



Wombat Forestcare Newsletter

Our summer visitors are arriving to nest in the Wombat and the Hepburn Park.

Sacred Kingfishers, Satin Flycatchers and the beautiful Rufous Fantails. The Wombat is becoming a bird watching 'hot spot' with the return of a pair of cicadabirds that have decided to nest here far west of their usual range. Take your binoculars and experience our extraordinary forest.

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Nooks and Grannies - The Wombat's Woody Elders

Words & images by Alison Pouliot

I recently asked some friends about their favourite haunts in the Wombat Forest. Without exception, they referred to two factors – the presence of old trees and/or water. The seven major waterways that rise in the forest have been explored in earlier newsletters so in this article I'll look at why the Wombat's old trees matter.

The most difficult part of writing about the Wombat's old trees is that there are very few left about which to write. Old trees are declining globally and unfortunately the Wombat hasn't escaped this trend.¹ Mining and logging in the second half of the nineteenth century razed almost all of the forest, hence few trees exist in the Wombat that are much older than a century.

When an old tree is lost from the Wombat, it is not just the loss of an individual tree as a discrete entity, but all its interconnectivities and functions as well. From their role in providing habitats for countless species, to watershed protection, to the more abstract role of storing carbon, old trees are vital to maintaining the biodiversity and resilience of the Wombat.

Why old trees matter

While in Europe a few years back, I witnessed the felling of several 500+ year-old linden trees – thought to be the oldest in the town – to make way for an apartment block. As these ancient giants toppled and



How old is old enough?

were swiftly converted to a mountain of woodchips, a passerby must have observed my distress and commented, 'Don't worry, they can plant new ones'. Beside the fact that I did worry and the 'new ones' didn't materialise as an apartment block was in the way, I realised that old trees are considered by some as easily replaceable, and that the difference between old trees and new trees may not be well understood.

How does an old tree differ from a young tree? Old trees are important keystone structures in forests, performing unique ecological roles not fulfilled by younger trees.² As a tree ages it develops particular characteristics that provide habitats for a range of fauna, fungi and flora. Characteristics such as cavities, hollows, cracks, fissures and complex branching all create specialised habitats not found in younger

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trees. Decaying and hollowing roots at tree bases also provides access to underground cavities and other specialist habitats. As a tree ages, it typically become more heterogeneous in structure and form as well as providing greater overall habitat area.

Old trees provide very specific niches that are inhabited, for example, by saproxylic³ invertebrates such as beetles, flies, millipedes and snails, as well as bryophytes and fungi. There are likely to be several thousand invertebrate species in the Wombat that are dependent on dead and decaying wood, each with particular habitat requirements. Numerous species of saprobic (decomposing) fungi break down complex compounds such as lignin and cellulose and hence play an active role in the formation of microhabitats for further species. Many of these specialist organisms are likely to be rare and may become rarer if more old trees are lost. As an example of the high demand for the specialist habitats provided by old trees, ecologist David Lindenmayer and colleagues reported that more than forty species of cavity-using vertebrates utilise old trees for nesting and shelter sites in mountain ash (*Eucalyptus regnans*) forests.⁴ Vertebrate species that utilise hollows and cavities in the Wombat's old trees include birds such as crimson rosellas, gang gangs and cockatoos, owls such as boobooks, owllet-nightjars and powerful owls, along with various others including treecreepers, kookaburras and sacred kingfishers.⁵ Hollows are also vital to mammals including various gliders, possums,

bats and phascogales.⁶ Moreover, once an old tree's life ends and it becomes a log on the forest floor, a whole other range of habitats for further groups of organisms becomes available. One only has to peer closely under a log to see the scurrying of a great suite of invertebrates and the tunnels and chambers, nooks and crannies they occupy.

The trials of the elderly

Some groups of organisms are at greater risk of extinction than others and long-lived species are especially prone.⁷ There are essentially two types of older trees in the Wombat and both are at risk. There are those that form hollows (generally gums and peppermints) that are easily lost in fuel reduction burns but are not targeted for logging. Old hollow-bearing trees are also especially prone to bulldozing on the boundaries of fuel-reduction burns.⁸ Then there are the 80 – 100 year old messmates, which have yet to develop hollows and are sought for logging.⁹ All are also prone to the combined impacts of climate change, drought, fire and habitat fragmentation.

Most trees in the Wombat never reach an age necessary for the hollow formation process to begin. In addition to reducing biodiversity, the loss of old trees and the resultant imbalanced forest age structure also affects natural fire regimes. Consequently, fires are likely to increase in frequency and severity and hence destructiveness.¹⁰



Few of the Wombat's trees reach an age where hollow formation occurs.



Even tiny cracks and crevices provide vital habitats for numerous organisms.

I recently had the great pleasure of trawling the archives of the Kew Fungarium (just like a herbarium but for fungi). The deeper I delved, the greater my appreciation of this collection of organisms and the future significance of their DNA. A tree is also a repository for DNA and other forms of memory, recorded in ways we may not know how to decode, now or in the future. Sometimes there is great creative potential in other ways of 'knowing', in pondering

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the Wombat's mysteries and enigmas. Molecular techniques have catalysed taxonomy and revolutionised our understanding of species relationships but do they make us care about old trees? Scientific knowledge helps us understand them. Caring is required to conserve them.

Repositories of Memory

Old trees affect us in subtle ways. For many, they inspire wonder and quietude in an over-stimulating world. While rarely a part of conservation arguments, the aesthetics of old trees stir our emotions and enrich our imaginations. Such arguments ultimately amount to simply being human. These are the less quantifiable reasons that comprise all the benefits of visiting an old tree, as one might an old friend. This is where memories form that may seem elusive. Not the kind that can be stored and accessed in convenient bytes, but the sort that might catch us in an unexpected moment. The sort that evoke a curious sensation, or a not-quite-describable feeling or thought; as though a fleeting shaft of light illuminates a memory deep in the nether regions of one's mind, hovers a moment, then passes, leaving us in a state of suspended incomprehension, but with a sense that something profound occurred. It's something each of us intuitively knows - that humanity is inextricably entangled with and deeply affected by nature, by old trees.

Old trees were once worshipped simply because they were old.¹¹ No further justification, counting, measuring or protesting was required. Being old was enough. In a few places that attitude prevails. Some of the Wombat's old trees could live to 400, 500, 600... or more years, if given the chance. Inevitably we all view the value of old trees differently. But if we lose the Wombat's last old trees, we lose not just the trees and their associated biodiversity, but also memory and meaning.

It is perhaps the dual resonance of visceral feelings inspired by old trees along with scientific arguments that together offer the greatest possibilities to conserve the Wombat's woody elders. ■



Old trees, especially hollow-bearing trees, are particularly prone to fires

References

1. The definition of an old tree varies depending on the habitat type, various environmental conditions and different ways of valuing trees. I refer to Gibbons and Lindenmayer (2002) who found that many *Eucalyptus* species required 120–200+ years to develop particular characteristics such as hollows and complex branching patterns that provide diverse habitat for other species (Gibbons, P. & Lindenmayer, D. 2002. *Tree hollows and wildlife conservation in Australia*. CSIRO Publishing, Melbourne.)
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3. Relying on dead or decaying wood.
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