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MAMMALS OF THE WARBURTON REGION, WESTERN AUSTRALIA

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ABSTRACT

Interviews with local people, examination of the literature and Museum records and our own field work reveal that 28 species of indigenous mammals have been recorded in modern times from the Warburton Region of arid Western Australia. Only three species of bats have been collected and additional work will doubtless add further species. Five species of exotics have become established. Aboriginal names for most species are given.

Eight species appear to be extinct in the Region — *Onychogalea lunata*, *Lagorchestes hirsutus*, *Bettongia lesueur*, *Isoodon auratus*, *Perameles eremiana*, *Dasyurus geoffroii*, *Myrmecobius fasciatus* and *Leporillus* sp. — all of which are intermediate in size between the relatively common larger kangaroos and smaller rodents and dasyurid marsupials. The only intermediate sized marsupials remaining in the region — *Petrogale* sp., *Trichosurus vulpecula* and *Macrotis lagotis* — have declined in numbers.

Reasons for the extinction or decline of so many species are unknown but the establishment of exotic predators is a likely cause. Changes in the extent and frequency of fire may have contributed in some cases.

INTRODUCTION

Many mammals of the arid regions of Australia have undergone drastic changes in distribution and status since European man first settled the continent (Finlayson, 1961; Philpott & Smyth, 1967; Ride, 1970). Within Western Australia recent publications and collecting expeditions have shown that many species once present in the Gibson and Great Victoria Deserts

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are now apparently absent — even after periods of high rainfall (Burbidge *et al.* 1976; McKenzie & Burbidge, 1979). However, few data are available on the area of Western Australia east of Warburton which contains stony ranges and Mulga (*Acacia aneura*) dominated vegetations not found in the

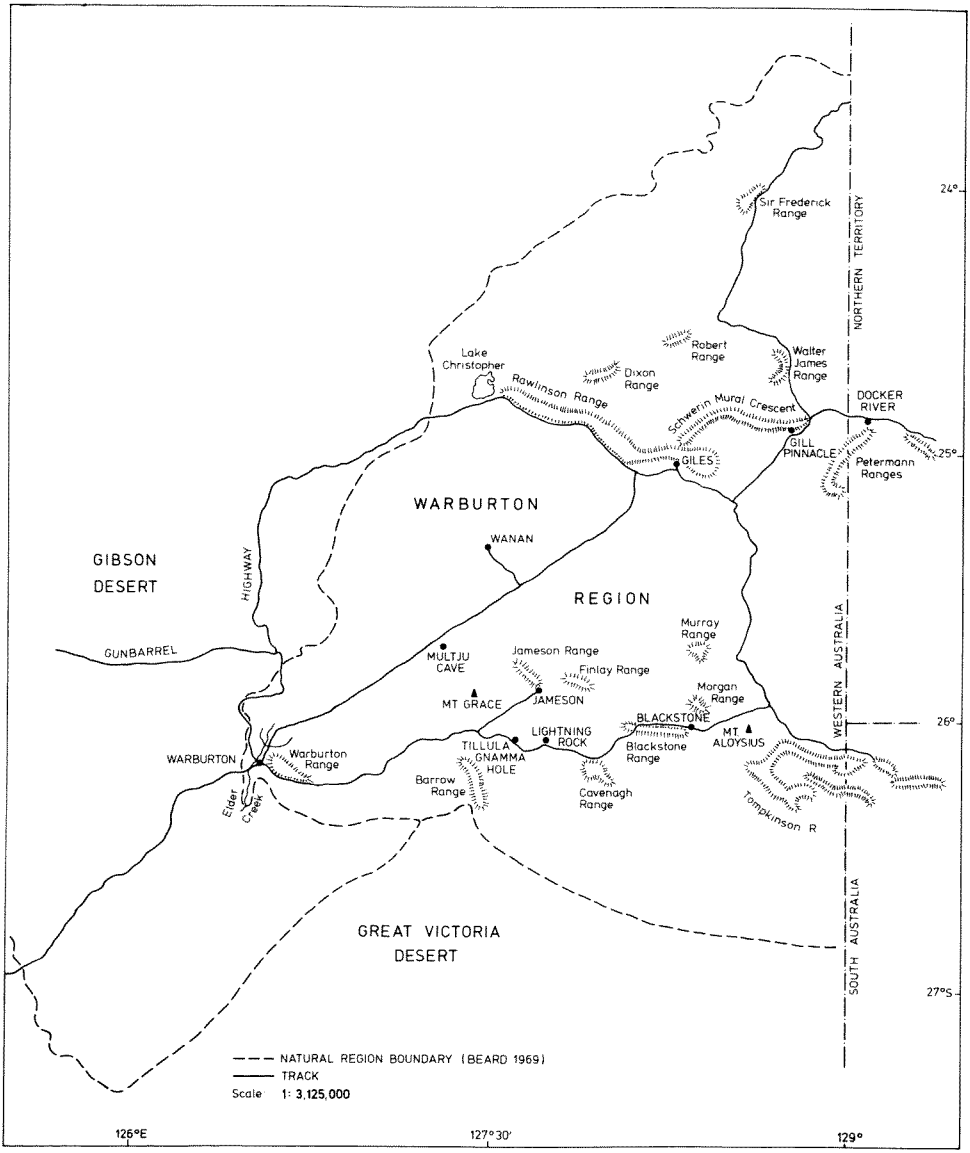

Fig. 1: The Warburton Region.

deserts. This paper records the mammals which occurred in this region in modern times and documents their present status.

Beard (1969) has described and delineated the deserts of Western Australia. This publication refers to the term 'Warburton Region' as defined by Beard (see Fig. 1). The vegetation of this area has been mapped by Beard (1974) who has also described the climate.

Data recorded here have been derived from the following sources:

1 Discussions with the Aboriginal people of Warburton, Jameson, Cavenagh Range, Blackstone, Docker River, Giles and Wanan during January and June 1977. These included people who spoke the Ngaanyatjarra, Pitjanjatjarra, Ngaatjatjarra and Pintupi dialects of the Western Desert Language.

2 Records of the Western Australian Museum and in the literature.

3 Our own collecting. Specimens collected by us are lodged in the Western Australian Museum, accession numbers M15368-15376.

ANNOTATED LIST OF THE MAMMALS

Records from areas surrounding Warburton (and occasionally from even further away) are presented in some cases in order to clarify distributions and the overall status of a species. Species discussed but not known to occur in the Region are placed in brackets.

Macropus robustus Gould — Euro

Aboriginal names: Kanyarla, Nyatunya

The Euro is widespread and plentiful in all rocky country.

Megaleia rufa Desmarest — Red Kangaroo

Aboriginal name: Marlu

Red Kangaroos are fairly common in mulga country, especially where the ground cover is tussock grasses rather than spinifex. The Red Kangaroo is keenly hunted by the local people.

Onychogalea lunata (Gould) — Crescent Nail-tailed Wallaby

Aboriginal name: Tjawalpa

All Aboriginal groups we spoke to told us that this species no longer occurred in the region. Philpott & Smyth (1967) also failed to locate it. Finlayson (1961) reported material from the Cavenagh Range and stated that it was present in central Australia as late as 1956.

We were told that the Nail-tailed Wallaby inhabited mulga country and creek country where there are River Gums (*Eucalyptus camaldulensis*).

Ride (1970, p. 198) reported that W.H. Butler found the remains of an *O. lunata* in 1964 near the Warburton Range. He said that the specimen appeared to have been killed by a Fox some short time previously. Ride (pers. comm.) was reporting a comment made to him by Butler and stated that the identification was based upon a small mandibular fragment that was still greasy.

Butler (pers. comm.) collected three specimens of *Onychogalea lunata* at locations in the vicinity of the Laverton-Warburton Road. A mandibular fragment (WAM palaeontological collection 76.6.28, formerly M5239) with ligaments still attached was collected in 1962, together with skeletal fragments of *Dasyurus geoffroii* and *Trichosurus vulpecula*, from a breakaway cave near Muggan Rockhole (27°00'S, 125°20'E) in the Great Victoria Desert. The specimens appear to be remains left in the cave by a predator and it is not possible to say how long they have been there. A further mandibular fragment (WAM 63.1.30) was collected in 1962 from Prideaux Cavern (approx. 26°46'S, 126°12'E, Gibson Desert), but this appears to be fossil (A. Baynes, pers. comm.). A third specimen (of which there is no record) Butler recalls collecting in 1964. It comprised skeletal fragments and decomposing tissue and was found on the edge of the Laverton-Warburton Road near Gahnda Rockhole (26°36'S, 125°52'E) in the Gibson Desert. None of these specimens was found in the Warburton Region as defined in this paper. Moreover, the two mandibular specimens, one of which presumably is that identified by Ride, are only doubtfully modern.

Lagorchestes hirsutus (Gould) Western Hare-wallaby

Aboriginal name: Mala

We were told that Hare-wallabies were once plentiful and occurred in spinifex country but that they were now no longer present in the region.

The W.A. Museum has one specimen (M1572) collected 2 km south of Warburton in 1931. Finlayson (1961) recorded this species from south of the Cavenagh Range, south-west of the Barrow Range, and north of Sladen Waters between the Rawlinson Range and the Robert Range.

Parker (1973) reported recent records from the Tanami Desert Wildlife Sanctuary in the Northern Territory; these are the only known mainland colonies.

(*Lagorchestes conspicillatus* Gould Spectacled Hare-wallaby)

None of the Aboriginal people from the Warburton Region knew this species. Finlayson (1961) reported its presence in country to the west of the Macdonnell Range. The closest locality he gives is 'Mareeni Plain' —

presumably near Mereeni Bluff (23°38'S, 131°56'E). Recent records from the Northern Territory are in its northern half (Parker, 1973), and the closest Western Australian records are from the Pilbara.

Petrogale ? lateralis Gould — Black-flanked Rock-wallaby

Aboriginal name: Warru

We were told that Rock-wallabies still occurred in the region, mostly in rock outcrops rather than in the larger ranges. Finlayson (1961) reported that Rock-wallabies were widespread in central Australia but were, at that time, much reduced in numbers compared with observations he made in 1932-1935. In Western Australia he reported them from Barrow Range.

The Western Australian Museum has specimens from Lightning Rock (M3532, collected May 1959; 26°04'S, 127°45'E); 19 km south-east of Warburton Mission (M4988, August 1961; 26°14'S, 126°39'E) and the Warburton Range (M9872, 1973; 26°06'S, 126°30'E). Ride & Savage (1969) reported that Rock-wallaby droppings were present at Lightning Rocks [*sic*] in 1967.

We inspected Lightning Rock on 13 June 1977 and could find no evidence of Rock-wallabies. However, on an isolated rockpile at Bilbring Waterhole, about 1 km south of Lightning Rock, there were recent droppings which we attributed to this species. Daylight and after dark traverses using spotlights and head torches were, however, not successful in proving its presence.

Local people told us there were Rock-wallabies on hills near Tillulla Gnamma Hole (26°04'S, 127°38'E) but we could find no signs of them. We did find very old droppings attributed by us to this species on a hill at the edge of the Jameson Range. The local people also said there were Rock-wallabies near Mt Grace (25°53'S, 127°28'E), in the southern Cavenagh Range and in the Morgan Range (25°55'S, 128°23'E). We did not investigate these sites.

Although Rock-wallabies are present in the region it appears that their numbers are fairly low and may be declining.

(*Bettongia penicillata* Gray — Woylie)

The Woylie is recorded from Central Australia by Finlayson (1961). There are no records from the Western Australian side of the border.

Parker (1973) believes Finlayson's records are probably referrable to *Lagorchestes conspicillatus.*

Bettongia lesueur Quoy & Gaimard Boodie

Aboriginal names: Mitika, Tjungku

Although the Boodie appears to be extinct in the Warburton region, as it is throughout the Australian mainland, it was well known to the older people we spoke to. We were told that they lived in burrows in sandhill country. Parker (1973) listed a wider range of habitats.

The Western Australian Museum has a skull from the Rawlinson Range area, accessed in 1933. Finlayson also reported a specimen from this area. Giles (1889) found *B. lesueur* to be numerous in low limestone ridges in the dry bed of Lake Christopher, north-west of the Rawlinson Range.

Trichosurus vulpecula Kerr Brush Possum

Aboriginal name: Wayurta

The possum is another species which was once widespread and plentiful in the centre (Finlayson, 1961) but which has suffered a drastic decline in range and numbers. Some people told us that they had seen possums recently while others said they had not seen them for a long time and they were 'finished'. We were told that possums inhabit country with eucalyptus trees containing suitable hollows for shelter. Parker (1973) listed several recent records of *T. vulpecula* from the southern half of the Northern Territory.

The Western Australian Museum has no specimens from the Warburton Region but Finlayson (1961) recorded specimens from the Warburton Range.

We found old droppings attributable to this species in Multju Cave (approx. 25°42'S, 127°14'E).

Isoodon auratus (Ramsay) Golden Bandicoot

Aboriginal names: Windtaru, Makurra, Nyulu

Once again this is a species which was common and widespread but which has now apparently disappeared from the region. We were told it lived in spinifex country.

The Western Australian Museum has one specimen from the Rawlinson Range area (M1733, 1933) and another specimen (M1574) accessed in 1931 labelled 'Windarra, 26°15'S, 126°30'E', i.e. about 15 km south-west of Warburton, with a note that Windarra is the native name. It was collected by an expedition led by the surveyor, H.L. Paine, which worked between Laverton and Warburton and east to Lightning Rock. A report of the expedition (published by Tomlin & Cleave, 1966) and Paine's Journal (Paine, 1931) make no mention of this specimen and it seems likely that

someone has confused the Aboriginal name for the animal with the name of the locality. Finlayson (1961) recorded *Isoodon* from further east. He also stated that it inhabited extensive spinifex tracts. Parker (1973) stated that the last authentic record from central Australia was a specimen from The Granites (20°34'S, 130°21'E) in the Tanami Desert, taken in May 1952. The species still survives in the Kimberley (McKenzie *et al.*, 1975) and in northern Northern Territory (Parker, 1973), and an island form occurs on Barrow Island (Ride, 1970).

Perameles eremiana Spencer — Desert Bandicoot

Aboriginal name: Walilya

The Desert Bandicoot has also disappeared from the Warburton region. We were told it lived in spinifex country and built a small burrow with a nest at the end.

Finlayson (1961) found *P. eremiana* to be 'fairly plentiful' in this region in 1932-35 but reported that it was absent or rare by 1961.

(*Perameles bougainville* Quoy & Gaimard — Barred Bandicoot)

We enquired of this species, describing it as similar to *P. eremiana* but with stripes on the rump, but none of the people we spoke to recognised it. Finlayson (1961) also could not obtain evidence of *P. bougainville* in central Australia. The Western Australian Museum has a *Peremales* identified as *bougainville*, from the Gibson Desert at Gahnda Rockhole (26°36'S, 125°52'E). This specimen (M1575, collected by the H.L. Paine expedition in 1931), is, we believe, attributable to *P. eremiana.* Paine (1931) records the name 'Walleela' for the animal in his Journal.

(*Chaeropus ecaudatus* [Ogilby] — Pig-footed Bandicoot)

We could gain no evidence that the local people knew of this species. Only one man (from Docker River) appeared to recognise it. He called it 'Walputju' and stated it lived in mulga country. Finlayson (1961) stated that the Pitjanjatjarra name for *Chaeropus* is 'Kunjilba'. A more acceptable transliteration for this is 'Kuntjilpa'. Parker (1973) lists locality records for central Australia.

Macrotis lagotis (Reid) — Rabbit-eared Bandicoot

Aboriginal names: Nirnu, Marara

This species was well known to all the groups we spoke to. Although its numbers have declined drastically it still occurs sporadically in suitable country. Smyth & Philpott (1968) have described the ecology of a population near Warburton. They also obtained specimens from 19 km south-west of Mt Aloysius (Philpott & Smyth, 1967).

According to the local people the main strongholds of *M. lagotis* are to the north and north-west of Warburton and to the west of the Jameson Range as well as south of the Cavenagh Range. We were shown burrows and diggings attributed to this species near Warburton and to the west of Jameson. Following our January visit an animal was captured near Warburton and sent to Perth. The W.A. Museum has three specimens from near Warburton taken in 1965.

Finlayson (1961) described a similar drastic reduction in numbers from adjacent parts of South Australia and the Northern Territory.

Dasyurus geoffroii Gould — Western Native-cat

Aboriginal name: Parrtjarta

The native-cat was well known to some groups but others knew it only vaguely or not at all. We were given conflicting statements as to its habitat — most people said it lived in spinifex and sandhill country but some said it inhabited mulga. All groups agreed that it had now disappeared.

Finlayson (1961) reported that this species was widespread in central Australia and that he had recent reports indicating that it survived in parts of the southern Northern Territory.

(*Phascogale calura* — Red-tailed Wambenger)

We showed pictures of both *P. calura* and *P. tapoatafa* to several groups but, apart from one group, they did not recognise them.

People at Jameson Range seemed to recognise the pictures and called the animal 'Taling-go-won'. They said it lived on the ground. K. Liberman (pers. comm.) thinks this is probably 'Talingka' one — the one who lives in sandhills (tali).

Neither species has been recorded in the Warburton Region. *P. calura* was collected in central Australia at the turn of the century (Parker, 1973) but has not been recorded in the centre since. Finlayson (1961) stated that Glauert (1933) recorded *P. tapoatafa* (as *P. penicillata pirata*) from the 'Sandridge Desert of Western Australia' at about lat. 21°50'S. However, a search of this publication does not reveal any such statement and there is no specimen in the Western Australian Museum which fits this description. There is a specimen (M3151), identified by M. Archer as *P. calura*, in the South Australian Museum. It was collected at Well Number 44 on the Canning Stock Route (21°01'S, 126°07'E) in April/May 1931 (P.F. Aitken, pers. comm.).

A group of Aboriginal people from Warburton who were shown a *P. calura* skin at the W.A. Museum a few years ago called it 'Pitji-pitji' — the same name they applied to *Antechinomys laniger* (D.J. Kitchener, pers. comm.).

We believe that the weight of evidence suggests that the Aboriginal people from the Warburton Region do not know this species but are confusing it with others.

Dasycercus cristicauda (Krefft) Mulgara

Aboriginal name: Mingkiri

Among the Aboriginal people there was some confusion between this species and some others, probably because of our difficulty in describing the animal and our not having good pictures of it. It was not until late in our second trip that we obtained the name 'Mingkiri' for this species. We gained the impression that it had declined in numbers but still occurred in some areas.

Parker (1973) stated that *Dasycercus* is 'not uncommon following good seasons' (p. 9). The W.A. Museum has specimens from 'Warburton Range Area' collected in late 1967 or early 1968 (M7742-7744). Burbidge *et al.* (1976) obtained skeletal material from fresh owl pellets in the Gibson Desert.

Antechinus macdonnellensis (Spencer) Red-eared Antechinus

Aboriginal names: Nyaluti, Murrtja

Antechinus was not well known, presumably because of its cryptic habits. The name 'Nyaluti' was given by various groups to pictures of a variety of small mammals which they found hard to recognise and it may be used for more than one species. Finlayson (1961) recorded it (as 'Narloodi') as one name for *Dasycercus.* However, people from Jameson had no hesitation in naming *Antechinus* as Nyaluti when we showed them live specimens. At Docker River we were told that Murrtja was the Pitjanjatjarra name for Nyaluti which is used primarily by Ngaanyatjarra and Pintupi people.

We trapped *Antechinus macdonnellensis* in the Jameson Range (1 ♂, 1 ♀), Blackstone Range (2 ♂, 1 ♀) and the Scherwin Mural Crescent near Gill Pinnacle (1 ♂). All were from rock piles with little vegetation or from scree slopes of the ranges. The W.A. Museum has specimens from Lightning Rock (M8927-8, 8930-33, 8937-8 and 8942) collected in 1967 (Ride & Savage, 1969). It has also been collected recently in 'Breakaway' country in the Gibson Desert (Burbidge *et al.*, 1976; McKenzie & Burbidge, 1979).

Finlayson (1961) recorded it from adjacent parts of the Northern Territory but considered it 'not a common form at the present day'. However, Parker (1973) stated that, in the Northern Territory, it is widespread and in some areas common.

Ningaui sp.

We obtained skeletal fragments of a *Ningaui* from superficial deposits at the foot of a vertical shaft at the entrance to Multju Cave (approx. 25°42'S, 127°14'E).

Sminthopsis crassicaudata (Gould) Fat-tailed Dunnart

This species has been collected at Warburton (WAM M7736, 1967/68). It is also known from adjacent parts of the Northern Territory and South Australia (Finlayson, 1961; Parker, 1973). We did not attempt to discuss it with Aborigines because of difficulties in recognition from pictures.

Sminthopsis hirtipes Thomas Hairy-footed Dunnart

This species has also been collected near Warburton (WAM M5783, Elder Creek, 1963; Parker, 1973). We did not discuss this species with the local people.

Sminthopsis ooldea Troughton

We obtained skeletal fragments, thought to be of this species, from superficial deposits at the foot of a vertical shaft at the entrance to Multju Cave (approx. 25°42'S, 127°14'E).

The W.A. Museum has a specimen from Warburton collected in 1964 (M6361).

Antechinomys laniger (Gould) Wuhl-wuhl

Aboriginal names: Wuurl-wuurlpa, pitji-pitji

Apparently quite common in suitable country, this species was known to some groups and not others. The W.A. Museum has about 20 specimens from the vicinity of Warburton collected between 1962 and 1968.

Myrmecobius fasciatus Waterhouse Numbat

Aboriginal name: Walpurti

The Numbat was well known to all groups but everyone told us it had now disappeared. Men aged about 45 to 55 told us they had seen them when children or young men. We were told it lived in mulga country.

The W.A. Museum has a flat skin of the Numbat from Warburton, accessed in 1948. Finlayson (1961) recorded it from south of the Cavenagh Range and north and west of the Rawlinson Range and stated that the last specimen was taken in 1933.

Notoryctes typhlops (Stirling) Marsupial-mole

Aboriginal names: Yirtarrutju, Yirtarri-yirtarri

Most people knew this animal and said it still occurred in sandhill country. The W.A. Museum has a specimen from Warburton taken in 1968.

Finlayson (1961) recorded the Marsupial-mole from extensive areas of central Australia.

Leporillus spp. Stick-nest Rats

Aboriginal names: Tjuwalpi, Yininma

Although neither species of *Leporillus* has been collected alive in Western Australia, old nests constructed by Stick-nest Rats under rock overhangs or 'breakaways' still occur in many parts of the State.

Skeletal material of *L. apicalis* (Gould) has been recovered from nests in the Gibson Desert (A. Douglas, pers. comm.).

Most of the Aborigines we spoke to knew *Leporillus* and described stick-nests in breakaway country and caves. Nobody claimed to have seen the animal recently but some people said they must still be around because the nests 'are still growing'. Ride & Savage (1969), Gratte (1972) and Burbidge *et al.* (1976) reported that nests in the Gibson Desert included fresh material but they found no conclusive evidence of the presence of *Leporillus.*

One old man from the Cavenagh Range accurately described nests built from sticks on the ground, around a shrub. *L. conditor* constructs this type of nest on Franklin Island but also builds in caves (Robinson, 1975). Giles (1889) saw this type of nest in the Warburton Region (e.g. at Mt Squires in the Barrow Range) and elsewhere in central Australia but Parker (1973) attributes these to *L. apicalis.*

Notomys alexis Thomas Spinifex Hopping-mouse

Aboriginal name: Tarrkawarra

A widespread species in the interior, *N. alexis* is by no means restricted to spinifex and sand situations (Parker, 1973; Burbidge *et al.*, 1976). The W.A. Museum has a number of specimens from the vicinity of Warburton. We obtained skeletal material from Multju Cave (approx. 25°42'S, 127°14'E).

(*Zyzomys* spp. Rock Rats)

We showed the local people a picture of *Z. argurus* but they did not recognise them. *Z. pedunculatus* was recorded in the Macdonnell and James Ranges late last century. Finlayson (1961) reported specimens from the Northern Territory taken in 1950 and 1951 but he did not examine these

himself. Parker (1973) recorded an additional specimen from Haast's Bluff Settlement in the western Macdonnell Ranges taken in 1960.

Pseudomys hermannsburgensis (Waite) Sandy Mouse

This species has been collected near Warburton (e.g. WAM M8941) and near Lightning Rock (e.g. WAM M8918). It has a wide range in the more arid parts of the continent.

We obtained skeletal material from Multju Cave (approx. 25°42'S, 127°14'E).

Mus musculus Linnaeus House Mouse

We obtained two specimens, one from a tussock grassland adjacent to the Blackstone Range and the other from a dry creek bed near Gill Pinnacle in the Scherwin Mural Crescent.

The W.A. Museum has numerous specimens from Warburton. This and other mice are known collectively as 'Wiltjin' by the Aborigines.

Nyctophilus geoffroyi Leach Lesser Long-eared Bat

N. geoffroyi has been collected in the Warburton Range (WAM M6074, 1963) and at Bungabiddy Rockhole in the Walter James Range (WAM M8421, 1971).

The local people have at least three names for bats — Patjupirri, Parturta and Tintinti. We were not able to tell whether these were applied to different species.

Eptesicus pumilus caurinus (Thomas) Little Bat

We obtained one specimen, a female, from the Blackstone Range. It was shot, using the floodlighting technique of Youngson & McKenzie (1977) at 1915 hrs, approx. two hours after sunset. This is, apparently, the first record from the Warburton Region of this widespread species.

Chalinolobus gouldii (Gray) Gould's Wattled Bat

This bat has been collected in the Warburton Range area (M7740, 41, 1967/68; M6036, 1963) and at Bungabiddy Rockhole in the Walter James Range (M8422, 1971).

Tachyglossus aculeatus (Shaw) Echidna

Aboriginal name: Tjilkamarta

The Echidna was well known to all groups. We were told it lived mainly in rocky country. We saw droppings and diggings of this animal in all the ranges we visited.

Oryctolagus cuniculus (Linnaeus) Rabbit

Aboriginal name: Nani, Pinytjatanpa

The European Rabbit is common in the Warburton Region. It favours stony plains near the base of the ranges and is also plentiful around smaller rock outcrops. It appeared to be less plentiful in mulga country and absent from sandhill regions. The Rabbit is a major food item for Aborigines.

Camelus dromedarius Linnaeus Camel

The Camel is well established in the region and tracks were seen in all types of country except the steep ranges and rocky hills.

Canis familiaris dingo Meyer Dingo

Aboriginal names: Papa, Ngupanu, Yinura

Another widespread and common species. Tracks were seen in all types of country.

Vulpes vulpes (Linnaeus) Fox

Although the Fox is widespread it appeared to be much less common than the Dingo or the Cat. It was most plentiful in mulga country.

Finlayson (1961) records that the Fox was present in small numbers in the Everard and Musgrave Ranges in 1932 and reached the Basedow Range in 1933.

Felis catus (Linnaeus) Feral Cat

Aboriginal names: Ngaya, Wiilyka

A widespread and plentiful species, tracks being seen in all types of country where imprints could be made. It seemed especially common in sandhills and mulga.

It is not known when Cats first entered central Australia but it was probably during the nineteenth century. Finlayson (1961) reports that the Elder Expedition of 1891 saw a Cat 160 km south-west of Mt Squires in the Great Victoria Desert (at approx. 27°30'S, 126°30'E).

DISCUSSION

Twenty-eight species of indigenous mammals have been recorded from the Warburton Region. Only three of these are bats and further collecting will doubtless reveal further species, e.g. *Taphozous georgianus, T. flaviventris, Macroderma gigas, Tadarida australis, T. planiceps, Chalinolobus morio* and *Nycticeius greyi.*

The status of the indigenous mammalian species known from the Region is presented in **Table 1.** Status is given as Common, Moderately Common, Rare or Extinct and has been assigned from data in this paper compared with our knowledge of mammal status elsewhere in Western Australia and data presented by Ride (1970) and Parker (1973).

TABLE 1

Indigenous mammals recorded or reliably reported from the Warburton Region and their present status in the Region.

Species	Present status
Macropus robustus	Common
Megaleia rufa	Common
Onychogalea lunata	Extinct
Lagorchestes hirsutus	Extinct
Petrogale ? lateralis	Rare
Bettongia lesueur	Extinct
Trichosurus vulpecula	Rare
Isoodon auratus	Extinct
Perameles eremiana	Extinct
Macrotis lagotis	Rare
Dasyurus geoffroii	Extinct
Dasycercus cristicauda	Moderately common
Antechinus macdonnellensis	Common
Ningaui sp.	Not known — probably common
Sminthopsis crassicaudata	Common
Sminthopsis hirtipes	Not known — probably common
Sminthopsis ooldea	Not known — probably common
Antechinomys laniger	Common
Myrmecobius fasciatus	Extinct
Notoryctes typhlops	Moderately common
Leporillus sp.	Extinct
Notomys alexis	Common
Pseudomys hermannsburgensis	Common
Nyctophilus geoffroyi	Common
Eptesicus pumilus caurinus	Common
Chalinolobus gouldii	Common
Tachyglossus aculeatus	Common
Canis familiaris dingo	Common

Of the 25 known terrestrial mammals it appears that eight species are locally extinct — *Onychogalea lunata*, *Lagorchestes hirsutus*, *Bettongia lesueur*, *Isoodon auratus*, *Perameles eremiana*, *Dasyurus geoffroii*, *Myrmecobius fasciatus* and *Leporillus* sp. It is noteworthy that all of these fall into the 'intermediate' size category of the Region's mammals; those which are considerably larger like the kangaroos and those which are much smaller like *Antechinus*, *Antechinomys*, *Sminthopsis*, *Notomys* and

Pseudomys, are still plentiful. Apart from the common and widespread *Tachyglossus aculeatus* the only intermediate sized mammals remaining in the Region are *Petrogale ? lateralis*, *Trichosurus vulpecula* and *Macrotis lagotis*, all of which have declined in numbers.

The reasons for the decline or disappearance of so many species of mammals must remain conjectural. It is noteworthy that extensive clearing of land for agriculture, one cause of mammal decline elsewhere in Australia, has not taken place here.

One obvious possible reason is the establishment of exotic mammals; both carnivores like the cat and fox and herbivores like the rabbit. When we questioned Aborigines as to the reasons for the disappearance of the native mammals they often told us it was due to predation by cats. Cats have apparently been responsible for the local extinction of *Lagostrophus fasciatus* and *Bettongia lesueur* on Dirk Hartog Island but have not eliminated two species of *Pseudomys* which occur there (Burbidge & George, 1978). Similarly, *Largorchestes conspicillatus* and *Isoodon* cf. *auratus* disappeared from the Monte Bello Islands following the establishment of cats there (Burbidge, 1971).

Another possible reason for the decline of some species is the changes in the timing, extent and frequency of fires in the interior, especially in spinifex country, following the concentration of the Aboriginal population at a few settlements. Aborigines used fire in hunting (e.g. of *Lagorchestes hirsutus*, Finlayson, 1936) and to encourage the regeneration of food plants, and it is thought that numerous areas of low fuel prevented the development of extensive summer fires. Bolton & Latz (1978) consider that the Tanami Desert populations of *L. hirsutus* owe their existence to consistent winter burning resulting in a tight mosaic of vegetation in various stages of fire succession. Today comparatively infrequent but very extensive summer fires are the rule rather than the exception.

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