6.2 CAVITY TREES, DENS AND SNAGS

BACKGROUND

Retaining snags (dead or partially dead standing trees) and den trees (live trees with existing cavities) helps maintain populations of wildlife that require cavities.

Ten species of New Hampshire forest birds excavate cavities for nesting and roosting. Another 15 birds and 18 mammals use natural or excavated cavities in forests for nesting, roosting, or denning. In addition, the brown creeper nests under loose flaps of bark, attached at the top, on standing dead trees. Meeting the needs of these many different species requires a variety of cavity-tree sizes (Table 1). While cavity trees of any size have value for smaller-bodied wildlife such as the black-capped chickadee and tufted titmouse, trees larger than 18 inches in diameter at breast height (DBH) accommodate larger-bodied animals and are used by more species. Due to past agricultural and timber harvesting practices, cavity trees larger than 24 inches in diameter are uncommon.

OBJECTIVE

Maintain cavity and den trees, particularly trees with diameters exceeding 18 inches.

CONSIDERATIONS

- U.S. Occupational Safety and Health Administration (OSHA) regulations regarding the removal of dangerous trees may conflict with recommendations in this section. OSHA requires the removal of all snags (i.e., standing dead or dying trees) by mechanical or other means. If the tree is to be left standing, it must be marked, and no work can occur within two tree lengths of the tree, unless the employer demonstrates a shorter distance won't create a hazard for an employee.
- Cavity trees account for a very small percentage (less than 10 percent) of the standing tree in most forests.
- Broken large limbs in hardwood crowns provide smaller-diameter cavities over time. These cavities are often difficult to spot from the ground.
- Sawtimber and large-sawtimber snags remain standing longer than pole-size snags.
- Snags provide various substrates on which woodpeckers and other bark gleaners forage for insects. Snags also grow lichens, mosses, liverworts and fungi upon which many small mammals forage.
- Riparian zones, roadside buffers, scenic areas, and uncut patches contribute to snag-retention goals for an ownership.
- Snags and cavity trees are created in forest stands of all ages when natural disturbances such as wind and ice break tree branches or damage entire trees. Unmanaged forest stands or those managed on a rotation long enough to allow some trees to mature and die of natural causes often contain a greater proportion of snags and cavity trees than younger stands, and are more likely to contain large diameter (18+ inches) trees.
- Even distribution of snags may be desirable for some species, but there are many benefits to encouraging clumps of snags. Uniformity isn't always operationally practical or desirable.
- Landowners interested in retaining and recruiting snags and cavity trees greater than 24 inches in diameter may have to make an intentional effort to leave some trees uncut during a timber harvest. On smaller ownerships it may be necessary to manage snags on an acre-by-acre basis. On larger landholdings, it's usually more practical to take an approach that incorporates the broader surrounding landscape, emphasizing snag retention on some areas, while not on other areas.

RECOMMENDED PRACTICES

- ✓ In areas under uneven-aged management:
  - Retain a minimum of six live cavity trees and/or snag trees per acre, with one exceeding 18-inches DBH and three exceeding 12-inches DBH.
  - When lacking such cavity trees, retain live trees of these diameters with defects likely to lead to cavity formation.
- ✓ In areas under even-aged management:
  - Leave an uncut patch for every 10 acres harvested, with patches totaling 5 percent of the area. Patch size may vary from a minimum of one-quarter acre. Riparian zones and other buffers can help satisfy this goal.
  - Focus retention patches with the following trees as their nuclei:
    - Existing cavity trees exceeding 18-inches DBH or active den trees.
    - Broken-topped live trees exceeding 12-inches DBH.
    - Secure standing dead trees, especially those with top-attached bark flaps.
    - Living, large aspen and white pine, red spruce, eastern hemlock, sugar maple, beech, yellow birch, elm and oaks. Except for aspen, these trees will persist for long periods as standing dead trees.
  - ✓ Retain large-diameter snags.
  - ✓ Retain live trees with existing cavities.
  - ✓ Include the species, diameter and condition (e.g. living or dead) of snags and cavity trees as part of a forest inventory.

CROSS REFERENCES

2.2 Forest Structure; 4.2 Wetlands; 4.3 Forest Management in Riparian Areas; 6.1 Mast; 6.3 Dead and Down Woody Material; 6.4 Overstory Inclusions.

ADDITIONAL INFORMATION

Elliott, C.A. 1988. A *Forester's Guide to Managing Wildlife Habitats in Maine*. University of Maine Cooperative Extension, Orono, Maine.

USDL Occupational Safety and Health Administration. http://www.osha.gov/SLTC/etools/logging/userguide/safety_health/treeharvestingplan/treeharvestingplan.html Accessed February 22, 2010.

Table 1:
Minimum Tree Diameters for Cavity-Using Species

6- 8"
Downy woodpecker*
Black-capped chickadee*
Boreal chickadee*
Tufted titmouse
House wren
Winter wren
Eastern bluebird
6-12"
Northern saw-whet owl
Hairy woodpecker*
Yellow-bellied sapsucker*
Red-breasted nuthatch*
White-breasted nuthatch
Brown creeper
Chimney swift
Southern flying squirrel
Northern flying squirrel
Ermine
12-18"
Eastern screech-owl
Three-toed woodpecker*
Black-backed woodpecker*
Northern flicker*
Great crested flycatcher
Northern long-eared bat
Indiana myotis
> 18"
Wood duck
Common goldeneye
Hooded merganser
Common merganser
Turkey vulture
Barred owl
Pileated woodpecker*
Silver-haired bat
Gray squirrel
Red squirrel
Porcupine
American marten (pine marten)
Fisher
Long-tailed weasel
> 24"
Little brown bat
Big brown bat
Gray fox
Black bear
Raccoon

** = primary cavity excavators*