Snag and Den Tree Habitats for Wildlife

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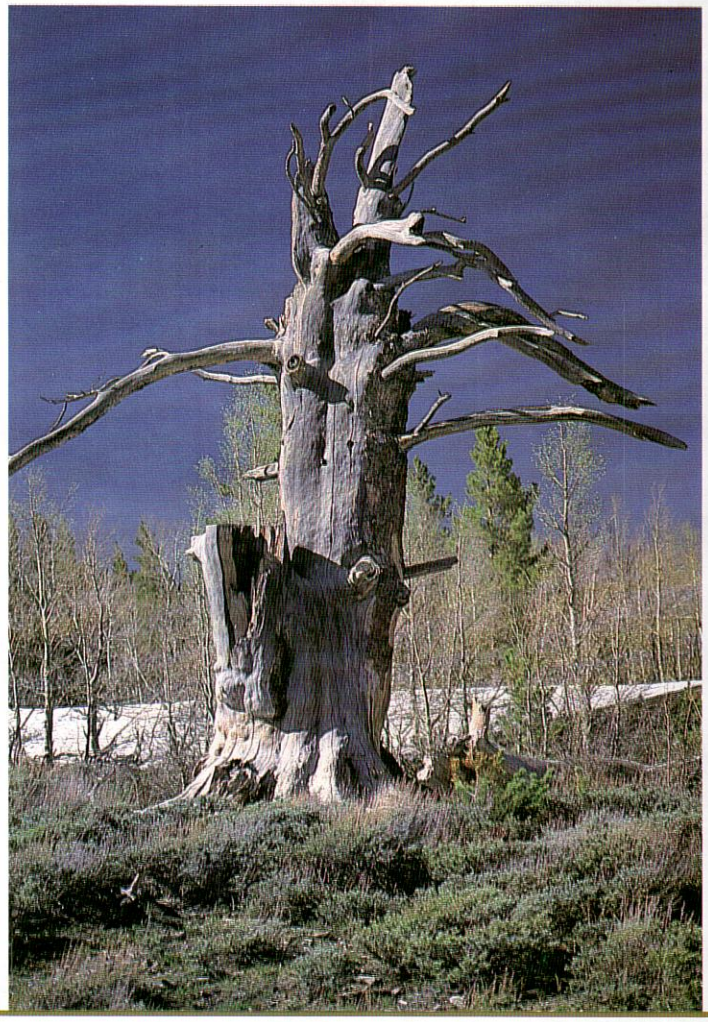
The term "snag" is used to describe a standing dead tree. While snags may appear to be valueless, they are actually quite important for the survival of many wildlife species. Living trees with a natural or man-made cavity in the trunk or limb(s) are called den trees. Whether you own a ranch with a large number of snags or den trees on your property or live in a suburban environment where snag and den tree numbers are limited, these unique and valuable wildlife habitats should be preserved.

Snags can provide part, or in some cases, all of the habitat requirements for a variety of invertebrate, avian, and mammalian wildlife. In fact, a number of wildlife species are "snag- dependent." They require snags for food, shelter, nesting habitat, or a combination of all three. If snags are limited or absent, snag-dependent species will be also.

Depending on the type of habitat surrounding the snag, bird species such as mountain bluebirds, flickers, nuthatches, and woodpeckers will use the snag for cavity nesting and as a source of food. Kestrels will nest in cavities constructed by other species, and wild turkeys utilize snags for roosting sites. The red-tailed hawk, great gray owl, and bald eagle hunt from and often nest in the top of large snags. Mammal species like the flying squirrel and pine marten use snags for shelter, while bats roost under the loose bark of some snags. Other wildlife uses of snags include food caching, perching, and ritualistic mating behaviors.

Pine snag (with woodpecker holes)



Types of Snags

There are two varieties of snags, hard and soft. Hard snags are trees that have recently died, and are normally composed of solid wood. Very few bird species and no mammal species can successfully excavate a cavity in a hard snag. Yet this type of snag is important for a number of reasons. Hard snags provide perching and roosting sites for a number of bird species as well as a source of food in the form of insects that invade the dead tree. Insects seek shelter under the large patches of bark commonly found on hard snags, and bird and mammal species will explore these patches in search of insects. The crevices formed between the heartwood of the snag and the bark provide roosting sites for many birds and mammals. Hard snags will eventually deteriorate to soft snags and continue

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to provide values for wildlife.

Soft snags are trees that have been dead for a longer time period, comprised of wood in an advanced stage of decay. These snags can be a rich food source for wildlife and are utilized by a number of bird species for constructing nesting cavities. Other wildlife uses of soft snags include perching and roosting.

The cavity nesting species of wildlife which utilize snags for nest establishment can be divided into two broad categories, primary excavators and secondary cavity users. Primary excavators include woodpeckers and other bird species which actually excavate cavities. Secondary cavity users are incapable of excavating their own cavities and must seek out natural cavities or those made by primary cavity users. These species include black-capped chickadees, kestrels, screech owls, and raccoons.

certain height for nesting. Studies indicate that most cavity nesting birds require a minimum height to excavate a nesting cavity. Snags that fail to meet this height requirement will not be used for nesting purposes by these species. Snags too small in diameter will also be ignored by larger cavity nesting birds. Ideally, snags should be at least six feet high, and six inches DBH (Diameter at Breast Height), to meet the requirements of both small and large cavity nesting birds.

The number of snags in an area is also critical. Some minimum guidelines include: over one acre of forested land, provide one snag larger than 20 inches DBH, four snags between ten and 20 inches DBH, and two snags between six and ten inches DBH. The 20-inch DBH tree is particularly important for use by the greatest number of wildlife species. If 20-inch DBH trees are in short supply, attempt to substitute as large a tree as possible. This variety of snag

Snag Tree Management Guidelines

In terms of wildlife requirements, the size and height of snags can be critical. Smaller species of birds will utilize shorter, less stout snags, while many larger bird species require snags of a

sizes will insure that food and nesting requirements will be satisfied for a larger number of bird and mammal species. Remember that many cavity nesting birds are territorial and will not allow other members of their species to nest or

feed in close proximity to their own nesting or feeding territory. If potential snag trees are in short supply, they should be spread over as wide an area as possible to provide a greater number of nesting and feeding territories.

However, if snags are abundant, competition for these sites will be reduced. Small groupings of snags can be created to benefit a variety of wildlife species. While bird and mammal species may exclude other individuals from these clumped snag habitats, a number of different bird and mammal species can live in harmony in clumped snags.

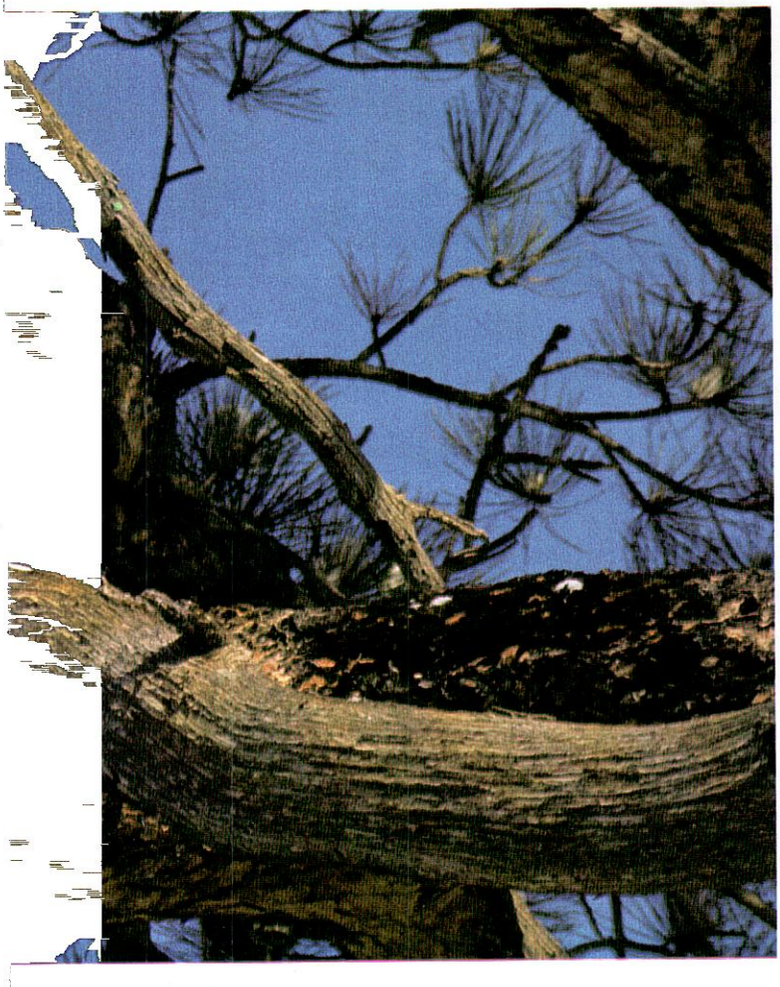
Preserving Snags

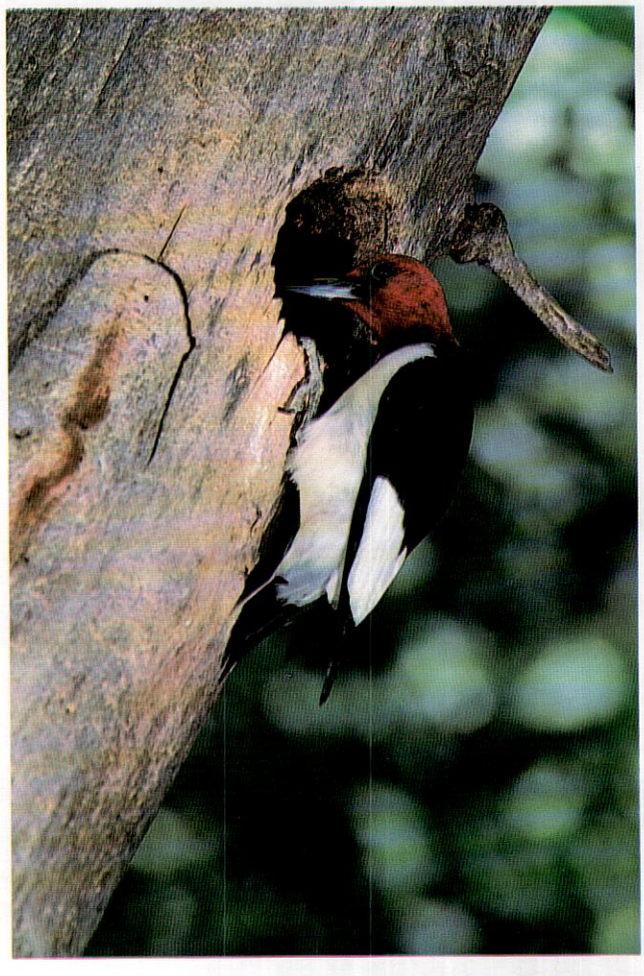
Where snags currently exist, they should be maintained. Although described earlier as "hard" or "soft," snags actually undergo many successional stages between the death of the tree and its final collapse to the ground. Each of these successional stages in the "life span" of the snag provides unique benefits to certain wildlife species. Therefore, it is ideal to have several snags of varying ages in the same locale. A variety of wildlife needs will be satisfied by promoting multi-aged snag groups, producing a greater number and diversity of wildlife species in the area.

Creating Snags

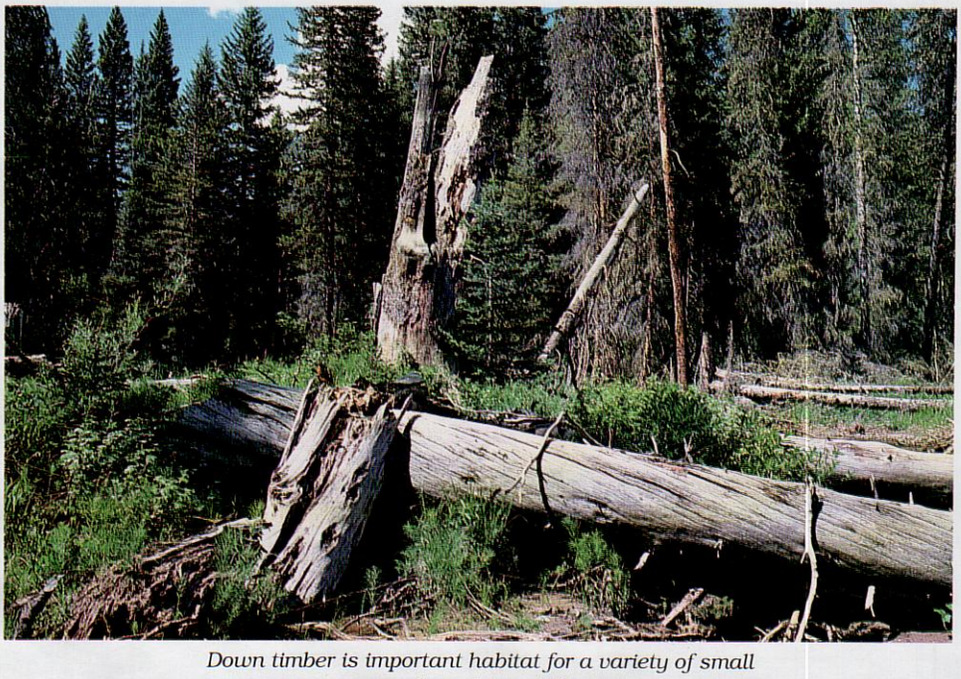
If snags are in short supply, and live trees are abundant, snags can be created by "girdling" select trees with an ax or chain saw. The tree(s) will soon die and become snag habitat. Studies indicate that wildlife species prefer certain tree species as snag habitat. Preferred deciduous tree species (those which lose their leaves each fall) include aspen, cottonwood, and willow. Preferred coniferous species include pine and fir trees. If possible, these preferred tree species should be selected when creating snag habitat(s).

Snags should not be created randomly, but should be developed in areas where they are currently absent. If possible, created snags should be associated with a stand of shorter trees within 100 yards of an opening. If you are





Excavators like this red-headed woodpecker open cavities in dead trees that serve as nurseries for dozens of other wildlife species.
(left) Standing snags and hollow logs furnish welcome shelter for bobcats.



Down timber is important habitat for a variety of small mammals and invertebrates.

fortunate enough to have a large number of trees on your property, snag location(s) can be planned and optimum sites selected. If forested habitats are not a major part of your land base, the location and densities of snags will be determined by the number of existing potential snag trees on your land.

If creating snags is not an option, the landowner can develop artificial nesting cavities by constructing and erecting nest boxes in existing trees or on posts. Nest boxes placed in appropriate locations will be used by cavity nesting birds and mammals alike. The drawbacks to this management option include the cost of materials, time spent in construction and placement of boxes, and the fact that only one of the wildlife needs provided by natural snags is met. However, this management option is useful where snags are limited or in the process of being established.

In areas where snags are not desired for safety reasons, one option remains in lieu of total removal. The snag can be cut down six feet or higher up the trunk. This technique, known as "high stumping," provides a limited number of possible nesting cavity sites, as well as feeding sites for a number of snag-dependent bird and mammal species. Woodpeckers are especially known for their willingness to feed on these shorter structures.

Den Tree Management Guidelines

The importance of den trees as critical wildlife habitats cannot be over-stressed. A wide variety of bird and mammal species utilize these natural cavities for shelter and nesting purposes. Since these natural tree cavities are a rare occurrence, den trees are extremely valuable to wildlife and should be protected.

Guidelines for the number of den trees in an area are identical to snag requirements. Where den trees are at a premium, new ones can be created by wounding selected living trees. Large limbs should be cut, leaving a six-inch long stump extending from the tree trunk. This open wound will encourage fungal growth, eventually creating a cavity at the site.

Conclusion

Snag and den trees are critical habitats for a variety of wildlife species. Ideally, snag and den trees should be managed in various sizes, ages, and locations to provide optimum wildlife benefits. Protect existing snags and den trees and, if possible, create new ones. Wildlife in the area will benefit, while your enjoyment in watching wildlife use these unique habitats will be enhanced.

Written by Evin Oneale through the Wyoming Cooperative Fishery and Wildlife Research Unit.

This publication is one in a series of habitat extension bulletins produced by the Wyoming Game and Fish Department. Call 1-800-842-1934 for additional information or assistance.