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## TERMITES AND YOU

Brian Heterick

'What about white ants?' is the question that is invariably put to me after I have given a public address on ants in general. This is a question that makes me sigh, because it immediately suggests the confusion in the public mind between two very different groups of insects.

of contrast, ants, bees, wasps, beetles, butterflies and moths and flies, along with several other orders, have juvenile stages that generally look nothing like the adult, and have to undergo full metamorphosis. The juvenile of these insects is called a larva, and larval ants are legless and have a grub- or maggot-like appearance.

### TERMITES ARE NOT 'WHITE ANTS'

Well, what about white ants or termites, as they are more correctly known? For starters, termites have about as much in common with ants in an evolutionary sense as a human (an advanced placental mammal) has with a kangaroo (a marsupial). Termites, here regarded as comprising the insect order Isoptera, are insects with relatively primitive features that align them much more closely with cockroaches and preying mantids than with ants. In fact, American researchers often regard termites, cockroaches and preying mantids as a single order, Dictyoptera, although Australian researchers prefer to place these insects into three separate orders. Termites, in common with the group of insects that include cockroaches, mantids, grasshoppers and bugs (among others), do not have a complete metamorphosis from juvenile to adult. Hence, the juvenile termite looks much like the adult, but without wings or adult reproductive organs. This type of juvenile is called a nymph. By way



*This termite mound in the Perth Hills is occupying an old jarrah stump. It is probably constructed by an Amitermes species.  
Photo: Allan Wills*

### MEMBERS OF THE TERMITE COLONY

Termites, being social insects, have both reproductive and non-reproductive castes. Queens and males possess wings, at least in one stage of their life history, but the non-reproductive castes (workers and soldiers) lack wings. The mandibles of queens and soldiers have very characteristic features within a given species,

and so are valuable taxonomic aids for researchers. However, some soldiers do not rely on mandibles for defence of the colony. In soldiers of the genus *Nasutitermes* (Termitidae), the front of the head is produced into a long tube or rostrum and the mandibles are small or vestigial. The tube is hollow, and the soldier can exude sticky, glue-like secretions from the nozzle. These secretions are produced by a gland on the front of the head, and serve to entangle or chemically poison intruders such as ants. Unlike soldiers, males and queens, workers are relatively unspecialised. However, all castes in most species have only thin cuticle and are very

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# FAUNA

## Termites

vulnerable to heat and light. The characteristic carton or mud nests and galleries are essential if these soft-bodied insects are to survive in most environments. Expose a termite worker to strong, direct sunlight for just a few minutes, and it will die. Desiccation, as much as the effects of the sun, is the killer.

Queens are responsible for founding colonies. Like many ants, most termites have mating ('nuptial') flights. In Australia, there is normally a flight period in late spring or early summer and another in autumn. The winged reproductives usually fly only a short distance (unless there is a strong wind) before alighting. Males and females shed their wings by snapping them off along a suture at the base of the wing. Members of both sexes then form mating pairs and seek out new sites for colonies in soil or wood. During this time the reproductives do not feed. The first brood is therefore responsible for feeding the 'royal couple'. Mostly the male and female founders are the only functioning reproductives in the colony, and both can live for many years (unlike ants, in which the queen only is supported, males dying shortly after the nuptial flight, whether or not they have mated). The queen often becomes a pure 'egg-laying machine', and is physically distended by the vast numbers of eggs held in her ovaries: some African termite queens are over 12 cms long! Mating often continues periodically between the founding pair.

## THE AUSTRALIAN TERMITE FAUNA

Australia has a relatively rich termite fauna, with 350 or so known species belonging to five families (Mastotermitidae, Kalotermitidae, Termopsidae, Rhinotermitidae and Termitidae), and of these more than 150 species occur in Western Australia. At least a few members of each of the five families can cause commercial damage to timber, but of the 30 odd species found in the Perth region, only a handful are of economic importance. Most damage is caused by subterranean termite species (*Coptotermes frenchi* and *Coptotermes acinaciformis*) and by *Nasutitermes exitiosus*. A couple of other species may attack paling fences (*Heterotermes ferox*) or damp areas in living eucalypts (*Porotermes adamsoni*). \* In northern WA, the giant northern termite (*Mastotermes darwiniensis*) has been implicated in serious structural damage in places like the historic port of Cossack.

Many termite species, however, are inoffensive. As well as the recycling of wood facilitated by the workers, faecal remains of termites probably enrich soil nutrients, and the burrowing activities of termites may result in beneficial turnover of soil. Termites themselves are

food for a wide variety of other arthropods, reptiles, frogs, birds and several mammals (e.g., echidna, numbat and bilby). Termites have recently been found to be useful bioindicators in some rehabilitated ecosystems, such as minesites. Finally, termites make an important contribution to the native landscape in many areas, culminating in the magnificent north-south oriented mounds of the magnetic termites (*Amitermes laurensis* and *A. meridionalis*) in north and north-eastern Australia.

'What about white ants?' should, I think, be rephrased as 'How can we encourage the study of these fascinating and often much-maligned insects?'

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Ref: \* <http://www.bestpest.com.au/pest-control-in-perth.html>

