BROAD-TOOTHED RAT, MASTACOMYS FUSCUS (RODENTIA, MURIDAE), FOUND IN ALPINE HEATHLAND IN TASMANIA

MICHAEL M. DRIESSEN

THE broad-toothed rat *Mastacomys fuscus* is a native, herbivorous rodent that occurs in New South Wales, Victoria and Tasmania. On the Australian mainland the species has been recorded in several habitats at altitudes ranging from sea level to 1800 m. In alpine and sub-alpine areas of New South Wales and Victoria it has been recorded in heathlands, open eucalypt woodlands and wet sedgelands (Calaby and Wimbush 1964; Dixon 1971; Seebeck 1971; Bubela et al. 1991). At lower altitudes in Victoria, it has been recorded in wet sclerophyll forests with a dense undergrowth, coastal heathland, coastal grassland and in a pine plantation (Seebeck 1971; Wallis et al. 1982; Warneke 1960). In Tasmania, *M. fuscus* has been previously recorded only in buttongrass moorlands of western Tasmania at altitudes ranging from sea level to 900 m (Finlayson 1933; Andrews 1968; Green 1968, 1984; Hocking and Guiler 1983; Driessen and Comfort 1991; Slater 1992; Driessen 1998). Buttongrass moorland (also referred to as sedgeland) is a treeless vegetation typically dominated by *Gymnoschoenus sphaerocephalus* (buttongrass) that covers more than a million hectares in Tasmania, predominantly in the western part of the State (Jarman et al. 1988). Buttongrass moorland is a very variable vegetation group and not all communities recognised within buttongrass moorland provide habitat for *M. fuscus* (Driessen and Comfort 1991; Slater 1992; Driessen 1998).

The purpose of this note is to report the results of a survey for *M. fuscus* in alpine heathland, a habitat in which the species has not been previously recorded in Tasmania. This finding has significant implications for the conservation status of this species.

STUDY AREA AND METHODS

The survey was conducted in the Walls of Jerusalem National Park at a site called Damascus Gate (41°49’30”S, 146°17’55”E). Damascus Gate is a saddle of land, 1340 m above mean sea level that occurs between The Temple (1450 m) and Halls Buttress (1400 m). Alpine grasslands and alpine heathlands dominate vegetation on the saddle. The following alpine vegetation types are found at Damascus Gate.

**Poa grassland.** Dominated by *Poa gunnii* (< 5 cm tall) with occasional tussocks of *Empodisma minus* (< 15 cm tall). The mat-forming *Asteria alpina* and various herbs (*Asperula* sp., *Gnaphalium* sp., *Hydrocotyle* sp., and *Oreomyrrhis reptans*) were also present.

**Leucopogon montanus/Poa grassland.** Dominated by *P. gunnii* (< 5 cm tall) covering about 70% of the ground with the shrubs *L. montanus* and occasional *Richea sprengelioides* covering up to 35% of the ground. Patches of the creeping pine *Microcachrys tetragona*, the tussock graminoid *Diplarrena latifolia* and various herbs were scattered among this vegetation type.

**Richea scoparia bog.** Dominated by *R. scoparia* (50 cm tall) covering about 65% of the ground. Beneath and interspersed amongst this layer of *R. scoparia* were *Empodisma minus* (50 cm tall) and *P. gunnii* (15 cm tall) which covered about 70% of the poorly drained ground. The remaining ground cover was comprised of *Asteria alpina*, *Diplarrena latifolia*, the cushion plant *Abrotanella forsteroides*, *Sphagnum* moss and various herbs including *Geranium potentilloides* and *Acaena montana*.

**Richea scoparia heathland.** Dominated by *R. scoparia* (100 cm tall) covering about 85% of the ground. Open spaces within *R. scoparia* contained *P. gunnii* (10 cm tall), *L. montanus* (30 cm tall), *Orites revoluta* (100 cm tall) and various herbs. Other species present were *R. sprengelioides*, *Diplarrena latifolia*, *Asteria alpina*, *Blechnum penna-marina*, *O. acicularis* and *Coprosma* sp.


Key words: *Mastacomys fuscus*, habitat, Rodentia, Muridae

M.M. Driessen, Nature Conservation Branch, Department of Primary Industries, Water and Environment, PO Box 44A Hobart 7001, Tasmania, Australia. E-mail Michael.Driessen@dpiwe.tas.gov.au. Manuscript received 17 September 2001; accepted 19 November 2001.
RESULTS AND DISCUSSION

Trap success was low with only three animals caught (Table 1). They comprised two Mastacomys fuscus and one Rattus lutreolus. In Tasmania, M. fuscus coexists with R.lutreolus and both species are very similar in appearance. This has led to misidentifications of both species (several cases have been brought to the author’s attention). M. fuscus was identified in the present study by its tail colour (dark dorsal hairs and light ventral hairs cf. dark all round in R. lutreolus), ear hair (tufts of hair which grow from inside the base of the ear cf. no hair tufts inside ear in R. lutreolus), faeces (pale green cf. brown in R. lutreolus) and, in the case of females, only four nipples located in the pelvic area (cf. 8 in R. lutreolus in pelvic and pectoral areas).

**Richelia sprengelioideus/L. montanus/O. revoluta** heathland. Very similar to R. sprengelioideus heathland described above except that the shrub layer was co-dominated by R. sprengelioideus (50 cm tall), L. montanus (30 cm tall) and O. revoluta (100 cm tall) covering 80% of the ground.

Seventy five small mammal aluminium traps (10 x 10 x 33 cm, Elliott Scientific Equipment, Upway, Victoria, Australia) were set for two nights commencing 27 January 1998. Traps were set in an area of less than one hectare wherever there was evidence of M. fuscus scats. M. fuscus scats are pale green when wet and dry to a white colour (Happold 1989; Driessen pers. obs.). Traps were baited with peanut butter and rolled oats. Traps were covered in plastic and dacron placed inside to protect animals from rain and cold temperatures. Heavy rain fell on the first night. The second night was dry with frost.

To gain a better understanding of M. fuscus habitat use in the area, scats were counted in ten 30 x 10 x 33 cm plots randomly distributed within each of the vegetation types described above.

**Species**

<table>
<thead>
<tr>
<th>Species</th>
<th>Sex</th>
<th>Weight (g)</th>
<th>Head (mm)</th>
<th>Pes (mm)</th>
<th>Reproductive status</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. fuscus</td>
<td>M</td>
<td>147</td>
<td>45.7</td>
<td>33.2</td>
<td>testes descended</td>
</tr>
<tr>
<td>M. fuscus</td>
<td>F</td>
<td>140</td>
<td>45.2</td>
<td>30.9</td>
<td>vagina perforate, pregnant</td>
</tr>
<tr>
<td>R. lutreolus</td>
<td>M</td>
<td>102</td>
<td>42.5</td>
<td>25.2</td>
<td>testes descended</td>
</tr>
</tbody>
</table>

Table 1. Details of trapped animals

**Vegetation Type**

<table>
<thead>
<tr>
<th>Vegetation Type</th>
<th>Mean scat count / 900 cm²</th>
<th>Standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. sprengelioideus/L. montanus/O. revoluta</td>
<td>19.4</td>
<td>4.6</td>
</tr>
<tr>
<td>R. sprengelioideus heathland</td>
<td>20.0</td>
<td>3.5</td>
</tr>
<tr>
<td>R. scoparia heathland</td>
<td>19.8</td>
<td>5.7</td>
</tr>
<tr>
<td>R. scoparia bog</td>
<td>4.7</td>
<td>2.0</td>
</tr>
<tr>
<td>Poa grassland</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>L. montanus/Poa grassland</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Table 2. Comparison of M. fuscus scat counts in each vegetation type. Sample size for each vegetation type = 10.
appear to avoid open grassland areas (Table 2). This is consistent with previous studies that suggest *M. fuscus* prefers habitats with dense cover at ground level (Seebeck 1971; Hocking and Guiler 1983; Driessen and Comfort 1991; Slater 1992; Driessen 1998).

At 1340 m, Damascus Gate is the highest altitude at which *M. fuscus* has been recorded in Tasmania. The highest previous record was 1000 m at Cradle Valley (Finlayson 1933; Green 1968) which is the upper altitude limit of buttongrass moorland (Jarman et al. 1988). This altitude at Damascus Gate is well within the range recorded for *M. fuscus* on mainland Australia (0 – 1800 m), but is approaching the limit of the highest mountain in Tasmania, Mount Ossa (1600 m).

ACKNOWLEDGMENTS

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REFERENCES


