Japanese millet or smartweed for waterfowl food in years when a general mast failure is forecast. Millet seed may be broadcast on wet, dewatered openings in June or July. Seed millet at the rate of 20 pounds per acre and flood the crop in October. Plant mast trees adjacent to wetlands or in areas that can be temporarily flooded. Leave small areas of cropland near wetlands and open water unharvested.
2. **Water Manipulation/Management:** Use greentree reservoirs to control fall and winter water levels on oak flats for the purpose of attracting ducks for hunting or over-wintering. Properly installed, flooded and dewatered, greentree reservoirs not only provide food for ducks and other wildlife, but increase mast yields, the percentage yield of sound acorns and increase timber growth. Shallow impoundments for wood duck brood-rearing are most successful when standing timber is flooded. Such impoundments should exceed 10 acres in size. Flood the black willow, ash-elm-maple, sweetbay-tupelo-maple or other low value brushy types.

3. **Nest Cavity Trees:** Retain all recognized trees containing or probably containing wood duck nest cavities within 5 chains of brood habitat.
4. **Secluded Ponds and Marshes:** Protect these areas from invasion by recreation developments, drainage projects, roads and boating traffic.
5. **Beaver Ponds:** Beaver ponds provide excellent feeding, breeding, brood-rearing and resting habitat. Evaluate all proposed beaver control projects in light of their contribution to wood duck habitat and protect beaver ponds when possible.
6. **Wood Duck Nest Boxes:** Erect wood duck nest boxes where the lack of natural nesting cavities limit full use of suitable broodrearing habitat. Wood duck nesting boxes **MUST NOT** be used unless predator-proof against raccoons and snakes or when proper care and maintenance is not assured. Box densities should not exceed 1 per 2 acres of broodrearing habitat to avoid "density strife" associated with high densities of artificial cavities.

OTHER SPECIES THAT BENEFIT FROM WOOD DUCK MANAGEMENT

Numerous other game and nongame species with habitat requirements similar to wood ducks benefit from wood duck management. Wood duck associates that will also benefit from the management practices outlined above include:

mallard	black duck
kingfisher	red-headed woodpecker
great blue heron	muskrat
beaver	yellow-rumped warbler
swamp sparrow	screech owl
prothonotary warbler	pileated woodpecker
hooded merganser	bullfrog
painted turtle	red-bellied water snake



The South Carolina Department of Natural Resources prohibits discrimination on the basis of race, sex, color, national origin, religion, disability or age. Direct all inquiries to the Office of Human Resources, P.O. Box 167, Columbia, S.C. 29202.