

ADDITIONAL RECORDS OF PREY OF THE FAT-TAILED FALSE ANTECHINUS *PSEUDANTECHINUS MACDONNELLENSIS* FROM CENTRAL AUSTRALIA

CHRIS J. BURWELL, FRITZ GEISER, MICHAEL BARRITT, KAREN MAY AND CHRIS R. PAVEY

THE fat-tailed false antechinus (*Pseudantechinus macdonnellensis*) is a medium-sized dasyurid marsupial (body mass 18-33 g), that is endemic to central Australia. It is largely confined to rocky environments in the Northern Territory, Western Australia and South Australia (Menkhorst and Knight 2001). Despite its specialised habitat, the species is a generalist insectivore. Ten insect orders and spiders (Araneae) were recorded in faecal samples of a population in West MacDonnell National Park, Northern Territory, during a two and a half year study (Gilfillan 2001). Isoptera, Coleoptera and Orthoptera were the major insect orders in the diet. Here we report the results of the analysis of a small sample of faeces of *P. macdonnellensis* collected from the same location as the population studied by Gilfillan. Our results are noteworthy because of additions to the prey taken by *P. macdonnellensis* including three new classes and two new phyla.

The study area was in the vicinity of Ormiston Creek (23° 37' S, 132° 45' E) where we captured animals in Elliott traps (23 × 8 × 9 cm) baited with a mixture of peanut butter and rolled oats. Specific details of trapping sites are given in Pavey *et al.* (2003). A total of seven adult *P. macdonnellensis* (five males, two females) was captured in June 2001. Six pellet samples (five individual pellets and a large amount of residue material) were collected from male *P. macdonnellensis* either from the traps after animals were released or from cloth bags in which animals were held during processing. We placed each pellet in a petri dish and added 4-5 drops of 10% KOH directly to it, before teasing it apart with fine dissecting needles and covering in 70% ethanol. We systematically searched each pellet for identifiable material under a low power (6.4 to 40 magnification)

binocular microscope. Prey fragments were identified to the lowest taxonomic level possible. We recorded the presence of each prey category in each pellet, but did not estimate % volume.

The sample contained material from three phyla, five classes and 10 orders of animals with a range of two to seven prey taxa per pellet (Table 1). We identified three previously unrecorded prey categories in the faeces of *P. macdonnellensis*; slaters (Isopoda), snails (Pulmonata) and rodents. Three pellets contained large numbers of isopod fragments with one pellet being composed almost entirely of this order. We identified snail material in a single pellet. Rodent hair was identified in three pellets with one pellet being composed almost entirely of mammal hair. The hair was yellowy-brown with a maximum diameter of 65 microns (B. Triggs, pers. comm.).

Slaters and snails are not unexpected additions to the prey taken by *P. macdonnellensis* at Ormiston Creek, because both are terrestrial invertebrates that are known to occur in the area. However, Gilfillan (2001) collected neither in pit traps despite extensive sampling during 1991-1993. Slaters and snails occur in low frequency in the diet of a number of other arid/semi arid dasyurids (e.g., Morton *et al.* 1983; Read 1987).

Snails are relatively rare at Ormiston Creek and individuals are active for only short periods after rain and spend the intervening dry periods aestivating for months or even years (Solem 1993). Our study occurred during and after a period of above average rainfall (annual rainfall at Ormiston in 2000, 897 mm; 2001, 598 mm), whereas Gilfillan's far

Burwell CJ, Geiser F, Barritt M, May K, and Pavey CR, 2005. Additional records of prey of the fat-tailed false antechinus *Pseudantechinus macdonnellensis* from central Australia. *Australian Mammalogy* 27: 227-229.

Key words: carnivory, diet, dasyurid, *Pseudantechinus macdonnellensis*.

CJ Burwell, Queensland Museum, PO Box 3300, South Brisbane, Queensland 4101, Australia. Email: ChrisB@qm.qld.gov.au. F Geiser, Zoology, BPERC, University of New England, Armidale, NSW 2351, Australia. Email: geiser@metz.une.edu.au. M Barritt and CR Pavey, Parks and Wildlife Service, PO Box 2130, Alice Springs, NT 0871, Australia. Email: kmmb@bigpond.net.au; chris.pavey@nt.gov.au. K. May, Natural Resource Management, DIPE, PO Box 2130, Alice Springs, NT 0871, Australia. Email: karen.may@nt.gov.au. Manuscript received 6 December 2004; accepted 16 May 2005.

| Phylum | Class | Prey category | Comments | No. pellets | |
|------------|----------|----------------|-------------------------------------|----------------------|-----------------------|
| Arthropoda | Insecta | Orthoptera | | 1 | |
| | | Blattodea | | 3 | |
| | | Hemiptera | | | |
| | | Heteroptera | | 1 | |
| | | Auchenorrhynch | | 1 | |
| | | Coleoptera | | | |
| | | Scarabaeoidea | antenna | 1 | |
| | | Unidentified | | 3 | |
| | | Lepidoptera | scales and body fragments | 3 | |
| | | Hymenoptera | | | |
| | | Formicidae | adults, no larvae recorded | 3 | |
| | | Arachnida | Araneae | spider leg fragments | 1 |
| | | Malacostraca | Isopoda* | | 3 |
| | | Mollusca | Gastropoda | Pulmonata* | snail shell fragments |
| Chordata | Mammalia | Rodentia* | probably <i>Zyomys pedunculatus</i> | 3 | |

Table 1. Prey items of male *P. macdonnellensis*, at Ormiston, West MacDonnell National Park, Northern Territory, in June 2001 showing the occurrence of each taxon in six pellet samples. * = previously unrecorded prey taxa.

more extensive and systematic sampling was carried out during a very dry period (annual rainfall at Ormiston in 1991, 167 mm; 1992, 180 mm). The difference in rainfall appears the most likely explanation for the absence of snails in the previous study.

Our study provides the first evidence of carnivory by *P. macdonnellensis*. Other arid zone dasyurids are known to capture vertebrates, especially reptiles (e.g., Morton *et al.* 1983), and rodents are an important dietary component of the mulgara (*Dasyercus cristicauda*), being present in 33% of faecal pellets from a sample from the Simpson Desert (Chen *et al.* 1998). However, this species is almost twice the body mass of *P. macdonnellensis* and occupies sand habitats where rodent population explosions occur periodically.

Specific identification of the rodent hair in pellets of *P. macdonnellensis* was not possible; however, the most likely species is the central rock-rat (*Zyomys pedunculatus*; B. Triggs pers. comm.). *Z. pedunculatus* was common at Ormiston Creek during our study; during 386 trap nights we captured seven *P. macdonnellensis* (1 / 55 trap nights) and 15 *Z. pedunculatus* (1 / 26 trap nights). We did not capture any other rodents; however, desert mouse (*Pseudomys desertor*), and house mouse (*Mus domesticus*), were captured within 1.0 km of our trap sites in July 2001.

We can only speculate as to the circumstances under which *P. macdonnellensis* captures rodents and cannot exclude the possibility that it feeds on the carcasses of dead rodents. *P. macdonnellensis* occupies the same foraging and shelter sites as *Z. pedunculatus* at Ormiston Creek, therefore,

individuals of both species are likely to frequently encounter one another. *Z. pedunculatus* is considerably larger and heavier (body mass 50-80 g) than *P. macdonnellensis* (body mass 18-33 g), therefore it seems unlikely that adults are captured.

We recorded fragments from six insect orders and spiders amongst the sample including most of the insect taxa recorded in the diet of *P. macdonnellensis* during the previous study (Gilfillan 2001). Insect orders missing from our sample were Isoptera, Diptera, and Mantodea.

ACKNOWLEDGEMENTS

Barbara Triggs (mammal hair identification) and staff of the Malacology and Mammal sections of the Queensland Museum provided assistance in identification of material in pellets. The study was carried out under permit from the Parks and Wildlife Commission of the Northern Territory (permit number 10648) and the University of New England Animal Ethics Committee (authority number AEC01/029). The work was supported by grants from the Australian Research Council and the Faculty of Sciences, University of New England (to FG). The Parks and Wildlife Commission of the Northern Territory provided logistic support.

REFERENCES

- CHEN X, DICKMAN CR AND THOMPSON MB, 1998. Diet of the mulgara, *Dasyercus cristicauda* (Marsupialia: Dasyuridae), in the Simpson Desert, central Australia. *Australian Mammalogy* 25: 233-242.
- GILFILLAN S, 2001. An ecological study of a population of *Pseudantechinus macdonnellensis*

- (Marsupialia: Dasyuridae) in central Australia. I. Invertebrate food supply, diet and reproductive strategy. *Wildlife Research* **28**: 469-480.
- MENKHORST P AND KNIGHT F, 2001. *A field guide to the mammals of Australia*. Oxford University Press: Melbourne.
- MORTON SR, DENNY MJS AND READ DG, 1983. Habitat preferences and diet of sympatric *Sminthopsis crassicaudata* and *S. macroura* (Marsupialia: Dasyuridae). *Australian Mammalogy* **6**: 29-34.
- PAVEY CR, GOODSHIP N AND GEISER F, 2003. Home range and spatial organization of the rock-dwelling carnivorous marsupial, *Pseudantechinus macdonnellensis*. *Wildlife Research* **30**: 135-142.
- READ DG, 1987. Diets of sympatric *Planigale gilesi* and *P. tenuirostris* (Marsupialia: Dasyuridae): relationships of season and body size. *Australian Mammalogy* **10**: 11-21.
- SOLEM A, 1993. Camaenid land snails from Western and Central Australia (Mollusca: Pulmonata: Camaenidae). VI. Taxa from the red centre. *Records of the Western Australian Museum Supplement No. 43*.

