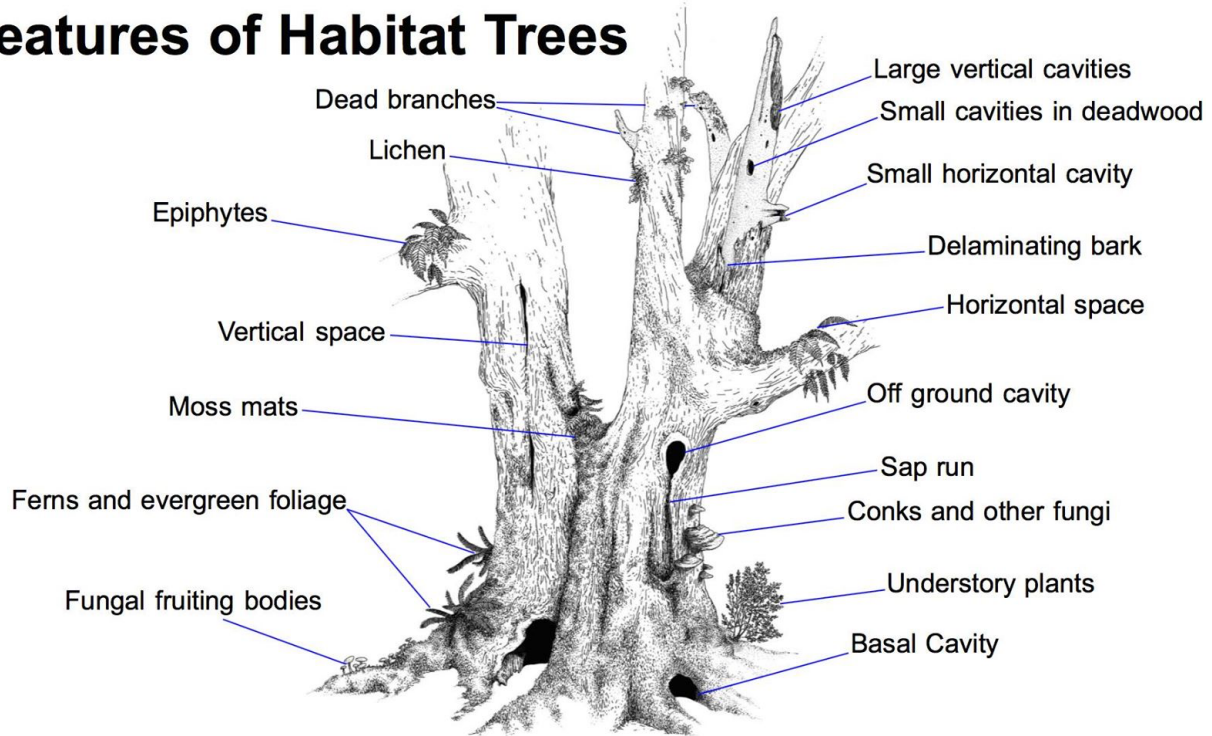


## What tree makes a good snag in the urban landscape?

### Features of Habitat Trees



*Illustration by Brian French. ArboricultureInternational.org*

Many arborists have heard that standing dead trees are important wildlife habitat and can be considered in low occupancy urban areas. Because there are so few snags in most urban areas, and because dead trees are commonly used by wildlife for a variety of purposes, any dead tree will probably offer some benefit. Converting a dead tree into a habitat tree can be a complex task so we acknowledge at the start that this guidance oversimplifies the selection process. Here are ten considerations:

#### Size

The larger the tree (both in diameter and height) the more likely it is to provide diverse habitat features that benefit a greater number of wildlife. Wildlife nest at different heights and require different size cavities, depending on their biology. A thick trunked, tall snag, and one with at least a few medium size limbs offers more opportunities for wildlife than a short snag with a narrow trunk and no limbs. Consider identifying large trees and leaving the entire crown or cutting the tree to the maximum height that your site allows. Be slow, however, to rule out trees that may be less than ideal in size since a smaller standing dead tree, even relatively short broken stumps, can benefit some wildlife.

#### Existing woodpecker cavities

North America woodpeckers excavate cavities mostly during the nesting season and usually in dead trees or live trees with internal decay. If sufficient snags exist, they may have multiple cavities in the vicinity. Cavities are often on the underside of a leaning tree or limb. Though cavities are used for nesting, others may be used for roosting all year. (Only a few species of woodpeckers re-use nesting cavities). A new cavity may be created in the same tree the following year if snags are in short supply. The wood around

the entrance hole of more recently excavated cavities is likely lighter in color than that of older cavities. About 77% of cavities used by secondary cavity nesters such as small owls, chickadees, and bluebirds are those made and abandoned by woodpeckers (Daily et al 1993). The highest value tree to preserve as a snag is probably a tree with existing woodpecker cavities (or natural cavities) that can be used by avian and small mammalian tree-hole dwellers.

### **Tree species for woodpeckers**

Whether a woodpecker selects a hardwood or coniferous tree for its cavity varies widely by region. The preferred species of tree varies among woodpeckers. Trees in their locally preferred habitats determine their selections. Woodpeckers are opportunistic. In some regions they may use palms and non-native species if the broader site conditions and resources meet their needs. In desert regions of the west, dead Agave and Yucca stalks and saguaro cacti are used.

### **Degree of decay**

It is sometimes difficult for arborists to think about decay as a valuable resource, but decayed trees are valuable wildlife habitat in all successional stages. Woodpeckers choose decayed trees to build nests more often than sound wood. Most woodpeckers prefer trees with strong sapwood and decayed heartwood. They prefer the added protection and have unique adaptations for the job of excavation. Weaker excavators like the red-breasted nuthatch may use soft snags which are heavily decayed and have little or no bark. These snags offer less protection but are obviously easier to excavate. Soft snags may be more likely to fail than hard snags and should be managed accordingly.

### **The tree's standing-life expectancy**

Standing dead trees develop more complexity over time. Trees that already have cavities, decay, and separating bark speed up that process. Trees in early stages of decay don't have many of these features, but almost every tree has the ability to develop them if given enough time. It is OK to preserve a snag for a couple of years or a few months, but when it is possible to preserve a snag for years or decades, that snag has the potential to benefit a greater number of species and consequently enhance the diversity and health of the urban forest.

### **Separating bark and limbs**

After a tree dies, the wood and bark dry out at different rates and separate from one another. This can happen slowly or rapidly, but the space created during this process can be important habitat. Bats and brown creepers roost and nest in this bark flange area. Wrens and the Lucy's warbler may nest where a limb splits from the trunk if some protective bark remains as cover over the space where the separation occurs. Over time, bark will fall off completely, but this can be a valuable wildlife habitat feature for years after a tree dies. When stress cracks are present in snags these may provide similar benefits, as well as places for thermoregulation.

### **The site**

While snags are likely valuable in diverse locations, they are probably easier to preserve and more likely to attract wildlife in relatively wild areas and in habitats with many mature trees and diverse vegetation. Those near bodies of water are particularly beneficial. Almost all wildlife spend more time near water. Snags adjacent to those locations provide ready access to insect prey that emerge from water, or other

prey that live in or adjacent to water bodies. Many of our riparian areas already have many snags. Seven species of ducks are cavity nesters. They nest in large cavities, either those that formed naturally or were made by the forest and woodland-dwelling pileated woodpecker. These nests are always near water and need to have a soft-landing spot for the immature ducks to jump clumsily out of the nest for the first time.

Snags at habitat edges and within hedgerows are also particularly beneficial. Those buffered by mature, living trees are protected from wind. Additionally, their cavities are shielded from high temperatures, and the trees provide cover for fledglings as they leave the nest. Low occupancy areas in a public park, such as at perimeters and locations away from walking paths, may be a more successful place to start experimenting with snags. Keep your site in mind as you manage the risk of the snag and consider its expected longevity and opportunities to wildlife.

### **No other snags**

When managing landscapes we may draw firm conclusions about what is and is not a wildlife area. Birds visit and use our urban forest broadly and limiting the areas that we provide wildlife habitat snags can be a mistake. Though the presence of several snags in various stages of decay within a high habitat area is ideal, it may be more beneficial to seek a good snag opportunity in a suitable area that has few or no standing dead trees.

### **Removal plan**

Identify trees that can be safely removed when needed. Snags can be cut to a height so they can fall on their own with minimal damage, but other options exist. Snags can be preserved in areas with targets if they are monitored and a removal plan has been developed that does not involve an arborist climbing a structurally unstable dead tree.

### **Specific opportunities**

Sometimes the best tree to turn into a snag is the tree that already requires management and allows a wildlife habitat snag to be made in the process. Other options include:

- Tree risk management where removal of the upper crown adequately mitigates the risk.
- Invasive species management where killing the tree will limit the spread but habitat can remain.
- Overly dense canopy areas where crown removal accomplishes management goals.
- Trees that need to be managed aggressively and regularly for utility line clearance and are in locations where aesthetics is not an objective and fire risk is low.
- Trees on spacious residential property where human presence is low, owners can regularly monitor the tree's condition, and can accept a slightly higher level of risk.

There is no easy answer to what tree makes a good snag and which will best attract wildlife. The practice of snag retention in urban areas is relatively uncommon and is often a matter of experimentation. We hope this guidance can be helpful in balancing wildlife habitat against tree risk when making decisions about the trees in your community.