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# Notes on the Diet of the Superb Lyrebird *Menura novaehollandiae* in Central-eastern New South Wales

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The diet of the Superb Lyrebird *Menura novaehollandiae* is generally well known. It consists of earthworms, insects and their larvae, a variety of other arthropods, and seeds, obtained by raking the litter of the forest floor (Blakers et al. 1984, Smith 1988). Specific dietary items have been listed by Rose (1973, 1974), Robinson & Frith (1981) and Barker & Vestjens (1990). This paper presents further data on the diet of the Superb Lyrebird from the Sydney region of New South Wales, as a follow-up to, but excluding, those detailed by Rose (1973).

The samples were taken from road-killed specimens, collected by National Parks and Wildlife Service staff, mainly from Ku-ring-gai Chase National Park to the north of Sydney and Royal National Park to the south. The contents were identified by comparison with reference material and, for insects, by reference to CSIRO (1970).

The stomach contents of each specimen are listed below:

1. Bobbin Head, Ku-ring-gai Chase National Park (33°39′S, 151°09′E), 4 November 1974 (ABR): three seeds of Fabaceae; one slater (Isopoda: Porcellionidae); three centipedes (Chilopoda, two different species); two spiders (Araneida); one cockroach (Blattodea); one beetle (Coleoptera); and one moth (Lepidoptera).
2. Bobbin Head, early December 1976 (M. Bailey): many shiny black seeds; one earthworm (Oligochaeta: Lumbricidae); one millipede (Diplopoda); beetles; ants (Hymenoptera: Formicidae); and remains of unidentified arthropods.
3. McCarrs Creek Road, Ku-ring-gai Chase National Park (33°39′S, 151°15′E), 1 September 1977 (ABR): two *Acacia* seeds; and some dead leaf matter.
4. McCarrs Creek Road, 1 September 1980 (C. Bennett): one small frog (Amphibia: Anura); one earthworm; many slaters; one millipede; one scorpion (Scorpionida); one spider; beetles, including a weevil (Curculionidae), larvae including scarab (Scarabaeidae) and click-beetle (Elateridae); larvae of two species of fly (Diptera); several moth pupae; and one hymenopteran pupa. This specimen, a female, had glands in its gullet resembling the crop-milk glands found in breeding pigeons (Columbidae).
5. Ku-ring-gai Chase Road, Ku-ring-gai Chase National Park (33°40′S, 151°08′E), 15 February 1980 (C. Bennett): one legume seed; arthropods including millipedes and beetles; detritus and grit.
6. Ku-ring-gai Chase National Park (33°39′S,151°09′E), January 1983 (H. George): 25+ shiny black seeds of Wax Plant *Eriostemon australicus;* 12+ seeds of Inkweed *Phytolacca octandra;* several seeds of Woody Nightshade *Solanum nigrum;* one unidentified seed; one earthworm; one Wolf Spider *Lycosa;* one unidentified spider; one cockroach; several species of beetles; one moth; and a cocoon.
7. Mt White, Pacific Highway (33°27′S, 151°12′E), 2 January 1978 (M. Bailey): several black shiny seeds; and quartz grit.
8. Royal National Park (34°05′S, 151°05′E), 1981 (no date, locality or collector): almost entirely moths; several scales of a skink (Reptilia: Scincidae); one beetle.
9. Royal National Park, 1982 or 1983 (no date, locality or collector): shiny black seeds; insects including beetles and ants; and Lyrebird feathers.
10. Audley, Royal National Park (34°05′S, 151°05′E), 7 May 1982 (P. McCallon): no food items; more quartz grit than in other stomachs examined.
11. Garie, Royal National Park (34°08′S, 151°04′E), 28 November 1982 (R. Crombie): remains of insects, including one scarab beetle, beetle larvae, two moth cocoons, and many ants.

**Table 1**

**Occurrence of food items in stomachs of the Superb Lyrebird from central-eastern New South Wales, incorporating the data of Rose (1973): contents of 16 stomachs. Number (n) and percentage of stomachs with each food type shown.**

| *Food type* | *Stomachs n* | *Stomachs %* |
|---|---|---|
| Seeds | 9 | 56 |
| Earthworms | 3 | 19 |
| Centipedes | 3 | 19 |
| Millipedes | 3 | 19 |
| Diplurans | 1 | 6 |
| Cockroaches | 4 | 25 |
| Earwigs | 3 | 19 |
| Beetles | 11 | 69 |
| Flies and larvae | 2 | 13 |
| Moths/cocoons | 6 | 38 |
| Ants/hymenopteran pupae | 6 | 38 |
| Amphipods | 3 | 19 |
| Slaters | 2 | 13 |
| Spiders | 5 | 31 |
| Scorpion | 1 | 6 |
| Frog | 1 | 6 |
| Skink | 1 | 6 |

12. East of Fitzroy Falls, Morton National Park (34°39'S, 150°30'E), 15 August 1974 (I. Fry): five centipedes including three *Schizonbautia aggregatum;* one dipluran (Diplura: Japygidae); one earwig (Dermaptera); one weevil; one unidentified beetle; one fly larva; and many brown ants.

Clear quartz grit of an even size was present in all stomachs; two stomachs contained small coloured pebbles.

Insects, particularly beetles, moths and ants, were the most frequent prey items in stomachs, followed by spiders, cockroaches, worms, and various non-insect arthropods (Table 1). Seeds were frequently included in the diet of adult Lyrebirds (as reported by Rose 1973 and Barker & Vestjens 1990), a fact not revealed by studies of food items brought to nestlings. For instance, Robinson & Frith (1981) observed only invertebrates being fed to nestlings. All of the seeds found in Lyrebird stomachs were shiny and black.

The results of this study are similar to those of previous studies (Robinson & Frith 1981, Barker & Vestjens 1990). The frog and skink recorded herein represent new prey species, and show that Lyrebirds will occasionally take small vertebrates.

The glands in the upper gullet, as also noted in another female (Rose 1973), were not observed outside the breeding season, and were not found in males. Therefore, it appears that they form only in breeding females. The set of glands from the August 1968 specimen (Rose 1973), preserved in alcohol, and some from pigeons, are held for comparison.

The existence of pigeon-like glands in the Lyrebird's gullet (Rose 1973, this study) appears to have otherwise gone unremarked. The functional and taxonomic significance of such glands are apparently unknown, but deserve further investigation. Scientists consulted during this study did not know of such glands in

Lyrebirds, not having seen them during preparation of specimens, or reported in the literature. A. Lill (pers. comm.) suggested that the occurrence of a pigeon-like crop-milk is unlikely and that a different function is more probable, as female Lyrebirds feed their young on invertebrates which are carried in the bill or gular sac. A possible line of research would be to examine captive female Lyrebirds in breeding condition (perhaps artificially induced by hormone injection), and then examine the gullet for glands (J. Disney pers. comm.). Another possibility is to take a biopsy by trephine, fix the tissue and examine it for the presence of true glandular tissue (G. Cam pers. comm.).

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