

### III MAMMALS OF EAST YUNA AND BINDOO HILL NATURE RESERVES

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#### INTRODUCTION

Mammals were recorded on East Yuna Nature Reserve (EYR) and Bindoo Hill Nature Reserve (BHR) and their immediate surrounds between 7-18 May 1973 and 18-30 September 1973. Small mammals were trapped according to the method of Kitchener & Chapman (1976). In addition pit traps (P.V.C. tubing 60 cm long, 10 cm in diameter) were used wherever soil conditions permitted.

Female specimens were dissected for information on reproduction. Stomach contents of rodents and introduced goats (*Capra hircus*) were identified where possible.

Detailed descriptions of vegetation, soils and leaf litter at traplines as well as their location are presented in Figs 4 and 5 in Muir (this publication). These are summarized in Appendix 2. Trapping effort is presented in Appendix 1. All specimens are in the Western Australian Museum with registration numbers M10247-10266 and M10699-10706.

#### ANNOTATED LIST

##### Grey Kangaroo (*Macropus fuliginosus*)

Present on both reserves in small numbers during May 1973 and September 1973. Generally 4-5 animals were seen per day. Groups of 5-7 animals were seen on two occasions on cleared land near the south boundary of EYR. In September two animals were seen copulating, and two males were observed fighting in the south-west corner of BHR.

##### Euro (*Macropus robustus*)

Present on both reserves in May 1973 and September 1973, but seen less frequently than *M. fuliginosus*. Generally 1-2 animals seen per day; in and around dissected country. A freshly killed female with a pouch young (crown-rump length *ca* 4 cm) was collected 22 km east of Geraldton on the Mullewa road on 14 May 1973.

##### Red Kangaroo (*Megaleia rufa*)

Not seen during these surveys, but they do occur sporadically in the district. Mr D.J. McGauran (pers. comm. 1973) informed us that in his opinion Red Kangaroos are more numerous now than in the past.

### **Echidna (*Tachyglossus aculeatus*)**

Characteristic echidna faeces and diggings were present on both reserves. Mr D.J. McGauran has recently repeatedly seen an echidna under a break-away ledge on EYR.

### **Stick-nest Rat (*Leporillus* sp.)**

Abandoned nests are present under breakaway ledges and in small caves on EYR. They are comprised of sticks and stone fragments cemented together by a dark, bituminous-like substance with a distinctive smell. The age of these nests is uncertain as they are protected from weathering and breakdown by location. Mr A. Douglas (pers. comm. 1973) is of the opinion that these nests are attributable to the White-tipped Stick-nest Rat (*L. apicalis*), which is now considered to be extinct (Frith 1973).

### **Spinifex Hopping Mouse (*Notomys alexis*)**

Two were collected on EYR; a male in May 1973 and a female in September 1973; both were from trapline 5. Five males, 4 in May 1973 and 1 in September 1973, were collected on BHR from traplines 1(3) and 4(2). The vegetation formations at these traplines were open scrub on clayey sand, dense thicket on fine sandy loam and open scrub on sandy clay loam. A female weighing 33.9 g collected at trapline 5 on 19 September 1973 had four fetuses with crown-rump lengths of 9.0 mm. Stomach contents were mainly masticated seed material (seed endosperm with some husk) and some hair. One specimen had insect (Coleoptera) remains in its stomach.

### **Ashy Grey Mouse (*Pseudomys albocinereus*)**

One female was collected on EYR in May 1973 at trapline 7. All BHR specimens were from trapline 3; two males and two females in September 1973 and one male and one female in May 1973. The vegetation formations at these traplines were Low Heath *on* clayey sand and Low Shrub Mallee *over* Hummock Grass *on* sandy clay loam. The sedge *Ecdeiocolea monostachya* was present at both these traplines. A female weighing 36.0 g collected on 27 September 1973 at trapline 3 had 4 near-term fetuses with crown-rump lengths of 2.2 cm. We have also recorded breeding for this species in October near Jurien Bay (Chapman & Kitchener 1977) and in the wheatbelt near Kellerberrin (Chapman & Kitchener 1978). Stomach contents were masticated seed material (mostly endosperm with some husks) and some hair.

### **Gould's Wattled Bat (*Chalinolobus gouldii*)**

Three males and one female were shot at dusk on the north boundary of Bindoo Hill Reserve in May 1973. The female was used in a study of the

reproduction of this species (Kitchener 1975), which showed that insemination occurs in winter; sperm is stored until the end of winter when ovulation and fertilisation take place. May was the earliest month in which a female with sperm was recorded. Stomachs were empty; presumably animals had just emerged and commenced feeding when collected.

#### Goat (*Capra hircus*)

Feral goats were present on both reserves. On EYR between 10-15 animals were seen per day, usually in and around breakaways. Mr D. McGauran (pers. comm. 1973) was of the opinion that numbers were increasing as they came south from the Murchison area. However, numbers were considerably depleted by October 1976 as Dell & Muir (pers. comm. 1977) recorded only one group of 5-6 animals at this time. However, the number of goats appears to have increased over the period 1974-1976 on BHR.

Several goats were shot; examination of stomach contents revealed *Melaleuca nematophylla* and *Acacia neurophylla* as prominent food species.

#### House Mouse (*Mus musculus*)

Five were collected on EYR; in May 1973, 2 females and a male from traplines 3, 4, 5; in September 1973 a male and a female from traplines 4 and 6. Five were collected on BHR in May 1973, 2 females and 3 males from traplines 2(4) and 7(1). Two juveniles (weights 4.5 g, 7.7 g) collected in May 1973 indicate some breeding just prior to the survey. Generally the number of *Mus* collected on these reserves was very low compared to other wheat-belt reserves we have examined.

#### Fox (*Vulpes vulpes*)

A fox was killed on the road ca 1 km south of EYR in September 1973.

#### Cat (*Felis catus*)

Freshly buried cat faeces were collected on EYR in September 1973. Bird feathers were present in the faeces.

#### Rabbit (*Oryctolagus cuniculus*)

Rabbits were present in and around both reserves in small numbers (up to 6 seen per day) during both surveys.

## DISCUSSION

Of the mammals recorded on East Yuna and Bindoo Hill Nature Reserves, *Pseudomys albocinereus*, *Tachyglossus aculeatus*, *Chalinolobus gouldii*,

*Macropus fuliginosus* and *M. robustus* are present on reserves elsewhere in the wheatbelt. *Notomys alexis*, *Megaleia rufa* and *Leporillus* sp., on the other hand, are drier country species, and their presence here reflects the geographic position of these reserves at the north-east of the wheatbelt. Likewise feral goats have not been recorded on any of the other 22 wheatbelt reserves we have surveyed. Goats are common in pastoral country in the Yalgoo and Wurarga areas to the north-east of East Yuna and Bindoo Hill Nature Reserves. In view of their particular capacity to damage low-growing trees (Coblenz 1978) as well as other vegetation, it is imperative that their numbers be controlled on these reserves.

Comparison with other reserves in the wheatbelt suggests that East Yuna Reserve has relatively few native mammal species; for example West Bending Reserve (1602 ha) has 12 native species (Kitchener & Chapman 1977) and Dongolocking Reserve (1061 ha) has 10 (Kitchener & Chapman 1978). Bindoo Hill Reserve on the other hand has an 'expected' number in view of its size.

Conspicuous by their absence on these reserves are dasyurid marsupials; however some species probably do occur in the district as the Western Australian Museum has specimens of *Sminthopsis murina* (M6386) from Tallering (60 km east) and *S. crassicaudata* (M4076) from Tallering and M6160 from Tenindewa (30 km south). Some other wheatbelt species, e.g. *Phascogale calura* and *Pseudomys occidentalis* apparently do not occur as far north as East Yuna, but others, e.g. *Tarsipes spenceriae* and *Trichosurus vulpecula* could conceivably be present in the district. Bats were undoubtedly under-collected in our survey; for example Burbidge *et al.* (1978) collected *Nyctophilus geoffroyi* and *Tadarida australis* on the Wandana Nature Reserve (No. 36388) near Yuna.

## APPENDIX 1

Trapping effort for (a) East Yuna Nature Reserve, and (b) Bindoo Hill Nature Reserve, for May 1973 and September 1973.

BB = breakback trap; E = Elliott trap; C = cage trap; P = pit trap.

### (a) East Yuna Reserve

Trapline No.	May 1973				September 1973			
	BB	E	C	P	BB	E	C	P
1	50	50	10	0	80	80	16	0
2	50	50	10	0	70	70	14	0
3	50	50	10	0	70	70	14	0
4	50	50	10	20	70	70	14	42
5	50	50	10	0	70	70	14	0
6	50	50	10	0	70	70	14	0
7	20	20	0	0	35	35	0	0
8	0	0	0	0	70	70	7	0
9	0	0	0	40	0	0	0	40
miscellaneous	0	45	3	0	60	60	0	0
<b>totals</b>	808				1365			

### (b) Bindoo Hill Reserve

Trapline No.	May 1973				September 1973			
	BB	E	C	P	BB	E	C	P
1	50	50	10	0	50	50	10	0
2	50	50	10	0	50	50	10	0
3	50	50	10	0	50	50	10	0
4	50	50	10	0	50	50	10	0
5	50	50	10	0	50	50	10	0
6	50	50	10	0	50	50	10	0
7	0	0	0	24	0	0	0	20
miscellaneous	0	0	0	0	20	20	0	20
<b>totals</b>	684				740			

## APPENDIX 2

Codified vegetation and soil descriptions with leaf litter density, following Muir (1977), and vegetation location numbers for traplines on East Yuna and Bindoo Hill Nature Reserves.

### East Yuna Nature Reserve

Trapline No.	Vegetation Location No.	Vegetation and soil code	Leaf litter
1	2.11	eKSr.m <sub>1</sub> SCr.tHn <sub>1</sub> VLr/FSL	Sparse, clumped
2	6.2	xSd AND xSc AND xSr	Not recorded
3	3.20	xSc.xSCr/SCL	Abundant, clumped
4	3.22	xSi.xSCr/SCL	Sparse, clumped
5	3.27	gSr.xSCc/CLS	Abundant, clumped
6	2.7	eKSi.xSCr.tHR/SCL	Moderately abundant, clumped
7	2.8	eKSi.tHi/SCL	Moderately abundant, clumped
8	2.5	eKSi.tHi/FSL	Moderately abundant, clumped
9	3.21	xSi.xSCi/FSL	Sparse, clumped

### Bindoo Hill Nature Reserve

Trapline No.	Vegetation Location No.	Vegetation and soil code	Leaf litter
1	3.10	xSd/FSL	Moderately abundant, clumped
2	3.6	m <sub>1</sub> SC.n <sub>1</sub> SDr/FSL	Moderately abundant, clumped
3	4.2	xSCc/CLS	Sparse, clumped
4	3.21	xSr.n <sub>1</sub> VLxSDc/SCL	Sparse, clumped
5	3.18	xSr-c.xSCr-i/LS	Absent to moderately abundant
6	1.1	eLAr.xSi.xSBi/LSCL	Sparse, clumped
7	3.1	xSc.xSDr/LSCL	Moderately abundant, clumped