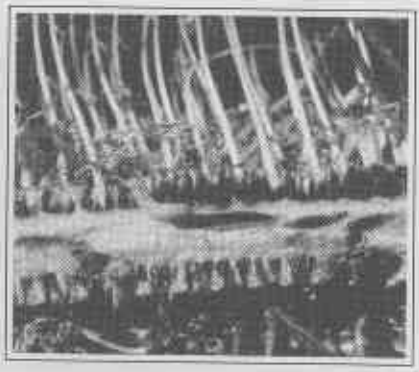
FAUNA

BANKSIAS, BARDIES AND COCKIES - A FINELY-TUNED BALANCE

by Byron Lamont

WHEN walking through banksia woodland, it is often noticeable that parrots and cockatoos have torn off the flowers in search of nectar, or borers in the flower axis. Stephen van Leeuwen and Byron Lamont of Curtin University have been investigating what effect this has on the 'reproductive success' of the rare Banksia tricuspis - with some unexpected results.



Bardie inside Lesueur Banksia flower

B. tricuspis (Lesueur Banksia) is confined to a small area of rocky country around Mt Lesueur. Larvae (bardies) of the wood-boring moth *Arthrophora* tunnel through the central axis of the flower. Port Lincoln Parrots (28s!) rip up the flowers in their search for nectar, while Little Corellas and Carnaby's Cockatoos feed on the bardies, damaging - often totally destroying - the flower spikes while they do so. All of this severely reduces the number of fruits set by each plant - 60% are destroyed by predators each year, 46% by Carnaby's Cockatoos alone.

So you might think, reduce the bird numbers and you'll get more seeds ... but, which birds? At first guess you might say - the cockies, of course! But ...

Although 46% of the flowers are destroyed by cockatoos in their search for bardies, this is actually a *beneficial* relationship. The birds have the uncanny ability to detect which of the flower heads contain bardies and they rip these apart, rather than those which do not have any. Some observers have noted how cockatoos turn their heads to the side before feeding and have suggested that they are able to hear the bardies munching! Others have suggested they see the frass left at the tunnel entrance holes and use this as a clue as to which heads to attack. The flower heads lacking bardies, and so not attacked by the birds, are free to set seeds for the next generation.

If none of the flower heads were attacked, all the larvae would reach maturity. There would be such an increase in future insect populations that they might finally destroy *all* banksia flowers. This might result in the eventual extinction of the Lesueur Banksia because they would no longer produce sufficient seeds for replacement of the old plants.

Loss of habitat in the wheatbelt has made Carnaby's Cockatoo an endangered species, and its numbers are declining. As this study shows, that could have far-reaching effects on the other members of the ecosystem of which they are an integral part.

For the full story, read: S. J. van Leeuwen & B.B. Lamont. 1996. *'Floral damage by animals and its impact on reproductive success in Banksia tricuspis Meisner (Proteaceae)'* IN: Gondwanan Heritage: past, present and future of the Western Australian biota. Ed: S. D. Hopper et al. Surrey Beatty & Sons, Chipping Norton.

Prof. Byron Lamont can be contacted at the School of Environmental Biology, Curtin University, on 08 9266 7368.