

# Pileated Woodpecker Cavities

## *Master builders of the forest*



New homes are being built! Single family dwelling, one square foot, some with multiple entrances for security, hardwood floors and walls, high ceilings, mature neighbourhood and scenic views!

This builder is busily working on his new home. He is perched high on the trunk of a leafy tree, efficiently chiseling away wood with his stout, sharp bill. His new home is a cavity chipped out of a tall, thick trembling aspen. You can see only his tail sticking out of the fist sized opening as he hammers away inside. Below, at the base of the tree, fresh woodchips are scattered that the builder has thrown out by the beakfull. Soon the female will arrive to spell off her mate and take her turn.

This master builder and his mate are pileated woodpeckers. Pileated woodpeckers are loud, conspicuous birds, widely distributed across the Boreal forests of Canada and south into the United States. It is their role as a *keystone species*—meaning these birds have an ecological impact greater than expected, that brings pileated woodpeckers out of their forest habitat and into the spotlight. This impact is demonstrated by the dependence other species have on pileated woodpecker cavities for survival. It is for this reason pileated woodpeckers are of special interest.



Pileated woodpeckers are identified by a black body, a large red crest and white facial stripes. The red "moustache" displayed by this male pileated woodpecker distinguishes males from females, who have black moustaches.

## *Exclusive neighbourhood development*



A tree with three cavities excavated by pileated woodpeckers.

Pileated woodpeckers maintain exclusive neighbourhoods that exclude other pileated woodpeckers. Although pileated woodpeckers may nest in trees riddled with cavities like a mini apartment block, and share the nest cavity tree with certain other species, they will not share their cavity tree with other pileated woodpeckers. That is because pileated woodpeckers are territorial and actively defend their food sources and cavity trees year round from other pileated woodpeckers. In the Foothills forests of Alberta, Canada, pileated woodpecker pair territories cover an average of 2,150 hectares. Territory size is likely related to the availability of food and large trees suitable for excavating cavities.

Pileated woodpeckers are highly adapted excavators and their skills are put to use for finding food and excavating cavities. Pileated woodpeckers are responsible for giving many wildlife cavity neighbourhoods their start.

The Foothills Model Forest pileated woodpecker study was initiated in 1993 to determine whether pileated woodpeckers might be adversely affected by timber management practices. The study followed 32 radio-tagged adult pileated woodpeckers over three years and data was collected on pileated woodpecker foraging ecology and cavity tree preferences. Pileated woodpeckers are not likely to become a species at risk in the forest community. However, the study recommended several important management steps to improve the quality of current and future pileated woodpecker habitat.

## Desirable cavity locations



A tall trembling aspen is home to a pileated woodpecker nest cavity.

Every year, pileated woodpecker pairs excavate a new nest cavity within their territory. They begin the search in March, scouting for a new location, and they have special preferences regarding where they want to live. The cavity tree must be large: tall and wide enough to accommodate a family of several chicks in a cavity 45 centimetres deep and 20 centimetres in diameter. Large trees are also preferred because they are less likely to break at the cavity location and because they are likely to exhibit stem decay that makes chiseling easier.

Although cushioned skulls, mighty neck muscles and sharp beaks equip them to excavate in solid wood, most pileated woodpeckers prefer trees that have been softened by fungal decay at the potential cavity site. The birds are attracted to trees with visible signs of internal decay. Hard growths shaped like a horse's hoof are called conks. They are the fruiting bodies of a fungus that decays the wood of the tree. Large dead branches, branch stubs, trunk cracks and swellings are likely decay indicators. These signs of decay are a trademark for pileated woodpecker neighbourhoods.

## Brand new or renovate?

A pileated woodpecker works its way up a tree trunk using its stiff tail feathers as a prop. It peers, pokes and prods near conks, scars and cracks. Then the woodpecker starts tapping the tree with its beak, listening for the hollow sound that indicates decay inside the tree. The pileated woodpecker may then chip away at the bark and underlying wood. If it isn't decayed to the woodpecker's liking, it may abandon the tree and fly in a sweeping, undulating fashion to another potential tree. Most new cavity starts are abandoned after only a few minutes of excavation because the tree is not judged as suitable. Often, pileated woodpeckers don't go too far from home and excavate new cavities in trees with old nest cavities. They may also complete an old, partially excavated and previously abandoned cavity and use it for nesting, perhaps because the rotten interior is now more suitable.



Stiff tail feathers give this male pileated woodpecker stability while excavating.

### Did you know....

The adult pileated woodpecker has a body mass that can range from 240 to 350 grams. This is equivalent to the mass of a box of Kraft Dinner or a can of pop.

## Front yard

Already picky about their neighbourhoods and new nest trees, pileated woodpeckers also have preferences for their front yards. Often the cavity is strategically placed so that the entrance faces forest openings. This makes it easier to detect predators such as the northern goshawk that likes to ambush pileated woodpeckers entering and leaving the nest. Unlike roosting cavities that may have multiple entrances giving the birds inside alternative exits if danger is near, nesting cavities usually have only one entrance.

## *Satisfaction in Alberta*

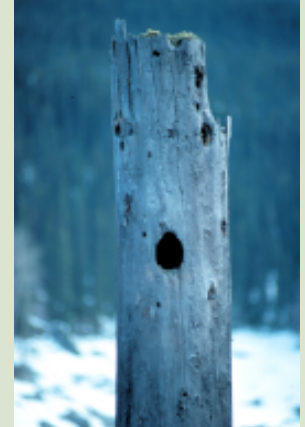
The particular preferences of the pileated woodpecker are well satisfied in Alberta's Foothills forests. Living and dead deciduous trees, especially trembling aspen, and dead conifers provide the size and decay characteristics that pileated woodpeckers prefer for cavity sites. Cavity trees are often selected in tall mixed forests and deciduous forests at low elevations.



Trembling aspen is a common species in Alberta's Foothills forests.

## *Four floorplans*

These avian master builders specialize in four floor plans that represent the various stages of cavity excavation: shelf, shallow, deep and hollow. A shelf cavity is a horizontal hole that has been abandoned. A shallow cavity does not descend deep enough below the entrance to be big enough for a nest. Shelf and shallow cavities may be revisited again in the future. A deep cavity is for nesting and is about 45 centimetres deep on average. A hollow is an entrance into either a natural hollow or one excavated by pileated woodpeckers over a period of years. Hollows also connect old nest cavities where the wood between them has rotted away.



A dead tree with a broken top is called a stub. This stub houses a hollow cavity.

Deep and hollow cavities often found in snags are preferred for resting and sleeping, called roosting. Pileated woodpeckers roost every night in a cavity for protection from predators and the elements. In Alberta, these trees are often aspen snags (dead trees) with multiple entrances.

## *Finished in six weeks*

It takes about six weeks for both members of a mated pair to complete one cavity. By the end, the ground is scattered with woodchips—enough to fill a 19 litre pail. Once the pair has moved in, they will tolerate good neighbours if the species using the other cavities in or near the nest tree are not too close to the nest cavity. Red squirrels, northern saw whet owls and boreal owls that approach the nest cavity don't make good neighbours and will be harassed and chased away!



A boreal owl peeks out from the shadows of an old pileated woodpecker cavity.

## *Durability*

Cavities are fairly sturdy as decayed wood is excavated from the center of the tree while living sapwood forms the walls. Cavities may last several decades. They are used again by pileated woodpeckers for roosting sites and by other cavity using species such as owls, certain ducks, bats and squirrels. However, strong winds can topple cavity trees or break the trunk at or below the cavity.

## *A new house every year*

A pileated woodpecker pair nests in their brand new cavity for only one season. Next year, as March approaches, these master builders will be scouting out new sites within their territory to build another new home.