

WILDLIFE

management guide



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Snags and Downed Logs

Resource managers are becoming more aware of the importance of snags and rotting downed logs as wildlife habitat. A snag is a standing dead or dying tree, and a downed log is a log that is lying on or near the forest floor.

Shorter rotations, firewood removal, timber stand improvement, and insect and disease control efforts have limited these important habitat components in many intensively managed forests. Knowledge of the needs of animals that use snags and downed logs can focus wildlife recommendations in management plans.

Tree mortality is a natural occurrence in forests, so snags are a normal part of a mature forest. Trees can be killed by lightning, storm breakage, fire, disease, insects, and a variety of other factors. As a snag decays it eventually falls to the forest floor, where it becomes a downed log. Windthrow can bypass the snag stage and create downed logs directly from live trees.

WHY ARE SNAGS AND DOWNED LOGS IMPORTANT?

Many wildlife species use snags and downed logs for nesting, roosting, foraging, perching, or territorial displays. Some of the species that use snags and downed logs are game animals, others are insectivorous birds that help control forest pests, and all are important components of our forests. Below are some of the animals in South Carolina that use snags or downed logs:

▲ Snag Users

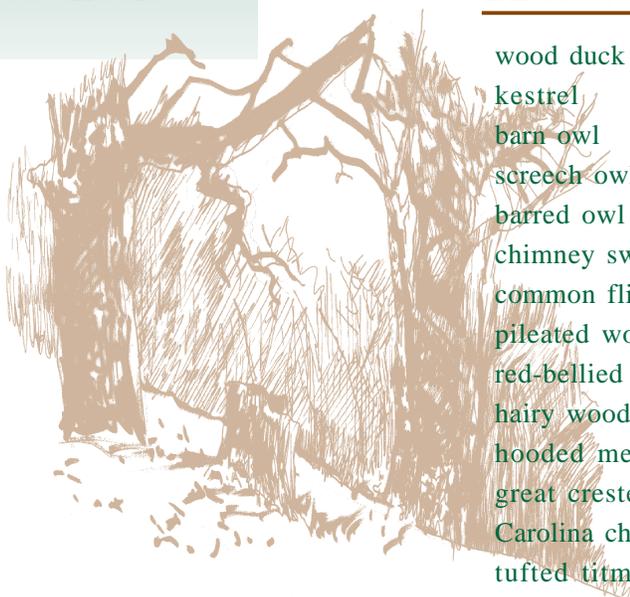
Birds

wood duck
kestrel
barn owl
screech owl
barred owl
chimney swift
common flicker
pileated woodpecker
red-bellied woodpecker
hairy woodpecker
hooded merganser
great crested flycatcher
Carolina chickadee
tufted titmouse

white-breasted
nuthatch
brown-headed
nuthatch
house wren
Carolina wren
Eastern bluebird
prothonotary warbler
downy woodpecker
red-headed
woodpecker

Mammals

opossum
little brown bat
Indiana bat
big brown bat
evening bat
big-eared bat
silver-haired bat
gray squirrel
fox squirrel
red squirrel
flying squirrel
black bear
raccoon
bobcat



▲ *Downed Log Users*

Birds

ruffed grouse
winter wren*
Carolina wren*
pileated woodpecker

**Especially upturned root systems. Various species will forage in debris provided by downed logs and limbs (e.g. thrashers, catbirds, sparrows, towhees).*

Mammals

masked shrew
southeastern shrew
smoky shrew
short-tailed shrew
least shrew
star-nosed mole
chipmunk
deer mouse
white-footed mouse
cotton mouse
red-backed vole
gray fox
black bear
long-tailed weasel
mink
river otter
bobcat

Amphibians/Reptiles

marbled salamander
southern dusky salamander
dwarf salamander
slimy salamander
Jordan's salamander
bullfrog
river cooter
painted turtle
yellowbelly slider
box turtle
Carolina anole
eastern fence lizard
five-lined skink
southeastern five-lined skink
broadhead skink
black racer
ringneck snake
black rat snake
eastern king snake
pine woods snake
copperhead
timber rattlesnake

STANDARD MANAGEMENT PRACTICES

A continuous supply of snags and downed logs must be maintained to sustain populations of animals that use these resources. It is important to provide snags of various sizes. Generally, large snags (>10 inch DBH) are more valuable than small snags because they can be used by a wider variety of species. Some species, such as black bear, require very large snags. Small clumps of snags scattered over the landscape are generally best because they provide both nesting and foraging sites in one convenient location. A large group of snags usually is not used by more than one pair of the same species because of territoriality, and single snags scattered over the landscape may not provide enough nesting and foraging habitat for some species.

▲ *Rotation*

Schedule part of each management unit for a rotation of 80-100 years or more to provide large diameter snags. Rotations on the remaining portions should be long enough to allow trees to reach sawtimber size.



▲ *Regeneration*

Large blocks of land can be managed by even-aged systems, provided the blocks are area-regulated to ensure that a constant proportion of the land is in mature sawtimber at all times. For smaller parcels where area regulation is impractical, use uneven-aged systems. During regeneration cuts, leave existing snags and some cull trees to provide future snags. Good candidates for future snags are trees with fungal conks, dead branch stubs or large sections of dead wood, discolored or soft increment corings, and existing cavities. Where possible, leave small clumps of snags and potential snags scattered evenly over the landscape rather than leaving single snags or large groups of snags. Do not chop or burn slash during site preparation; it makes good downed logs.

▲ Intermediate Treatments

- Retain snags and some cull trees during timber stand improvement operations. Kill cull trees and leave them standing rather than removing them.
- In areas where there are few natural snags, “recruit” new snags. The best way to recruit snags is to cut the tops off of trees so that they die slowly and decay from the inside out. Where this is impractical, snags can be recruited by girdling or injecting trees with herbicides. These methods are less effective since the snags tend to rot from the outside in and often fall down quickly. When recruiting snags, choose hard (hardwood) and soft (conifer) trees across a variety of diameters, but favor large trees over small ones. Recruit snags a few at a time over the entire course of the rotation rather than all at once. One rule of thumb suggests providing at least three hard snags and two soft snags per acre throughout the rotation.
- Refrain from prescribed burning near snags unless necessary for other management practices. When prescribed burning is used, rake or disc around snags and keep small areas within each stand unburned to protect downed logs.

- Erect nest boxes in areas where snag management is not feasible (e.g. pole-sized stands, intensively managed tracts). For greatest success:

- Know the specific nesting habitat requirements for target species. Place boxes in optimal locations (see table below).
- Construct nest boxes according to recommended entrance sizes and dimensions with durable, non-toxic materials (cypress is a good choice).
- Use predator guards as recommended.
- Provide adequate ventilation and drainage holes.
- Maintain and service boxes at least once a year.
- Firmly attach nest boxes to posts, trees, or buildings. For live trees, use crimped wires or lag bolts that can be loosened as the tree grows.



Keep in mind that a nest box is a poor substitute for the real thing (most woodpeckers will not use them).

Nest Box Requirements for Selected Cavity Nesting Birds

Species	Hole Diameter	Length	Width	Height	Height Above Ground	Habitat
Screech Owl	4"	8"	8"	12"	10-30'	open forest, edges
Common Flicker	2 3/4"	7"	7"	16"	6-20'	open forest, edges
Great Crested Flycatcher	2"	6"	6"	10"	6-20'	forest interior
Eastern Bluebird	1 1/2"	5"	5"	8"	5-10'	fields, very open woods
Tufted Titmouse	1 1/4"	4"	4"	10"	6-20'	wide variety of wooded areas
Carolina Chickadee	1 1/4"	4"	4"	10"	6-20'	wide variety of wooded areas



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