

IN the final year of my Curtin University degree in Environmental Biology, I began a diet analysis study of Malleefowl. It was a fascinating project with many interesting findings, such as one bird that had eaten two small plastic discs (they did look a lot like *Acacia* seeds!). I was given great support by my supervisors, Prof Stephen Davies and Dr Marcello Pennacchio and the Malleefowl Preservation Group through the voluntary coordinator Susanne Dennings.

Why Malleefowl? Well, it is a threatened species. One of the major causes of its decline is habitat destruction. The birds are thought to be primarily granivorous, taking seeds from the shrub layer. In many areas, bush remnants are grazed by stock or rabbits, which reduces seeding. Examining the stomach content of these birds provides information as to the food types taken, plant species used as food by the birds and seasonal preferences.

The stomach contents; crop and gizzard, from 18 roadkilled birds and one chick (killed by a cat) were examined. These included eight from South Australia (loaned from the SA Museum) and 11 from Western Australia (10 loaned from the Malleefowl Preservation Group and one from the WA Museum).

The content of the stomachs was sorted into type (flower, leaf, seed, invertebrate) and then into morphospecies (this one looks like that one). These were then examined by researchers from many areas including the Department of Agriculture, Curtin University, APACE Nursery and the WA Herbarium. Most of the plant material was taken to family or genus. Thanks to Dr Brian Heterick, the invertebrates were taken to genus or species.

The results of this study show that seeds were taken by the Malleefowl throughout the year. Seeds (excluding fruits) made up, on average, 67% of the stomach content of Malleefowl (ranging from zero to 99%) with the rest being the invertebrates and plant vegetative material (leaves, flowers, pods and

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DIET ANALYSIS OF MALLEEFOWL

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Male Malleefowl at the mound, Ongerup (photo: J van der Waag)

stems). 172 morphospecies were isolated (though the actual number of true species is expected to be much less). Of particular interest were the stomach contents of a chick which contained mainly Fabaceae (*Pea*) seeds, probably *Daviesia* sp. and termites.

A number of roadside weed species including *Hypochoeris* sp. (flatweed), *Medicago* sp. and *Asparagus asparagoides* (Bridal creeper) were identified. Agricultural crops were also taken with 10 of the 19 malleefowl examined having lupins and/or wheat in their stomachs. It is possible that Malleefowl have adapted their foraging patterns to use roadside grain spills and plant growth.

One female Malleefowl (collected from Jacup) had a large number of winged ants in her crop along with 48 locusts. From other stomach analysis studies, it appears it is uncommon for a Malleefowl to collect such a large number of invertebrates while foraging. The Malleefowl had probably taken advantage of a flight of insects to gorge. One of the South Australian birds had also taken advantage of an insect outbreak, taking a large number of lerps.

The smallest seeds taken by one of the Malleefowl were three seeds

measuring 2 mm by 1 mm. Another bird had taken 34 fruits of 1 mm diameter. Several ants of 2 mm length were also found in specimen crops. It is possible these were taken incidentally while feeding on plant material, however observations of such small ants being taken by Malleefowl have been made in previous studies.

Conclusions

- More work is required to identify samples further to produce a comprehensive species list. This would include flora surveys of the areas where the Malleefowl were collected.
- To reduce the high number of Malleefowl roadkills, road authorities should be encouraged to increase signage for public awareness in areas of high Malleefowl density.
- Roadside verges are valuable and should be expanded and used as corridors in a management plan to connect remnant bush.
- Malleefowl usage of roadsides and standing crop as feeding areas may indicate there is not enough food available in small remnant areas. As there is a high mortality among chicks, with 80% thought to die through starvation in the first few weeks of life, providing supplementary feed in small managed remnants may assist recruitment of the young into the population—more work on this is needed.

Thanks to my supervisors for their support and encouragement and to all the people who gave their time to assist me in this project.

Contacts: If you see a Malleefowl, please fill in the sighting form found on the Malleefowl Preservation Group's (MPG) website: <http://www.malleefowl.com.au/MalleefowlSighting.htm>

If you come across a roadkilled Malleefowl, record details of where you found it and freeze it. The MPG can advise where the bird can be taken.

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