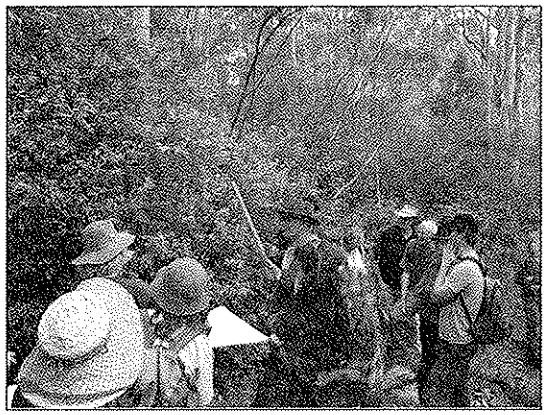
# FAUNA

# LESSONS FROM ANTS AND SMALL CREATURES

*Sylvia Leighton*

In November *Land For Wildlife* and Green Skills co-organised "Lessons from Ants and Other Small Creatures", a workshop and day field trip. The guest presenter for the day was Professor Jonathan Majer, who heads the Department of Environmental Biology at Curtin University. The workshop started at the Denmark Centre for Sustainable Living and then visited various rehabilitation sites in the Denmark area illustrating ecosystem rehabilitation in action. Sites included karri afforestation and wetland rehabilitation sites next to the Denmark River, bushland rehabilitation sites affected by introduced weeds and ants and finished at *LFWer* John Pate's spectacular show-case karri forest property.



*Prof. Majer collecting invertebrates by 'shrub shaking'!*

Prof. Majer is an Australian authority on ants and the value of invertebrates as indicators of ecosystem recovery. The first question he asked was "Why isn't entomology embraced by the general public and why don't scientists include insects in many fauna surveys?" Possibly the answer lies in the fact that worldwide there are just so many species of invertebrate that researchers feel overwhelmed and scared to look into this group of animals. Rough estimates of how many invertebrates exist around the world vary from 10-30 million – even the lowest figure is daunting enough!

Jon and his co-workers have recently done some research into the number of invertebrate species found in marri and jarrah trees. They sampled 160 trees and found 561 spp. in the canopy zone, 415spp. in the bark zone and 305spp. in the leaf litter zone. There was a little bit of cross over of species between zones but there were at least 1000 species of invertebrate found in these two particular eucalypt trees species alone! It is notable that marri has many more invertebrate species than do the jarrah trees. Because birds follow the insects, this also means many more bird species use marri rather than jarrah.

Jon then turned our attention to one of his favourite insects – ants. [See his article in WW 3/1- Ed.] Ants are believed to have evolved from wasps, whilst termites are believed to have evolved from cockroaches. There are thought to be at least four to five thousand species of ant in Australia. Of these, 497 (so far known) are found in the south west corner of WA from north of Geraldton to east of Esperance.

Different Botanical Regions host different numbers of ant species, and it is interesting that the Warren Karri Subregion has fewer ants than anywhere else. Jon's explanation for the drop in numbers in this area is possibly because ants evolved in warmer climes and they just don't spread out as well in the cooler areas. Ants contribute greatly to the pollination of flowers, dispersal of seeds and distribution of nutrients in the soil. Most of the ants in a colony are workers and they are all female, only breeding males when a queen needs to be mated. Many of the species also have fascinating symbiotic relationships with different invertebrate species. In the field Jon showed us a trail of ants going up a karri that were probably going up to collect sugars from a scale insect. The scale insect sucks the sap of the tree trying to extract proteins. It excretes large quantities of unwanted sugars which the ants remove, thus maintaining the health of the scale insect and taking some easily obtained sugars back to their nest.

During the field trip Jon demonstrated various methods of collecting ants; shaking them out of trees (bashing a plant with a stick actually!), collecting from the ground, trapping in pit traps, and sweep netting across foliage. He also encouraged participants to survey by torch light during the night, as often different species can be found. Examination of the specimens under a stereoscope would have revealed how distinctly different the body features were on each species.

All in all everybody had a fascinating day. Once again the workshop alerted us all to the issue that we need to learn more about the invertebrates in our landscapes. Having the expertise on hand to carry out the species identification is the challenge and our long-term vision is that one day we will have a team of entomologists who reside in the area and can carry out this role.

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