FAUNA

TERMITES AND 'CLAY TRUMPETS'

Mike Griffiths

RAIN has all sorts of effects on the Wheatbelt and its inhabitants - especially when it falls after a drought year like 2002! A group of us inspecting Jarrad Hollins' remnant bushland south of Dowerin in January were surprised to find several small clay 'trumpets' on a patch of bare ground. None of us had seen them before, including Jarrad, who is quite a bush enthusiast. These little trumpets were only about 4 cm tall and 2 cm in diameter, open-ended (just like a trumpet) and were out in the open. They were very fragile, and looked like they'd fall to pieces in the next shower of rain - and probably did! None of us really knew at the time what they were, but the clue was that they were built of granules of wet clay. And only two days before, good rains had fallen and the soil was still damp ...

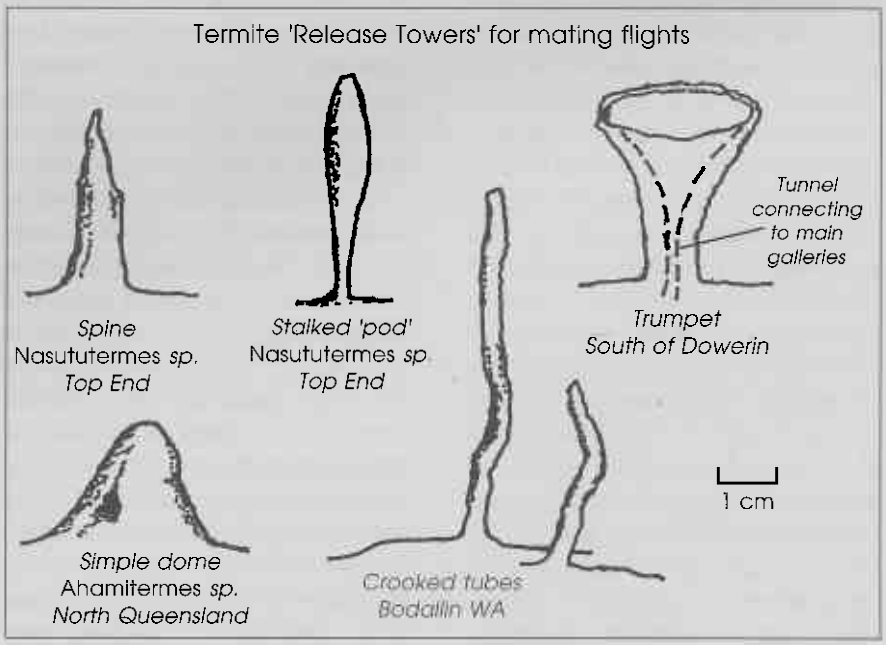
A close examination and a bit of homework revealed all. The little clay trumpets were in fact built by termites. Late summer and autumn is the time of year that many species release their winged reproductives to fly off and establish new colonies, as far away from the parent colonies as possible. But these insects are very weak fliers and have no means of leaping into the air to launch their flight. Their wings and bodies are designed only for short, once-in-a-lifetime flights. For termite species that build mounds, it is not difficult for these winged reproductives or *alates* (literally meaning 'winged') to simply launch themselves off the top of the mounds. But for species that nest close to the ground or underground, it is an entirely different matter. They must have some sort of 'launch pad' to get themselves airborne, and that's exactly what these clay trumpets were. They were the 'exit towers' or 'release towers' built especially for the launch of the winged termites.

Departure of the alates from the colony is serious business in the world of termites, and is preceded by a frenzy of activity within the nest. Swarming, although only undertaken by certain castes or types of termites in the colony, is an important event, and is akin to spawning of the coral or the mass breeding migrations of some mammals. Successful dispersion of the species depends on successful swarming of the alates.

Once a year, the alates gather in the upper-most section of the colony, surrounded by worker termites who build the exit towers and open slits or small holes in the outer walls for the final countdown. But conditions must be exactly right for these releases to happen, they will only depart on still, mild days before or after rain. They will not fly if these conditions are not right; alates have been known to mill around in the nests for many days waiting for changes in the weather. Unlike the nest mounds, which may be large and long-lasting, termite release towers are small, built only at certain times of the year and very short-lived. They are rarely seen and not well known! Despite being so poorly studied, it seems that these structures vary considerably according to the species, and can actually be quite diagnostic for species identification.

It seems that the clay trumpets in the Dowerin bushland were made by a species belonging to the largest Australian termite family, Termitidae, probably in either the genus *Tumulitermes* or *Amitermes*. Other types of release towers are known to be made by other species of Australian termites, including some very curious designs: small domes, small tapering spires, stalked pods and long thin tubes, typically 5-10cm tall (reported and photographed by Buddy Kent, South Bodallin), all built on the ground. One type of ground-nesting termite (*Microcerotermes serratus*) builds additional clay nests 1-2 metres above the ground on tree trunks, especially for the release and development of alates.

Although the world's tropics are regarded as having the greatest diversity of termites, Australia's temperate regions are also rich in termite species; the Wheatbelt alone has over 75 species. Although they might be better known as pests, they play a crucial role in our natural environment, processing vast amounts of plant matter with the help of microscopic protozoans in their gut. Of the wood-eating termites, some only eat old decayed wood on the exterior of logs and old stumps. Many species of termite are not wood-eaters but eat grass, bark or leaf-litter. These are often



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referred to as 'harvester termites' because of their habit of harvesting and storing their food - they are the typical mound builders and include the builders of some of the largest of all mounds including the 'cathedral mounds' of the Top End which can be 3-4 metres tall. The majority of the Wheatbelt's mound-building species are grass- and leaf-eating harvester termites, such as the common Tammin Termite (*Drepanotermes tamminensis*) which builds clay mounds to a height of approximately 2 metres. Despite misnomers such as 'white ants' and 'ant nests' (for the clay termite mounds), it is important to note that ants and termites are like chalk and cheese. They are unrelated, have different caste systems, have different life cycles and, when you have a proper look, they aren't even very alike!

So next time you see the swarms of fluttering 'flying ants', remember they are, in fact, more likely to be flying *termites*, off to seek greener pastures for new colonies. Any reports and photographs of these curious little release towers would be very welcome. Please note for each pic the details of location, soil type, approximate dimensions, weather conditions and date are required.

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