

Habitat creation in trees for the New Zealand environment.

Hollows occur naturally in the old grove forests, mature exotics and native trees around New Zealand, and provide an opportunity to encourage biodiversity in our environments.

Natural hollows are a direct result of physiological stress to the tree, when the heartwood is exposed to the environment. This can be caused by environmental factors, fungi, bacteria, insects, natural canopy reduction and age.

Pruning for Biodiversity

Hollows for habitat creation can also be encouraged by human intervention. Pruning for biodiversity is commonly done in Europe, America and Australia and is called habitat pruning, eco-pruning or fracture pruning.

These types of pruning involve simulating natural break-outs in

the tree to leave natural-looking stumps and branch tear-outs.

The Oak below has been left in Auckland Domain and is a great example of how declining trees can be an asset in speeding up the senescence in a tree and encouraging decaying wood to harbour a bigger biodiversity.



Auckland Domain, Oak.



Natural hollow in a Kauri

FACTORS TO CONSIDER WHEN CREATING HABITATS:

- Various entrance hole and cavity sizes which will determine the different types of wildlife that might use them
- Protection from predators and pests
- Light minimisation for nocturnal wildlife
- Drainage
- Association with food crops
- Introduction of guano to encourage roosting sites
- Use of a vegetable oil as lubrication for your chainsaw bar
- Protection against prevailing wind and weather

TREES FOR HABITATS

Habitat Creation in Trunk Wood

By chainsawing into the heartwood, habitats can be customised for numerous wildlife species. Here is an example of habitats we created for the long-tailed bat in standing trunks. (This requires good chainsaw knowledge as many of the cuts use the tip of the bar and can promote dangerous kickback.)

LONG-TAILED BAT HABITAT:



1. Cut into the trunk horizontally with two cuts at the desired height. Bore cut the face plate out.



2. Bore into the wood and make the chosen number of chambers. Cut the chambers

into a fork-shaped pattern with the horizontal cut meeting the entrance hole (as shown in the picture). The entrance needs to be on a slope so it works as drainage. The size of the sloping entrance should be 17–21mm for long-tailed bats. Make sure



the chambers are smaller than the face plate so that the hollow will be sealed.

3. Drill into the face plate and then screw the face plate back on to the wood.

Pest Proofing

Pest proofing the tree is important. On the trunk of the tree, below where the habitat is to be created, it is a good idea to mound around the tree's circumference a metal, aluminium or plastic sheath that predators cannot climb above. We tend to use polycarbonate joined with aluminium as it does not visually degrade the integrity of the tree as much. Make sure to prune neighbouring trees well clear of the host tree as possums can easily jump from one tree to another. For living trees, the pest guard needs to be revisited and checked to allow the expansion of the trunk.



Pest Guard

PEST GUARD EXAMPLE

1. Measure the tree and cut out the polycarbonate (60mm wide) with a 20mm overlap for joining with the aluminium bracket.

2. Drill into the aluminium and make three holes. Match up the middle hole with the plastic and drill into the plastic.

3. Tape the plastic tight to the tree and insert the aluminium bracket underneath the plastic.

4. Pop rivet the middle hole through the aluminium bracket and plastic.

5. Pull the plastic together and match up the top and bottom drill holes in the plastic and the aluminium bracket. A piece of wood could come handy to make sure there is no drilling into the tree.

6. If the tree has a natural taper, the guard can be moved downwards to get it as tight as possible.

Human-made constructions

Human-made constructions are also an alternative. Here is a bat house made for long-tailed bats; there are endless ways to make them and numerous materials that might be used. These constructions could harbour any type of wildlife depending on construction type.



TREES FOR HABITATS



Relocation of Habitats

Relocation of habitats is sometimes required. For example, relocation would be needed in tree failures or trees that are condemned for removal. The tree wood containing the habitat can be safely lowered to the ground by rigging and can be re-erected onto living trees. With the help of familiar pheromones, the wildlife could have a better chance of finding their way to the new roosting site. This has been shown to be successful for bats in the UK and we are now making trials in New Zealand and are excitedly awaiting results.

Many trees are being removed to ground level in urban environments due to factors such as:

- Changes in RMA
- Urban development
- Diseases and pests, such as Kauri Dieback, Dutch Elm and Cypress canker
- Declining and dying trees for public and structural safety
- Landscaping trends and poor knowledge.

By using some of the techniques discussed in this text, we could enhance biodiversity by leaving trunks as new habitats and still ensure safety for the public.

“We should always remember that the description ‘dead wood’ implies a static state, without consideration for the process of decay and the diversity of lifeforms involved.” (Andrew Cowan).



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Revegetation

For revegetation we could also apply some of these techniques to use in existing exotic trees. We might also use fast-growing exotic trees that could be transformed into desirable nesting spots to harbour many species essential to our ecosystem before the native trees reach their maturity.

As one tree species might be a problematic weed in Auckland but considered a specimen tree in the Waikato, it pays to talk to local Arborists, council, DOC or environmental organisations.

Some Factors to consider are:

- Will these trees become a weed infestation?
- What would you like to attract – invertebrates, birds or bats?
- Could the temporary exotic tree be easily be killed off after a desired period of time?
Heavy fruiting and flowering could work as a
- food crop for birds but also pests.
Will they naturally be good species to create
- hollows?
What has been used in other projects around
- your area?

ABOUT THE LIVING TREE COMPANY

The Living Tree Company is an Auckland-based environmental arborist company with a passion for maintaining and improving New Zealand's unique natural environment. We are currently taking part in various trials for habitat creation and other ecological and arboreal projects. We believe the more work we do together the bigger and stronger the impact we can have. Please contact us with any enquiries or to share information.

This is an introduction to habitat creation in trees for the New Zealand environment. The text is prepared from an arboricultural standpoint and is to be used as an introductory discussion for ecologists.

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