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MAMMALS OF TASMAN PENINSULA AND THEIR INTERACTION WITH EUROPEANS

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(with one table)

Twenty-eight species of terrestrial native mammals occur on Tasman Peninsula. This represents 82% of the total number recorded for Tasmania, which is extremely high given the small area and insular nature of the peninsula. The range of habitats present (i.e. both wet and dry forests, heaths and coastal lagoons) is probably the main reason for this high diversity of mammals. Because of high relief, clearing of land has created a mosaic of habitats. The large area of ecotone between forest and pasture has benefited the larger herbivores. Populations of the larger carnivores, the Tasmanian devil and the eastern quoll, have been dramatically reduced probably as a result of eradication campaigns. The insular nature of the peninsular may have helped to ensure that the carnivore population remains low.

Of the marine mammals, one species of seal, the Australian fur seal, is resident in waters off the peninsula and two other species are occasional visitors. Nine species of cetaceans have been recorded stranded on beaches around the peninsula, with Eaglehawk Neck having the greatest number.

Key Words: Tasman Peninsula, Tasmania, native mammals, herbivores, carnivores.
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INTRODUCTION

Despite the early settlement of Tasman Peninsula associated with the penal station at Port Arthur, much of the land still remains undeveloped. Areas cleared for agricultural development tend to be distributed in a mosaic amongst the natural vegetation. A large proportion of the peninsula (approximately 45%) is set aside in nature reserves or state forests. Tasman Peninsula has only a limited connection with Forestier Peninsula to the north via a ridge of sand dunes at Eaglehawk Neck. Forestier Peninsula is, in turn, isolated from the rest of Tasmania by the Denison Canal at Dunalley. Thus opportunities for dispersal of land mammals into and out of the peninsula are limited.

This paper examines the mammals of Tasman Peninsula and discusses the possible effects upon them of European settlement of the area. The two factors listed above, i.e. a mosaic pattern of clearing and the insular nature of the region, have probably played major roles in influencing the outcome of the interactions between Europeans and the other mammals.

METHODS

Limited surveys for mammals have been carried out at various locations on Tasman Peninsula. The Zoology Deparment of the University of Tasmania has conducted trapping near Koonya (periodically for the last 15 years) and at Fortescue Bay (September 1985 and September 1986) and the Tasmanian National Parks and Wildlife Service (TNPWS) has surveyed the Lime Bay Nature Reserve (November 1981). In January 1985 the author conducted a survey of the bats in the Fortescue Bay area. Further information on the mammals present and historical changes in their abundance were obtained by talking with long-term residents. Assessment of any historical changes in abundance is necessarily based mainly on the perceptions of long-term residents. These people are concerned with either commerically important species such as brushtail possum or species which they regarded as pests. Thus nothing can be said about the more secretive or commercially unimportant species. Records were also obtained from the literature and from the TASPAWS records scheme of the TNPWS.

TERRESTRIAL MAMMALS

Native Species

Monotremes

Family Tachyglossidae

Echidna *Tachyglossus aculeatus* — Echidnas are commonly found throughout the dry sclerophyll vegetation. They have also been regularly observed in orchards where they may feed on grubs in the soil.

Marsupials

Family Dasyuridae

Tasmanian devil *Sarcophilus harrisii* — Devils were reported to be much more numerous and widespread in the 1920s and 1930s than they are today. Many people believed that they no longer occurred on the peninsula. However devils have been trapped at Tunnel Hill and a small population is probably associated with the Cape Raoul State Reserve. These devils are unlikely to have been animals that escaped from the Devil Park at Taranna. Seigfried Kerstan, the owner of Tunnel Hill, reports that people who had camped at Tunnel Bay before the opening of the Devil Park had commented on the presence of devils.

Eastern quoll *Dasyurus viverrinus* — The status and history of quolls appears to mirror that of devils. Quolls were previously much more widespread than today, with most people reporting that they had never seen them in recent times. A road kill was reported from Sympathy Hills, one individual has been trapped near Koonya by O. Buchmann and an individual was recently sighted near Port Arthur. A small population with a limited distribution thus appears to be present on the peninsula.

Dusky antechinus *Antechinus swainsonii* and swamp antechinus *A. minimus* — Wakefield & Warneke (1963) list very early records of both species of *Antechinus* from Tasman Peninsula. Residents also report two colour phases of "mice" with pointed snouts. *Antechinus swainsonii* is associated with wet forest with an undergrowth of sedges and ferns and a heavy accumulation of litter (Green 1972a, Hocking 1975). *Antechinus minimus* is normally found in wet sedgeland or heath vegetation (Gren 1972b, 1984). One species, probably *A. swainsonii*, occurs at the Devil Park where it feeds on meat scraps and food pellets in the animal cages.

Family Thylacinidae

Thylacine (Tasmanian tiger) *Thylacinus cynocephalus* — Guiler (1985) reports thylacines as having been collected from Tasman Peninsula. Despite recent reported "sightings" on the road between Nubeena and Port Arthur, the species is now probably extinct.

Family Macropodidae

Potoroo *Potorous tridactylus* — Potoroos occur throughout the peninsula but in the drier regions are restricted to areas with a denser undergrowth, especially around creeks.

Tasmanian bettong *Bettongia gaimardi* — Numerous sightings of bettongs have been reported. This species is restricted to the dry sclerophyll forests. Areas with an open undergrowth on poorer sandy soils probably carry the highest densities (Taylor 1986).

Tasmanian pademelon (rufous wallaby) *Thylogale billardieri* — Pademelons are abundant and widespread. They are most numerous in the wet forests which surround open improved pastures. In the drier vegetation they are associated with denser undergrowth around creeks.

Red-necked wallaby (Bennetts wallaby) *Macropus rufogriseus* — Red-necked wallabies are abundant and widespread. They are more numerous in the drier areas, especially in association with pasture.

Family Vombatidae

Wombat *Vombatus ursinus* — Wombats are common throughout the drier areas, especially where soil conditions allow burrowing. They are also present in association with pastoral areas established after clearing of wet forests. Burrows in these open areas are most numerous on the sandier banks.

Family Peramelidae

Brown bandicoot *Isoodon obesulus* — Brown bandicoots are present in the drier scrubby areas. They feed in pasture but normally remain close to shelter. They are generally absent from wet forests.

Barred bandicoots *Perameles gunni* — Barred bandicoots can be found in the lighter scrubs but are most abundant in association with areas of pasture, irrespective of the surrounding vegetation.

Family Phalangeridae

Brushtail possum *Trichosurus vulpecula* — Brushtail possums are extremely abundant and widespread. They are found in all vegetation types, although they are least common in heath.

Family Petauridae

Ringtail possum *Pseudocheirus peregrinus* — Ringtail possums are widespread but very much less abundant than brushtail possums. They are associated with areas of tall tea tree (*Melaleuca* and *Leptospermum*) in the wetter areas and along creeks, and shrubby areas in windbreaks between paddocks. Ringtails often feed among blackberry bushes (*Rubus fruticosus*).

Sugar glider *Petaurus breviceps* — Sugar gliders have been reported from Tunnel Hill, Marsh Road and the Lime Bay area. They may thus be present over a large proportion of the peninsula but nothing is known of their abundance. There is little information on their habitat requirements in Tasmania but on mainland Australia densities are highest in open forest with dense patches of *Acacia* (Suckling 1983). Tree hollows are required for nesting.

Family Burramyidae

Eastern pygmy possum *Cercartetus nanus* and little pygmy possum *C. lepidus* — Both species have been recorded from the peninsula. Two individuals of *C. nanus* were found in a tree felled near Cashs Lookout. *Cercartetis lepidus* has been recorded from Tunnel Hill, Port Arthur and the Lime Bay area. *Cercartetus nanus* is thought to be more numerous in the wetter forests whereas *C. lepidus* occurs mostly in the drier forests and heaths (Green 1973).

Eutherians

Family Muridae

Swamp rat *Rattus lutreolus* — Swamp rats are probably abundant and distributed over most of the peninsula. They are found in the wetter forests and in drainage lines and denser undergrowth within the drier forests. Swamp rats have been trapped at Fortescue Bay and near Taranna.

Long-tailed mouse *Pseudomys higginsi* — Long-tailed mice have been trapped at Fortescue Bay and reported from the Tunnel Hill and Taranna areas. They are likely to be associated with the wetter forests (Green 1983) but have also been found in dry sclerophyll forest with an undergrowth of dense bracken (*Pteridium esculentum*) and a thick litter layer (Norton 1983).

Water rat *Hydromys chrysogaster* — Numerous reports of water rats have been recorded. They appear to be abundant around the coast and associated with creeks and lagoons.

Family Vespertilionidae

Seven of the eight species of bats which occur in Tasmania have been caught in wet sclerophyll forest at Fortescue Bay (Taylor & O'Neill 1986). These species are *Eptesicus regulus, E. sagittula, Nyctophilus geoffroyi, N. timoriensis, Chalinolobus morio, C. gouldii* and *Falsistrellus tasmaniensis*. The only species not recorded was *E. vulturnus*. This species occurs on Forestier Peninsula (Taylor & O'Neill 1986) and will almost certainly also occur on Tasman Peninsula. Many of the people interviewed commented on the presence of bats. This is unusual and seems to indicate that bats are abundant on the peninsula. Trapping success at Fortescue Bay was high in relation to other sites around Tasmanian which have been investigated (Taylor & O'Neill 1986).

Introduced Species

Eutherians

Family Cervidae

Fallow deer *Dama dama* — Fallow deer once occurred on the peninsula. However, the last individual is believed to have been shot at Deer Point in the late 1950s.

Family Muridae

House mouse *Mus musculus* — This species was reported in associated with human habitation.

Black rat *Rattus rattus* — This species is also found in association with humans. It is distributed patchily in dry sclerophyll forests elsewhere in Tasmania (Taylor, unpublished data) and thus may also be present in this vegetation on the peninsula.

Family Lagomorpha

European rabbit *Oryctolagus coniculus* — Rabbits are scattered throughout the drier forests and in association with pastoral development in the wetter

areas. Rabbits were once much more numerous but declined markedly after the introduction of myxomatosis in the early 1960s.

Family Felidae

Feral cat *Felis catus* — Feral cats are reported to be locally abundant, especially around garbage dumps. In natural vegetation feral cats are probably more common in the wet forest than in areas of dry sclerophyll.

Feral cats also occur on Tasman and Wedge Islands. The cats on Tasman Island probably originated from domestic animals associated with lighthouse keepers. The cats kill large numbers of seabirds (Brothers 1979) and for this reason an eradication programme began in 1977 (Brothers 1982). The population was reduced from around 50 to only a few individuals by poisoning and shooting. However, due to difficulties in mounting a follow-up campaign, the population has built up again. On Wedge Island, sheep have been grazed under a lease from the state government since 1902. Rabbits were introduced by fishermen around the 1930s. They had a severe impact on the pastures and cats were introduced in 1939 to try to reduce the rabbit population. They died out and were reintroduced in the early 1970s. The rabbits subsequently died out but this was probably not due to predation from cats (N. Brothers, pers. comm.). A stable population of 20–25 adult cats exists on the island and its effect on the seabirds is currently being assessed (N. Brothers, pers. comm.).

Thirty-four native species of terrestrial mammals are extant in Tasmania. There is evidence of the occurrence of twenty-eight of these on Tasman Peninsula, which represents 82% of the total. Of the six species not recorded, the distributions of four of these (i.e. *Macropus giganteus, Dasyurus maculatus, Mastacomys fuscus* and *Pseudomys novaehollandiae*) do not extend into the southeast and hence they would not be expected to occur. Thus only two species were not recorded which might otherwise have been expected. These were the white-footed dunnart *Sminthopsis leucopus* and the platypus *Ornithorhynchus anatinus*. *Sminthopsis leucopus* has been recorded from a wide variety of habitats including rainforest, dry sclerophyll, tea tree scrub and dry heath (Green 1972c, 1979). This species is often difficult to trap (Ahern 1983) and, given its broad habitat preferences, may well be present. The absence of platypus from the peninsula could be due to the lack of suitable habitat. Most creeks and rivers on the peninsula are small with few large permanent bodies of still water. Any such water bodies are usually estuarine. The occurrence of occasional drought conditions could ensure that any colonisation of freshwater bodies by platypus would not be successful in the long term.

MARINE MAMMALS

Seals (Order Pinnipedia)

Family Otariidae

Australian fur seal *Arctocephalus pusillus* — Fur seals occur permanently in the waters off Tasman Peninsula. Hauling grounds occur at Hippolyte Rocks, The Monument at Cape Hauy, Cape Pillar and Cape Raoul (Pearse 1979). No breeding grounds occur on the peninsula.

Family Phocidae

Leopard seal *Hydrurga leptonyx* — The leopard seal is a resident of the antarctic but non-breeding individuals disperse periodically into temperate waters (Rounsevell & Eberhard 1980). Single individuals have been seen at Remarkable Cave, Roaring Beach, Fortescue Bay (D. Rounsevell, pers. comm.) and in Norfolk Bay (M. Copping, pers. comm.).

Elephant seal *Mirounga leonina* — The elephant seal is a resident of the sub-antarctic region (although a colony once existed on King Island) but occasional vagrants occur in temperate waters (Bryden 1983). Single animals have been recorded at Eaglehawk Neck over the years. Animals seen on beaches are either moulting or are sick.

Dolphins and Whales (Order Cetacea)

Five species are regularly sighted in waters around Tasman Peninsula. These are bottlenosed dolphin *Tursiops truncatus*, common dolphin *Delphinus delphis*, southern right whale *Eubalaena australis*, humpback whale *Megaptera novaeangliae* and the pilot whale *Globicephala melaena* (J. Wapstra pers. comm.). Table 1 lists records of strandings of dolphins and whales from Tasman Peninsula. Cetacean strandings are most frequently recorded from Eaglehawk Neck (7) and Fortescue Bay (3). Both of these areas have large semi-enclosed bodies of water. McManus *et al.* (1984) believe that such conditions are probably hazardous to whales.

TABLE 1
Records of Dead Animals and Strandings of Dolphins and Whales for Tasman Peninsula*

Species	Locality	Date	Notes
Common dolphin	Eaglehawk Neck	1944,1967,1984	
Delphinus delphis	Sloping Main	1967	
	Fortescue Bay	1983	35 stranded and all, bar one, were successfully returned to sea
False killer whale	Eaglehawk Neck	1946	
Pseudorca crassidens	Fortescue Bay	1977	
Pilot whale	Newmans Beach,	1979	34 stranded, all died
Globicephala melaena	Koonya		
Bottlenosed dolphin	Eaglehawk Neck	1981	single animal
Tursiops truncatus			
Pygmy right whale	Eaglehawk Neck	1950	pregnant female
Caperea marginata			
Minke whale	Fortescue Bay	1973	male
Balaeonoptera acutorostrata			
Cuviers beaked whale	Port Arthur	1968	
Ziphius cavirostris			
Strap-toothed whale	Sloping Island	1966	skeleton found
Mesoplodon layardi			
Gray's beaked whale	Eaglehawk Neck	1946	
Mesoplodon grayi			

* Data taken from Guiler (1978), McManus *et al.* (1984) and J. Wapstra (pers. comm.).

DISCUSSION

All of the larger species of herbivores (i.e. pademelons, red-necked wallabies and wombats) appear to have increased dramatically in numbers. The development of pasture on areas which once supported forests has led to an increase in food supplies. The hilly terrain present over much of the peninsula had led to clearing in patches on the flatter areas with forest remaining on the steeper areas. Thus pasture is surrounded by areas which can be utilised by pademelon and red-necked wallaby for shelter. The increased ecotone between pasture and forest has favoured both species. When 1080 poisoning was used in 1983 to reduce wallaby numbers at Stormlee, it was estimated by an inspector that 2000 had been killed over an area of 1000 acres (405 ha) (S. Kerstan, pers. comm.). In contrast K. Clarke stated that during the Depression years before the area was developed, he was pleased if he was able to shoot one wallaby in a full days hunting here. It is claimed that several farms at the end of Thorntons Road, which are mostly surrounded by the Cape Raoul State Reserve, have proved uneconomic due to heavy pasture losses to wallabies. This land is now being purchased for the production of pine trees.

Wombats now occur on pastoral areas which once supported wet sclerophyll forest, an unsuitable habitat for them. As well as competing for food with domestic stock, the burrowing activity of wombats can prove hazardous especially on sloping ground. Here tractors can easily roll over or break an axle if one wheel falls into a deep burrow.

Barred bandicoots are abundant in the pastoral areas and will have benefited from the increased grub population in the soil which accompanies an improved pasture. These animals have also been observed feeding on maggots from sheep carcases. Both species of bandicoot, as well as potoroos, can cause minor problems in market gardens but this is easily rectified with fencing.

Brushtail possums utilise the high quality grasses and herbs present in pastoral areas (Fitzgerald 1984). They also eat crops such as turnips and the blossoms and fruit from apple trees. Their numbers are thus likely to have increased, although hunting for skins may have had a dampening effect on this increase. In contrast, residents recall ringtail possums as being far more abundant in the past. They do not believe that any habitat change was associated with this drop in numbers. Such a decline has also occurred over much of the rest of Tasmania and it has been hypothesised that disease has been responsible for this decline (Thompson & Owen 1964).

The carnivorous Tasmanian devil and eastern quoll appear to have been previously more abundant than they are today. Devils were never present in great numbers but seem to have been widespread. Quolls were once considered to be numerous, with many reports of raids on chicken coops. An intensive eradication campaign seems to have been waged against both species with reports of them being shot, trapped and snared. Only a remnant population of both species now remains. It is possible that the insular nature of the peninsula which allows only limited dispersal into the area has helped to ensure that the carnivore populations remain low. Similar persecutions of these species elsewhere in Tasmania has not led to permanent reductions in population size. Thylacines were also hunted on the peninsula and this may have contributed to the demise of this species.

Water rats are now abundant but there appears to have been a period during the Depression when hunting led to a crash in the population. The fur of this species was very valuable and hence was much sought after during this difficult economic period. Water rats around popular fishing spots such as the jetty near The Blowhole now benefit from abundant fish scraps and bait left by fishermen. The Marine Park has had problems with water rats raiding aquariums.

A commercial industry based on the harvesting of Australian fur seals once existed in Tasmania. The population was severely reduced and thus came under regulations. These remained in existence until the industry was phased out in 1923. By 1945 the population had recovered (Warneke 1983). The fishing industry has traditionally been intolerant of seals due to damage they cause to nets and because they are seen as competing for fish. Some individual seals learn to follow crayfishermen and will eat the undersized crayfish as they are thrown back into the water. The TNPWS has provision for permits to be issued to allow culling of seals that are causing problems.

Because of the large numbers of tourists which visit the convict ruins at Port Arthur, a number of ventures have been successfully established which utilise the unique Tasmanian mammal fauna to capture the tourist dollar. The Devil Park uses the undeservedly fearsome reputation of the Tasmanian devil as a drawcard and the Marine Park features fur seals. There is also an increasing interest in boat trips to Cape Pillar to observe the seals on the hauling grounds.

THE FUTURE

Given its small area and insular nature, Tasman Peninsula has an extremely high proportion of the Tasmanian mammal fauna. The future of this fauna depends on the maintenance of the habitat diversity and mosaic pattern now present. Heathland is mostly reserved and this should be secure. Much of the wetter forests occur in State Forests and, provided any logging is undertaken wisely, mammals in these forests should not be in danger. The drier forests are mainly under private ownership and it is here that most care is needed to ensure that clearing is not excessive and that a mosaic pattern of natural and altered habitats is retained.

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