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SMALL MAMMAL TRAPPING IN SEDGELAND AT McPARTLAN PASS: A NEW LOCATION FOR *Mastacomys fuscus*

by Michael M Driessen and Michael D Comfort
Department of Parks, Wildlife and Heritage

We present the results of small mammal trapping at McPartlan Pass over three nights 6 May to 8 May 1991. The area was trapped in order to determine the presence of small mammals, particularly the broad-toothed rat, *Mastacomys fuscus*, before the area was to be burnt to study the effects of fire on a high fuel load sedgeland.

McPartlan Pass (146° 12'E 42° 51'S) is located in southwest Tasmania within the Tasmanian Wilderness World Heritage Area, and is approximately 55 km west of Maydena on the Gordon River Road. Sedgeland was the dominant vegetation where traps were set. For the purposes of this study the sedgeland was subdivided into four community types based on Jarman *et al.* (1988). A description of these communities is given in table 1.

A total of 96 Elliot traps were used on the first night and an additional 10 traps were added in layered blanket moor vegetation on the following 2 nights. In all there was a total of 308 trap nights. Traps were placed in plastic bags and baited with a mixture of peanut butter and rolled oats. Traps were placed in four lines covering the four main vegetation types in the area.

The results of trapping in each vegetation type at McPartlan Pass are given in Table 2. In all there were a total of 18 captures. The velvet-furred rat, *Rattus lutreolus*, was the most frequently captured species accounting for 67% of captures. The majority (83%) of captures of this species were in the layered blanket moor. The swamp antechinus, *Antechinus minimus*, was the next most commonly trapped species (22%). It was mostly caught in the copses. The single capture of *A. minimus* in the standard peat was only about 10 m away from a wet copse. There

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Standard Peat: This is the dominant community present at McPartlan Pass. The most common species up to 100 cm high are the sedges, *Gymnoshoenus sphaerocephalus* (buttongrass), *Lepidosperma filiforme, Leptocarpus tenax, Restio complanatus* and the swamp melaleuca, *Melaleuca squamea*. The tea-tree, *Leptospermum nitidum*, and pink swamp heath, *Sprengelia incarnata*, are emergent shrubs up to 150 cm high. Vegetation cover ranges from 40% to 70% but tends towards the lower end of the range.

Copse: Both dry and wet copses occur as scattered small islands throughout the standard peat moorland at McPartlan Pass. The copses are normally located on areas of raised ground. The communities are usually dominated by the tea-tree, *Leptospermum scoparium*, up to 200 cm high. Some stands are dominated by banksia, *Banksia marginata*, which reaches 300 cm in height. *G. sphaerocephalus, L. nitidum, S. incarnata* and *M. squamea* are sub-dominant up to 150 cm high. Vegetation cover in this community is high.

Layered Blanket Moor: Within the study area this community is only present along roads and drainage lines (both natural and artificial). *G. sphaerocephalus* forms a dense cover up to 100 cm high with *Leptospermum scoparium* occasionally forming a dense cover up to 250 cm high. In some areas cutting grass, *Gahnia grandis*, also forms a dense cover up to 250 cm high. Other common species include *L. nitidum, S. incarnata* and *M. squamea*.

Dry Copse with Eucalypts: This vegetation type occurred along the eastern boundary of the standard peat at McPartlan Pass. The community is dominated by a sparse overstorey of Smithton peppermint, *Eucalyptus nitida*, up to 8 m high with a dense shrubby understorey up to 3 m high dominated by *L. scoparium*. *G. sphaerocephalus* tussocks occur towards the edge of this community where it borders the adjacent moorland. *L. nitidum, S. incarnata* and *M. squamea* are also present in the shrub layer. Beneath the tea-tree stands there is little development of vegetation.

Table 1 The communities in the study area at McPartlan Pass

was one capture each of *M. fuscus* and the long-tailed mouse, *Pseudomys higginsi*, in layered blanket moor and dry copse with eucalypts respectively.

The results indicated that within sedgeland habitat the differences in vegetation were reflected in the distribution of small mammals. Copses and in particular layered blanket moor appeared to support higher numbers of animals than the standard peat. Presumably this is because of the better cover afforded by these communities. Cover has been identified as an important habitat component of *R. lutreolus* (Hocking 1975, Murray 1980, Norton 1983, Driessen 1987) and also the

Vegetation Type	Trap Nights	Rl	Am	Mf	Ph	Total
Standard Peat	132	1 (0.8)	1 (0.8)	0 (0.0)	0 (0.0)	2 (1.5)
Layered Blanket Moor	53	10 (18.9)	0 (0.0)	1 (1.9)	0 (0.0)	11 (20.8)
Copse	48	1 (2.1)	3 (6.3)	0 (0.0)	0 (0.0)	4 (8.3)
Dry Copse with Eucalypts	75	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.3)	1 (1.3)
Total	308	12 (3.9)	4 (1.3)	1 (0.3)	1 (0.3)	18 (5.8)

Table 2 Total number of small mammal captures by vegetation type at McPartlan Pass. Values in parentheses are numbers of captures per 100 trap nights. Rl=*Rattus lutreolus*, Am=*Antechinus minimus*, Mf=*Mastacomys fuscus*, Ph=*Pseudomys higginsi*.

mainland subspecies (Braithwaite *et al* 1978). Similarly Green (1972) noted that *A. minimus* was usually caught in runways beneath dense vegetation.

The most interesting feature of the results is the trapping of a female *M. fuscus* which is one of the most rarely recorded small mammal species in Tasmania (Rounsevell *et al.* in press). With the aid of two blunt probes the identity of this species was determined by examination of its teeth. This confirmed the presence of the broad molars which are characteristic of this species (Thomas 1882). The molars were also compared with those of a *R. lutreolus* trapped nearby.

Faeces collected from the *M. fuscus* were pale green, similar to that described by Green (1968). Green believed that the faeces of *M. fuscus*, could be distinguished from those of *R. lutreolus* on the basis of colour. He described the colour of faeces belonging to *R. lutreolus* as being brown or greyish in colour. At McPartlan Pass there were no captures of *R. lutreolus* with green faeces, all except one was chocolate brown, the exception being red. Assuming faecal colouration is a reliable indicator of *M. fuscus* presence, then field observations suggest that the species was spread over a wider area than that indicated by trapping. However, in all cases the faeces were never far from areas with adequate cover such as layered blanket moors and copses.

At McPartlan Pass *M. fuscus* was trapped in layered blanket moor vegetation alongside a 50 cm wide drainage line. Whilst much of the McPartlan Pass area had last been burnt 19 years ago (J. Marsden-Smedley, Project Officer, Department of Parks Wildlife and Heritage), it was obvious by the amount of growth of the

buttongrass that the layered blanket moor was subject to less firing than the surrounding standard peat.

These results concur with the observations of Green (1968), Hocking and Guiler (1983), Taylor *et al.* (1985) and Taylor and Comfort (1991) that the absence of fire is important in determining *M. fuscus* habitat. This has important implictions for the management of *M. fuscus* as fire is a common tool for management of this species' habitat in Tasmania, including the World Heritage Area. Whilst there is a need, in some cases for firing to reduce the risk of loss of life and property, and to manage some threatened species such as the orange bellied parrot (*Neophema chrysogaster*), due consideration should be given to rare, less well known and lower profile species such as *M. fuscus*.

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DOLPHIN STRANDING DUE TO KILLER WHALES

by J. E. Wapstra
Department of Parks, Wildlife and Heritage

This note describes an episode of behavioural interaction between dolphins and orcas in southern Tasmania, and subsequent human intervention to avoid an anticipated mass dolphin stranding.

Large schools of dolphins are often observed in waters around Tasmania. While often mistakenly called porpoises, bottlenosed and common dolphins are the most prevalent species. Both have a cosmopolitan distribution in temperate and tropical waters. Orcas or killer whales also have a world-wide distribution, extending into polar seas, and are probably more common in Tasmanian waters than human sightings indicate. The three species all belong to an order of mammals known as toothed whales or odontoceti. Filter feeding or baleen whales are in the order mysticeti, and marine mammals belonging to these two orders are collectively known as cetaceans.

On May 11th 1991 a large school of dolphins was seen hunting mackerel and other seasonally abundant fish in the southern portion of Adventure Bay, Bruny Island. Estimates of dolphin numbers ranged from 300 to 1000, not an unusual

school size in Tasmanian waters. Bottlenosed dolphins (*Tursiops truncatus*) up to 3.5 metres in length were most numerous, with common dolphins (*Delphinus delphis*) to two metres also present. Dolphins were observed at about 10 a.m. leaping clear of the water and occasionally closely approaching the shore; normal behaviour for actively feeding dolphins.

Between 2 and 3 p.m. 20 dolphins suddenly stranded. At about this time a juvenile and three adult female killer whales or orcas (*Orcina orca*) were first seen on the seaward side of the dolphins. Some observers reported a flurry of activity and surmised that a dolphin may have been taken. Observers returned the stranded animals to deep water where they rejoined the school.

For some hours following the stranding the orcas were observed patrolling the mouth of the bay. Dolphins were reported by observers as darting out to sea trying to escape. Although two small groups apparently escaped in this way, most turned back into the confines of the crowded bay.

Wildlife authorities were contacted by concerned members of the public during the afternoon and around 5 p.m. two rangers arrived by boat. After consultation with the author, a cetacean biologist, it was decided to intervene in the most humane way available in order to prevent a mass stranding. At first the boat was interposed between the adversaries but this served only in apparently arousing the curiosity of the orcas. Seal crackers were then used and had an immediate response as the orcas moved out some distance, allowing the dolphins an escape route. Neither the orcas nor the dolphins were seen in the immediate area again over following days, with most dolphins having apparently escaped.

Although wildlife managers would not usually intervene in a natural predation incident, it was decided that the likelihood of a mass stranding under difficult conditions and the relative inaccessibility to rescuers and equipment justified the action taken. The seal crackers, normally used to deter seals from fish farms, were not used at a range of less than 50 metres and were considered to be innocuous in the prevailing conditions. Whales and dolphins do not have the exposed eardrums of most other mammals and in this respect are sturdier than seals.

Incidents like this are rare. Tasmanian wildlife biologists know of only one proven stranding in local waters; in 1983 three orcas were seen chasing a school of common dolphins at the mouth of Ralphs Bay and next day 15 dolphins were found stranded (McManus *et. at.*, 1984). A stranding of 109 dolphins in the D'Entrecasteaux Channel in 1975 appeared symptomatic of orca pursuit although no direct evidence of this was found at the time (Guiler, 1978).

Orcas are adapted for preying on large vertebrate prey with their size, speed and, particularly, their robust muscular jaws with few large, conical teeth. Their cooperative hunting is sophisticated amongst mammals and is often directed towards schooling prey. Seals, fish including large tuna and trevalla, baleen

whales, and large squid are amongst their known prey items (Baker, 1983). Dolphins are known to exhibit aversive behaviour upon hearing orca vocalisations, usually fleeing silently (Evans, 1987).

Causes of cetacean strandings are both diverse and often difficult to explain. The incident described here indicates that predation by orcas may be implicated in at least some stranding events.

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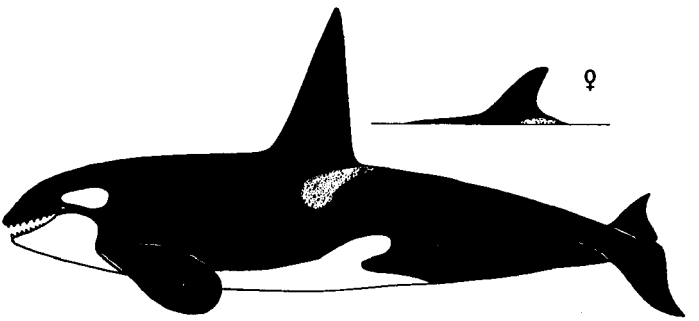
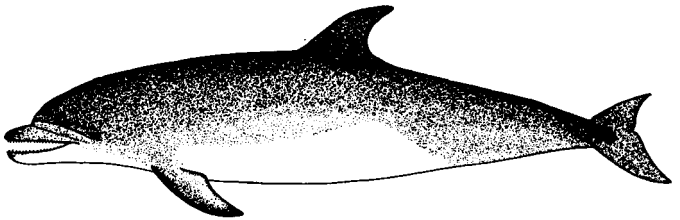
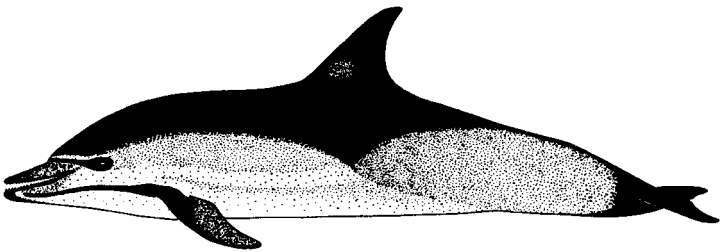


Killer Whale (*Orcinas orca*)



Bottlenose Dolphin (*Tursiops truncatus*)



Common Dolphin (*Delphinus delphis*)

Illustrations from Baker (1983), courtesy of Victoria University Press, Wellington, New Zealand.