



Wildlife Notes



DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

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Information Notes for the *Land for Wildlife* Scheme in Western Australia

Dead Wood and Wildlife

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INTRODUCTION

In most areas of bushland, dead trees and shrubs can be seen. In some cases it might be quite clear why they died – signs of a wildfire might be obvious – in other cases, it is not so evident; drought, fungus disease, insect attack, or some other cause might be involved. Sometimes, in old trees, part of the tree is dead, the rest very much alive. Fallen limbs may lie on the ground. To some people these features may look unsightly but they are an important part of the ecology of the bushland.

WHY IS DEAD WOOD VALUABLE FOR WILDLIFE CONSERVATION?

Big old trees have a unique character that is particularly valuable for wildlife and when they die, many of these values are retained. A dead tree may remain standing for 50 years or more before falling to the ground, where it continues to supply habitat for ground-dwelling animal species and, as it continues to decay, provides food for invertebrates and fungi, finally decomposing back into soil nutrients to fuel a new generation of plants. What specific features can dead wood provide?

- **Hollows:** dead wood is often hollow, and these hollows are used as nesting sites and shelter by many birds, reptiles, mammals and invertebrates. Different animals require different sizes, shapes and location of hollows. For example, only very large, old trees can provide a hollow large enough for a black cockatoo, which needs an entrance hole 25 cm wide at least. In many areas, dead trees are the only representatives left of these largest trees.
- **Roosting sites:** many bats, for example, choose hollows as daytime roost sites, changing position within a hollow with the season to maximise the insulating quality of the dead wood. Bats are extremely important controllers of nocturnal insects and look for food over paddocks and yards as well as amongst bushland. Under controlled conditions, a *Myotis* bat has been recorded as capturing 1,200 tiny fruit flies per hour, one every three seconds, while on the wing.
- **Perching sites:** many birds, including birds of prey, cuckoo shrikes and robins, use dead limbs as observation posts from which to pounce on their prey - often agricultural pests. For example, rabbits are the major component of wedge-tailed eagles' diet. A flock of woodswallows chasing high-flying insects will choose a dead branch on which to rest between bouts of spectacular aerial manoeuvres. Even night birds such as owls will perch to use their remarkable eyesight and hearing to detect the tiniest movement of their prey, such as mice and insects. A dead tree or branch can thus indirectly contribute to natural pest control and reduce reliance on pesticides.
- **Nest sites:** some bird species preferentially place their nest on dead branches. For example, sitellas are obligate dead wood nesters and require vertical dead branches for breeding. Flycatchers and cuckoo shrikes nest most often on horizontal dead branches. Eagles prefer to nest among the dead stags at the top of the tallest trees. Dead twigs are an important nesting material used by a wide variety of species, including magpies, ravens and eagles.
- **Lichen and cobweb:** birds such as willy wagtails, cuckoo shrikes, robins, sitellas, thornbills and many honeyeaters use spider web and lichens in their nest as binding or to create a soft lining. Lichens are abundant on dead wood, and it is often also festooned with cobwebs.
- **Food web:** decaying wood and flaking bark are particularly rich sites for insects and other invertebrates, and birds and reptiles take advantage of this. For example, sitellas spend a third of their time looking for prey on dead branches. Fence skinks are very active on lower dead wood in the daytime, while geckos emerge from cracks and hollows to forage during the dark.
- **Cache sites:** butcherbirds wedge food in a branch fork or on a spike, so that they can tear it apart, because their feet are too small to hold prey down as hawks do. Short dead branches are ideal for this task.
- **Singing sites:** many birds, such as magpies and robins, use song to proclaim their territory and high up dead branches are often ideal sites to sing from. Cuckoos use dead branches for the singing which is an important part of their courtship prior to breeding.

- Logs on the ground: when they fall, the dead trunk and limbs form an important part of the ground layer habitat. If hollow, they can be used by mammals (including echidnas, numbats and chuditch), reptiles and birds such as nightjars for shelter. Gradually the wood is decomposed by termites and fungi, which in turn become food for other animals. Research has shown that grazed wheatbelt woodland remnants retain more species of small reptiles if they still have logs on the ground than do patches without logs, because of the food and shelter that those logs provide.
- Logs in streams: fallen logs in streams form an important habitat for invertebrates and fish – indeed, native fish are more abundant and diverse in rivers where woody debris is present. As well as invertebrate food, the logs provide shelter from predation and the fin-nipping habits of the introduced mosquitofish. Logs which project out of the water, or dead branches which hang over it, may be used by waterbirds for sunning themselves and are excellent vantage points for cormorants, darters, herons and kingfishers.
- Nutrient cycling: as the dead wood decays, the nutrients it contains are returned to the site to be used by a new generation of plants. Removal of dead plant material from a bushland remnant is like eroding the capital on a long-term investment. The soil becomes more and more impoverished and the general productivity of the site declines.

AREN'T DEAD TREES UNSAFE?

Any tree can fall over, especially in extreme weather events, but dead trees, weakened by decay, could be a greater risk than live trees. It might be wise to consider the removal of dead trees or limbs where they could fall onto roads or buildings. But in areas of bushland, that precaution does not apply.

DON'T DEAD TREES MAKE GOOD FIREWOOD?

There is no doubt that some dead trees or fallen logs make good firewood, as the wood is already dry and immediately useable. Some timbers are better for this purpose than others - jarrah has a high calorific value and little ash residue, while marri has copious gum that can clog up stove flues and wandoo is so hard it quickly blunts chainsaws.

Felling large dead trees for firewood is an unsustainable activity, as it takes hundreds of years for them to be replaced naturally. Their long-term use as wildlife habitat is likely to be far more valuable. Land managers should try to ensure that some dead trees and fallen logs are retained within bushland areas.

If continuity of firewood supply is important on rural properties, some areas of revegetation established for landcare reasons could include a woodlot, to provide trees on a short-term rotation. The advantages of growing trees specifically as firewood are numerous. They can be harvested

when an appropriate size for easy handling, cut green so it is easy on the chain saw and as the billets dry they often split, making subsequent axe work easier. Sequential planting and planning ahead will ensure that the landholder has a constant supply of firewood for future years.

(Note: permission to remove firewood from a Public Firewood Area specified by the Department of Conservation and Land Management, requires an "Authority to remove firewood for personal use". Enquire at the nearest CALM office.)

TIDYING UP? – NO!

A tradition of rural beauty imported from Europe would insist that all fallen leaves and branches be swept up and removed, to leave the ground neat and tidy. But Australian bush is not like that! Natural bushland has a jumble of live and dead plants that provides the wide variety of habitats important for native wildlife.

Most especially, the layer of logs, twigs and leaves that covers the soil, and that collectively we call 'litter', is vital to supply nutrients and insulate the soil during our long, dry summers. Without this natural mulch the soil heats up too much, which harms both soil organisms and plant roots and contributes to the gradual degradation of an area. In addition, if the litter is not present when heavy rains do come, or strong winds blow, there will be excessive soil erosion and vital topsoil will be lost.

Removal of the litter layer also increases the rate at which soil moisture is lost, reducing seedling survival during the critical first summer and creating a hot and dry climate that is uninhabitable to many invertebrates.

SUMMARY

Variety is the spice of life – for wildlife as well as humans! Dead wood expands the range of habitats available to fauna, especially those that eat insects. Insect-eating animals around a property help to keep insect numbers low, reducing reliance on expensive and potentially dangerous chemical control and protecting the health of bushland and farmland alike.

Acknowledgement

The text of this 'Wildlife Note' is adapted with permission from "The Value of Dead Wood to Wildlife and Agriculture", Land for Wildlife (Victoria) Note No 38, Feb. 1996. Thanks also to Ken Atkins, Avril Baxter and Peter Mawson for helpful comments on earlier drafts.

About the author

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Further reading

'A National Approach to Firewood Collection and Use in Australia'. 2000. Australia & New Zealand Environment and Conservation Council. Canberra.