

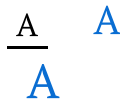
ENVIRONMENT CONSERVATION **WILDLIFE**

Could chainsaws fix our animal habitat problem?

By Joe Hinchliffe

19 May 2018 – 7:14pm

The plywood nest box is a familiar sight in woodlands, parks and backyards across Australia.



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Many thousands have been installed over the past decades as homes for birds, bats, marsupials and other native animals to replace hollows in old trees that have been chopped down.



Steve Griffiths from La Trobe University checks a tree hollow carved using a chainsaw in the Bundoora Wildlife Sanctuary.

Photo: Simon Schluter

But what if, under certain circumstances, those artificial homes do more harm than good? And what if the very tool used to fell forests – the chainsaw – could be the key to providing better shelter?

Those are some of the questions raised by a group of Melbourne researchers who have spent several years comparing naturally occurring tree hollows to their artificial replacements.

The team from La Trobe University, the University of Melbourne and the Arthur Rylah Institute [released a scientific paper last month comparing](#) natural tree hollows to nest boxes – as well as another artificial alternative: hollows carved directly into living trees with chainsaws.

Lead author Steve Griffiths said the paper was part of a growing body of research into chainsaw-hollows, but the first in the world to provide evidence that they make well-insulated homes.



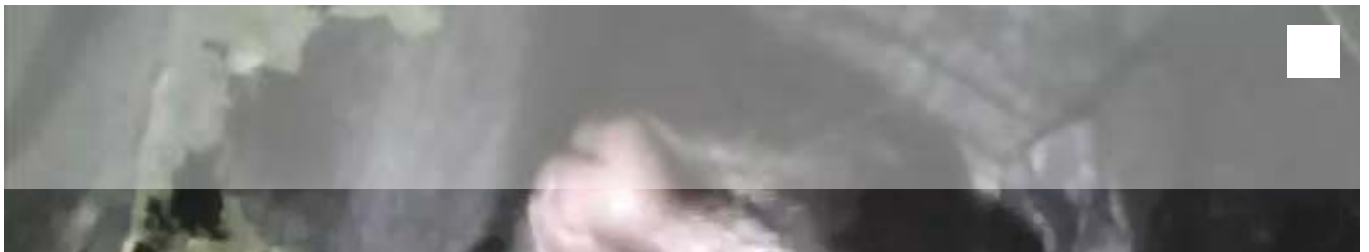
Steve Griffiths, with Nick Lyons from Treetec Arboriculture and Ecology, left, has carried out research which shows chainsaw hollows are more effective than nest boxes at protecting animals.

Photo: Simon Schluter

Which could not only make for healthier animals but, in times of extreme weather, be the difference between life and death.

“Natural tree hollows, as a general rule, are very well insulated,” Mr Griffiths said.

“So they are quite well buffered from large variations in day-to-day ambient temperatures – they provide relatively constant and stable microclimates.





A sugar glider sheltering inside one of the chainsaw hollows is captured by the researcher's digital burrow-scope camera.

Photo: Kristin Semmens

“In comparison, nest boxes often have very thin walls and they heat up and cool down a lot over a 24-hour cycle so, particularly in summer, you end up with nest boxes getting much hotter during the day than tree hollows and at night they often get much colder.”

The researchers found nest boxes could be both five degrees hotter and colder than tree hollows.

Co-author Pia Lentini, from the University of Melbourne School of Biosciences, was most concerned about how the animals and birds in the nest boxes reacted to heat waves and cold snaps.

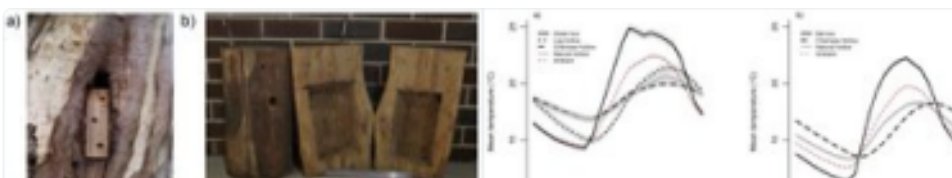
During periods of extreme heat, for example, nocturnal animals sleeping in hot nest boxes may become stressed and abandon their boxes in desperation, entering the bright light of day where they become easy prey.

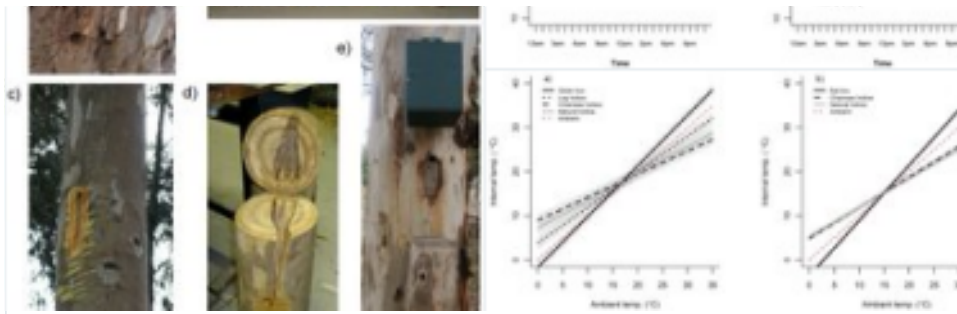
For newborn animals, the potentially fatal effects of extreme temperatures are even more immediate.

“We’ve got over 200 species in Australia that rely on tree hollows for shelter from predators and the elements – and these structures are only going to become more important as extreme weather events become more common,” Dr Lentini said.

“Microbats, marsupials like possums, gliders and antechinus, parrots and owls, use them and we are losing tree hollows really rapidly as old paddock trees die and are not replaced and habitat is cleared for urban expansion.

“Suddenly these animals have nowhere to live and, at the moment, it is not clear where they will go.”





Pia Lentini
@pelentini

Our new paper shows that "chainsaw hollows" cut into trees provide much more stable temperatures (similar to natural #hollows) for #bats and #gliders than nest boxes [mdpi.com/1999-4907/9/5/...](https://doi.org/10.3389/fpsyg.2018.00051) #openaccess #nestbox #batbox #offsets #treecavity @AusBats @hollowsashomes

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The problem is that tree hollows can take more than a century to develop naturally.

So the researchers looked at speeding up that process.

Over the past three years they carved dozens of hollows into regenerating sugar gums and hollowed-out logs in Bundoora and compared them to nest boxes and natural tree hollows in the area.

Their recently released paper was the first of several that will examine how their target species – sugar gliders and microbats – fare in the various types of homes.



A galah inspects one of the chainsaw hollows – but is too large fit through the 35mm entrance hole.

Photo: Kristin Semmens

When it came to temperature, they found the chainsaw hollows were comparable to natural hollows. That is, they were cooler during the day and warmer at night.

The difference between nest boxes and chainsaw hollows is analogous to the difference between a demountable house and a grand old home with thick, insulating walls.

That's because the living cells of a tree trunk form a thin layer just below the bark which carries water from roots to leaves – and it's thought this moving water may draw heat from tree hollows during the day.

Which also explains why the trees appear not to be harmed by the chainsaw hollows, carved as they are into the dead heart of the tree.

The Department of Environment, Land, Water and Planning [is currently trying to work out how many nest boxes have been installed across Victoria](#) and how effective they have been. Presently, though, no one knows how many boxes there are, how much they cost to install or how many volunteer hours have gone into their installation, monitoring and maintenance.

Those nest boxes could still play a role in the future of conservation – particularly in terms of monitoring and tracking animals, education and public outreach, according to Mr Griffiths.

“But they are not a silver bullet conservation tool,” he said.

The researchers hope their work will dispel the idea that the removal of hollow-bearing trees to make way for road expansions, new houses and other development can simply be “offset” with a few plywood animal homes.

“If you cut down an old tree in one spot it doesn't mean you can put up a couple of nest boxes and wipe your hands clean,” Dr Lentini said.

“You can't just whack up nest boxes and say that you've replaced the lost habitat, because you haven't.”

But while researchers hope chainsaw-carved hollows may one day replace plywood nest boxes, they stress that their model animal and bird homes were carved by skilled arborists.

In other words, do not try this at home.



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