FAUNA

NATIVE BEES

by Terry Houston

LONG before the domesticated honeybee was brought to Australia by European settlers, our continent was populated by a wealth of bees - the native bees - with upwards of 2000 species having been recorded to date. Native bees are found right across Australia from coastal regions to the central 'deserts' and, while being well-represented in the wetter, forested zones, are the most abundant and diverse in semi-arid regions. Prior to clearing, the Wheatbelt of WA would have supported one of the richest bee faunas in the world and, fortunately, many species still survive in bushland reserves and remnants within this area today.

If native bees are so numerous, why is it then that so few people are aware of them? Some explanation may be found in the fact that many are tiny and wasp-like, visit only native flowers and are active for only a month of two each year.

There are some moderate-sized species, however, which occur commonly in suburban and country gardens and which most observers would recognise as bees. The blue-banded bee, *Amegilla pulchra*, for example, is only slightly smaller than the honeybee, is more rotund and has a black and white banded abdomen (a faint blue tint often suffuses the white bands). Like the honeybee, it has a very catholic taste in flowers and visits both native and introduced plants to obtain pollen and nectar. While working about flowers the bees hum audibly, move jerkily and frequently hover.

Male of the bee Ctenocolletes rufescens a species confined to southern Western Australia

This species is active in southern WA from about Sept to April.

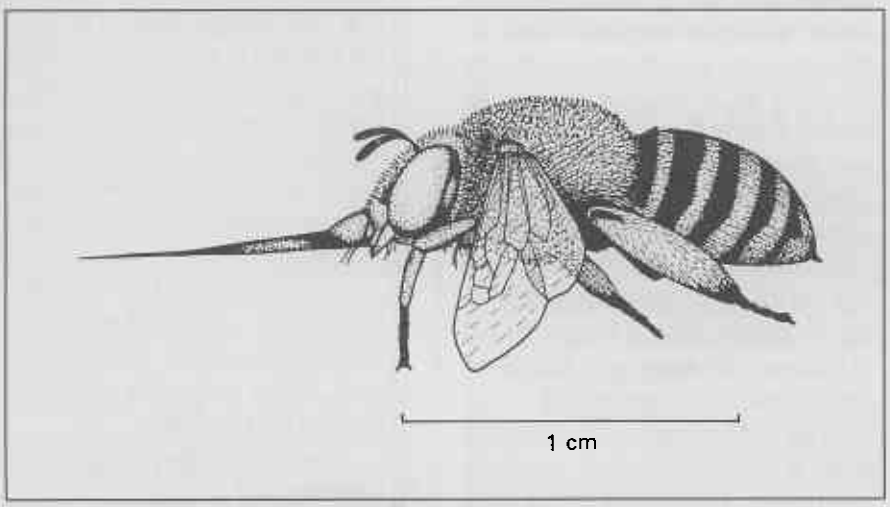
It is at the nests of native bees it becomes apparent that most have habits very different from those of the honeybee. Our native bees are predominantly 'solitary', each female living and working independently, constructing her own nest(s) without the aid of subservient 'workers'. A majority of species nest in the ground and their females are efficient burrowers. Other species prefer to use existing holes in which to nest - the abandoned burrows of other insects, hollow plant stems or vacated galleries of wood-boring beetles. Man-made holes also provide ideal nesting sites. After constructing and provisioning a series of brood cells and depositing an egg in each, the female seals the nest entrance and dies. The larvae are left to feed and develop in total isolation within their cells and newly emerged adults have to chew and dig their way out.

In those species that have just one generation a year (timed to coincide with the flowering of their preferred forage plants), the larvae remain dormant in their cells for many months and pupate just a few weeks prior to the commencement of the activity season. Floral specialisation is the norm among solitary bees, some species confining their foraging to a particular family of plants (such as Myrtaceae or Proteaceae) and some being specific to a genus (such as *Verticordia* or *Grevillea*) or (rarely) to a single species.

The Wheatbelt of WA is home to some wonderful bees including a brilliant metallic green species, *Ctenocolletes smaragdinus*. Much larger than honeybees, the females of this species work flowers of various heathland plants including Verticordia species during late winter and spring. In summer, when eucalypts are in flower, the brilliant yellow (or even white) euryglossine bees come into their own and may be found nesting gregariously in hard bare ground around homesteads. Sometimes milling swarms of tiny yellow males will be seen in open areas near flowering trees. Resin bees *(Chalicodoma species)* also forage at eucalypts and commonly nest in holes in verandah posts, plugging them with resin or masticated leaf pulp.

Semisocial habits occur in some bees. For example, tiny bees in the family Halictidae nest colonially, with a few to dozens or even hundreds of females sharing a common nest entrance in the ground. Beneath the entrance the common shaft divides and ramifies into a complex burrow system with each female constructing and provisioning her own cluster of brood cells.

The only highly social native bees to occur in WA (the 'sugarbag' or stingless bees, *Trigona* species) are restricted to the Kimberley and



Amegilla pulchra, *Blue-banded Bee showing long proboscis.*

continued on page 7

continued from page 6

northern Pilbara. With the exception of Trigona, no native bees can be exploited for honey because they do not build separate honey stores. Instead, they mix their honey with pollen to serve as larval food, either in the form of a moist solid mass or a semiliquid paste.

Females of most native bees are equipped with stings but will use them on humans only if they are squeezed against the skin. They are never aggressive in the way that honeybees can be. They can, however, sting several times and do not leave the sting behind in their victim.

Dr Terry Houston is Curator of Insects at the WA Museum. His special interest is native bees. He can be contacted on 08 9328 4411.

Illustrations from WA Museum Information sheet.
Drawn by Jill Ruse.