Old, large, living trees must be left standing to protect nesting animals: study

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Old trees must be protected to save the homes of more than 1,000 different bird and mammal species who nest, says a new study from the University of British Columbia. Most animals can't carve out their own tree holes and rely on holes already formed. The study found that outside of North America, most animals nest in tree holes formed by damage and decay, a process that can take several centuries.

The study, published this month in the journal *Frontiers in Ecology and the Environment*, examined the holes birds and mammals were using for nesting around the world. The research team, led by Kathy Martin, a professor in the Faculty of Forestry at UBC, wanted to find out how the holes were created and which species were using them.

In forests, tree holes are created either quickly by woodpeckers or more slowly as trees age and begin to decay. Birds like owls, songbirds and parrots, and mammals like flying squirrels and opossums, make homes in the holes of trees because they offer safe environments for sleeping, reproduction and raising young. Insects, snakes and amphibians will also make use of tree cavities.

Martin and her research team found that on most continents – South America, Europe, Asia and Australia – more than 75 per cent of the holes used by birds and mammals were created by damage and decay.

"When wildlife depends on decay-formed cavities, they are relying on large living trees," says Martin, also a senior research scientist with

Environment Canada. "Most trees have to be more than 100 years old before decay cavities begin to form and often several centuries old before large cavities or many cavities develop in one tree."

In North America, the team found very different results - woodpeckers make up to 99 per cent of the cavities used by birds and mammals.

Worldwide, tree holes are in short supply and many efforts to protect the animals living in these holes have been focused on protecting woodpeckers because it was presumed that they make most of the holes.

"Most forest policies help protect younger trees but promote the harvest of older, larger, living trees -- the very trees needed by cavity-nesting animals," says Martin.

The researchers monitored 2,805 tree holes in Canada, Poland and Argentina between 1995 and 2010. They identified how the holes were formed and every year checked to see if they were still usable.

"Some of the tree cavities in Canada were used 17 times in 13 years by up to five different species," says Martin. "One tree cavity can sustain a lot of wildlife over its lifetime."

Martin and her research team found that although woodpeckers live in Argentina and Poland and make good quality holes, those formed from decay were used more extensively outside of North America because they last much longer.

In Argentina, woodpecker holes would last only about two years, while those made by decay could be used as homes for 25 years. In Poland, the differences were less dramatic: the woodpecker-formed holes survived for six years and decay-formed holes for 13 years. In Canada, where animals nest in woodpecker holes, all holes last the same length of time,

about 14 years after they are created.

"The value of these large living trees needs to be recognized and we need to ensure that a supply of these trees is retained especially in tropical forest systems where decay-formed tree holes last for many years and support a lot of wildlife."

Provided by University of British Columbia