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INVERTEBRATES IN YOUR REMNANT

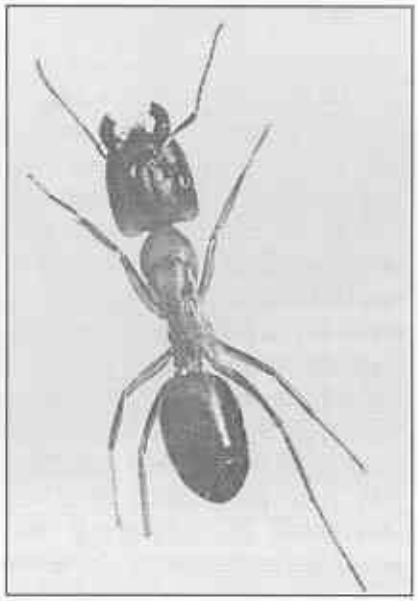
by Jonathan Majer

WHEN you think of invertebrates in your remnant vegetation, the first animals which may come to mind will be the flies, ants, termites or maybe the occasional pest. In reality, even a degraded remnant can be a treasure trove of invertebrate diversity - and all of them are potentially useful.

By invertebrates we mean animals such as earthworms, slaters (which are grouped with crabs and crayfish as crustaceans), scorpions, spiders and mites and the insects themselves. These animals play a vital role in the functioning of the remnant's ecology. Taking a journey from below the soil to the tops of the trees reveals invertebrates performing important ecosystem functions.

Although you may not have noticed them, many thousands of mites and springtails occur in a square metre of soil. These, along with animals such as earthworms and millipedes, interact with the microbes in the soil to recycle nutrients from decaying leaves and other organic matter - a very useful thing when you consider how much fertiliser we place on our paddocks. Also in the soil is a diverse array of termites and ants - an average-sized remnant could easily contain 15 termite and 40 ant species. As well as assisting with nutrient cycling, these animals increase the porosity of the soil. Have you noticed how sheet flooding can occur in a paddock, but not in the remnant? By placing open-bottomed cylinders of water over ant nests in remnants we can show that water percolates into the soil 20 times faster than where ant nests are absent.

Ants are also present on the soil surface. It is here that they assist with the reproduction and survival of plants. The seeds of many Australian plants possess an oily appendage which is much sought after by ants as food. These ants collect the newly-fallen seeds and take them to their nests where they eat the appendage and discard the seed, which effectively 'plants' it in the soil near their nest. Many plants which germinate, particularly after a fire, appear on ant nests, showing



Camponotus sp. - one of the spectacular-looking invertebrates which is found in most remnant vegetation.
(photo: G. Lowe)

that ants play a significant role in the survival of the next generation of plants.

Many invertebrates live on the herbs and shrubs which may still be present in the remnant. Some of these animals, such as certain flies and wasps, are pollinators of these plants, while others may eat the plant itself. This is not detrimental to the vegetation. When plants germinate, particularly after a fire, there is often an abundance of individual species. There is evidence that leaf-eating animals, such as bushcrickets and beetles, reduce the vigour of the most abundant plants and consequently give the other plants an opportunity to survive. In other words these invertebrates, although they eat plants, can help increase the diversity of the vegetation.

The diversity of invertebrates in the tree tops is immense. Recent work in western and eastern Australia has revealed 1,600 species of invertebrates in four species of Eucalyptus, two from Western Australia and two from New South Wales. These animals form an important food supply for insectivorous birds, a fact which seems to be appreciated by some bird species who select those species of tree which support the richest and most abundant invertebrate faunas. Wandoo, a common tree in Wheatbelt remnants, has characteristically high invertebrate levels in the canopy and is an important food reservoir for insectivorous birds living in the fragmented agricultural landscape. You can read more about the insects, spiders and other animals living in the tops of eucalypt trees in Dec 1996 issue of GEO magazine.

Although invertebrates may appear to be abundant in just about any remnant that you look at, the variety of species that are present may be highly reduced or modified if the remnant is not maintained and managed in an appropriate way. For example, work on ants in jam/wandoo woodlands near Kellerberrin has shown that the variety of ants is lower in unfenced than in fenced remnants. Other studies in the same area have shown that the levels of invertebrates along roadside vegetation is correlated with the amount of dead wood and leaf litter on the ground. The more wood and litter on the ground, the more invertebrate food there is for insect-feeding birds such as babblers. Leaving or adding logs and woody debris to areas being revegetated is a useful way to hasten the process of restoration. Studies in patches of gimlet woodland of varying sizes and degrees of isolation have shown that although the diversity of many invertebrate groups declines with increasing degradation, a surprising number of species survive even in the most degraded patches. Thus, even these degraded remnants can be an important nucleus for the restoration of the landscape and ecosystem functions.

Next time you go out into the remnant, take a close look. Fossick

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through the leaf litter, look under logs, inspect the flowers and leaves of the shrubs, and look on the bark of trees. You will find many interesting animals, many of which you may not have noticed before. In terms of diversity, these are animals which make up over 95% of animal diversity in Wheatbelt remnants. They are vital to the sustainability of the remnant, they make it a more interesting place to visit, and they can be encouraged by looking after the remnant and restoring it if it has become degraded. Any attempts at restoration of these areas will be assisted by the activities of these animals and the landowner will be rewarded by the knowledge that the area is home to thousands of species of native wildlife.

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