

FISHERIES AND
WILDLIFE

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Introduction

In the report of the Working Group on Macropod Habitat to the Standing Committee for the Council of Nature Conservation Ministers (adopted by the Committee in June 1974) a special section was allocated to species believed to be "very rare or extinct". The report recognised that "most of the 'lost species', if they are not extinct, are most likely to occur in remote areas where they are not immediately endangered by habitat destruction". For this reason they considered that available funds were best spent on surveying existing or proposed reserves rather than searching for these species.

They noted that "there are, however, two species *Macropus greyi* and *Potorous platyops* and the subspecies *Potorous tridactylus gilberti*, the main ranges of which occur in areas of intensive agricultural and grazing use, and search for these species should be made before further changes in land use make their extinction virtually certain".

Consequent to this recommendation I was employed on a grant from the Federal Department of the Environment administered through the Western Australian Department of Fisheries and Wildlife for an initial period of six months to search for the Broad-faced Potoroo (*P. platyops*) and Gilbert's Potoroo (*P. tridactylus gilberti*) in the south-west of Western Australia. The programme has now been extended a further year.

This report summarizes the work carried out during the initial six months which commenced on April 24, 1975.

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Work Carried out

The working schedule was divided into three phases which were, in chronological order:

1. A survey of the knowledge of the past distribution and ecological requirements of both species of Potoroo in W.A.
 2. A visit to Victoria, where *Potorous tridactylus tridactylus* is extant, to gain first-hand knowledge of its habitat requirements and the trapping methods used by wildlife personnel to capture it there.
 3. A search for Potoroos in W.A.
1. Historical background to Potoroos in W.A. Summary.

Potorous platyops, the Broad-faced Potoroo.

Present knowledge of the former distribution has been reviewed by Butler and Merrilees (1971). The only modern specimens with more or less precise locality data are the type from Lake Walyormouring (Oak Park, now a Fauna and Flora reserve) about 17 km NNE of Goomalling collected by Gilbert in 1842. He obtained a second specimen in 1843 which he labelled "Albany, King George's Sound".

George Masters obtained specimens on two expeditions between 1866 and 1869 from "vicinity of King Georges Sound" and "at King Georges Sound and Salt River"

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(= Pallinup River). Master's collections include dry country species e.g. *Onychogalea lunata* and *Bettongia lesueur* as well as *Potorous tridactylus* which is thought to have inhabited regions of high precipitation (see below). Thus the records are of little value to determination of precise localities or habitats from which *P. platyops* came.

At least seven other modern specimens were reported but none have locality data except "Western Australia" or else their identity is open to question. Sub-fossil material has been recovered over a very wide area from the north-west Cape of W.A. across the Nullarbor Plain to South Australia and on Kangaroo Island (Butler and Merrilees (opp. cit.)) but Baynes (pers. comm) doubts that much of it is recent.

Baynes (pers comm) summarises the position thus: It appears to have occurred in moderate rainfall and arid areas to the north and east of the south-western forest block. If this assessment is correct Albany seems an unlikely locality for the species on the basis of high rainfall, however, there are areas of coastal heath around King George's Sound which the species might have inhabited.

Almost all natural vegetation around Goomalling has been destroyed or highly disturbed. However, there are large areas of natural vegetation from Albany eastwards along the coast. Since Gilbert obtained a specimen from near Albany, Masters obtained specimens somewhere east of Albany and

Butler and Merrilees reported sub-fossil material from a sand dune near Bremer Bay* it was decided that that area should receive priority in the search for *P. platyops*.

Potorous tridactylus gilberti, Gilberts Potoroo.

This race was first collected by Gilbert in 1840 at "King George's Sound". There is little information on his movements during his 2 week stay except that he reached the Gordon Plains near Cranbrook, 70 miles inland. However, two hand-written accounts by Gilbert of the macropods he encountered have recently been discovered in the British Museum (Natural History). In these he records that the Potoroos lived with the Quokkas. In one version he mentions the habitat as being "spearwood thickets" (*Kunzea* spp or *Eucalyptus doratoxylon* ?). In both versions he recounts how the Aborigines captured both species together by trampling breaks through the thickets which the young men patrolled while the remainder of the tribe drove the animals through the swamp to the waiting hunters.

Glauert (1950) reported that Masters collected it on both his expeditions to King George's Sound between 1866 and 1869 but no other modern records exist.

* Butler and Merrilees (1971) reported radiocarbon dates of 620 ± 90 years B.P. on wood and 1190 ± 80 years B.P. on rodent bones from the same deposit. In view of these widely divergent dates and the presence of Fox, Rabbit and Sheep bones in the same deposit, no definite age can be attributed to the *P. platyops* remains.

Sub-fossil remains are plentiful in cave deposits in the extreme south-west from Albany to Busselton (Baynes, in press). Baynes (opp cit.) summarises the situation by saying *P. tridactylus* appears to have been restricted to areas of the south-west with high annual precipitation and, in particular, moderate summer rainfall .

On this evidence it was decided that the most likely areas in which to look for *P. tridactylus* were those places between Albany and Busselton that provided suitable habitat for Quokka and those places in the same area which appeared structurally similar to suitable habitat for *P. tridactylus* in Victoria (see below).

2. Visit to Victoria

A visit was made to Victoria between May 20, and May 31, 1975 to study *P. tridactylus* habitat requirements and trapping methods used to capture them there.

On May 21, I studied a captive potoroo at the Arthur Rylah Institute in Melbourne and from May 22 to May 30 I accompanied Mr. John Seebeck (who has several years experience working on Potoroos in Victoria) and other officers of the Victorian Division of Fisheries and Wildlife on a survey expedition to the Cann River, East Gippsland, south-east Victoria.

Although the purpose of the expedition was not merely the capture of Potoroos, the trapping methods used were those

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normally used to capture Potoroos and Mr. Seebeck took great trouble to point out features of the wide variety of habitats we encountered that he had found were important to the suitability of each habitat to Potoroos. He also showed me 4 precise locations at which Potoroos had been obtained in East Gippsland.

No Potoroos were captured, nevertheless a good insight into the habitat requirements and trapping methods for Potoroos was obtained.

3. Search for Potoroos in W.A.

The search has been approached from three angles viz:-

- A. Trapping in suitable areas.
- B. Searching for evidence of the existence of Potoroos
- C. A publicity campaign seeking reports from the public on sightings of animals that could be Potoroos.

A. Trapping

53 cage traps (17cm x 17cm x 50 cm) belonging to the W.A. Dept. of Fisheries and Wildlife and 20 spring loaded snares are set where appropriate at each trapping site. In addition 4 funnel traps were set on one occasion and it is hoped to make more use of them in future. The following is a list of locations at which traps have been set (Fig. 1).

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1. Muddy Lake 10-12 June 1975. A swamp lying between coastal sand dunes and Jarrah (*Eucalyptus marginata*) forest. The site was chosen following a report that a Potoroo-like animal was killed by dogs there 3 years previously. Quokka tunnels, fresh droppings and skeletal remains were found and it is thought likely that the report related to a young Quokka.
2. St. John's Brook. 13-17 June 1975. Jarrah forest bordering the Brook. Most of the area had been burned about 12 months previously but extensive patches which had been missed by fire had thick undergrowth in which Heart Leaf Poison plants (*Gastrolobium bilobum*) were prominent. My attention was drawn here by Mr. Aub Chugg of Busselton who had seen what he believed were Potoroos or Woylies (*Bettongia penicillata*) in the area prior to the fire. 20 snares and 15 traps were also set on a swampy area on a nearby creek where evidence of Quokkas (tracks and fresh droppings) were located. Three Quokkas were snared and released.
3. Two Peoples Bay. An exploratory trip of three days was made from 7 to 9 May and traps were set here and near Mt. Many Peaks; from 1 - 8 July 1975. The survival of the Noisy Scrub Bird (*Atrichornis clamosus*) in dense vegetation in gullies on Mt Gardiner and its proximity to

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Albany where Gilbert and Masters obtained specimens of *P. tridactylus* were the main reasons for trapping at Two Peoples Bay. Trails and droppings indicated that Quokkas were numerous in this habitat. The largely undisturbed vegetation and abundant evidence of a dense Quokka population (scats, trails and one sighting) prompted the trapping effort near Mt Manypeaks.

4. Northumberland Road. 21-27 July 1975. Many areas of dense undergrowth in Jarrah forest occur along this road.
5. Denbarker Area. 28-30 July and 1-20 August 1975. An extensive swamp in Jarrah forest. The swamp which has not been burned for many years contained a high density of Quokka. 6 were captured.
6. Shannon Block. 12-19 Sept. and 1-9 October 1975. Karri forest which was being logged for the first time. In late July or early August 1975 an animal having been wounded during logging operations, was captured by an officer of the Forests Department. It was examined by him and several fallers before being released. Details of the animal were given to me separately by the forest department officer and three fallers. Mr. P. Christensen, an ecologist of the Forest Dept. at Manjimup, who is currently working, *inter alia*, on Woylies also interviewed the

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people who had seen the animal. From their accounts (prominent lower incisors, soft fur and overall shape of the animal) it seemed likely to be a Potoroo or a Woylie (*Bettongia penicillata*). Unfortunately, it had lost its tail, a good diagnostic character. Subsequently, they were shown a short-nosed Bandicoot, the only other mammal known to occur there with which Potoroos could be confused. They were adamant that the Bandicoot had much harsher fur and a sharper facial profile than the animal they had examined. Mr. Christensen considers that the habitat is unlikely to be suitable for Woylies. Despite trapping efforts during the above dates and by the Forest Department (25 Sept. to 3 Oct. with 62 cage traps) no further trace of the animal was found. It is intended to return to this area.

7. Fitzgerald River National Park. 15-21 October 1975.

This expedition was mainly an exploratory trip (although traps were set) to examine the variety of habitats available in relatively undisturbed vegetation for future work in the area.

In addition to the above expeditions a short exploratory trip was made in September 1975 to the Lake Walyormouring area, type locality of *P. platyops*, to examine the habitat. Most of this area is now cleared for agriculture and the chance of survival is remote for *P. platyops* there.

So far no Potoroos of either species have been caught but several other mammals species have been captured. One or two specimens of each species caught at each locality were preserved and have been, or will be, deposited in the Western Australian Museum.

B. Searching for evidence of Potoroos.

During each expedition as many sites as possible are explored in the hope of finding evidence of Potoroos. Items looked for include:

Fur (both on twigs and in the scats or pellets of predators). The microscopic structure of *Potorous tridactylus tridactylus* fur from Victoria has been illustrated and described by Brunner & Coman (1974). A sample of fur from a specimen of *P. tridactylus* in the W.A. Museum has been prepared for use in comparative studies. No fur suspected of being from Potoroos has been found yet but many scats and pellets await analysis.

Skeletal Remains. All skeletal material encountered in the field is retained for identification. Two significant collections provide negative evidence. A collection of several hundred bone fragments was recovered from sand dunes at William Bay (Fig. 1). From the nature of the fragments Mr. A. Baynes of the W.A. Museum considers the remains probably represent midden refuse from an Aboriginal campsite. More than 20 Quokkas are represented and they constitute the majority of all identifiable bones,

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but no Potoroo remains were detected. In view of Gilbert's account (see above) of Aborigines obtaining Quokkas and Potoroos together, this collection suggests that Potoroos were scarce or absent at the time the collection originated.

A collection of bones was made from surface deposits in a cave on Mt Chudalup near Northcliffe (Fig 1). An earlier collection from the same cave was made by Mr. G. Gardner of Northcliffe. In both collections Quokkas form a major part while other smaller (e.g. Bandicoot) and larger (e.g. Emu), animals are represented. Dr. D. Merrilees of the W.A. Museum considers the bones were probably carried to the cave by Dingos. Again it may be significant that no Potoroo remains have been identified from the site.

Faecal material. The ground in tunnels through thick vegetation and in surrounding areas wherever Potoroos might occur is searched for faecal material.

Footprints. Any area of soft sand or mud in areas where Potoroos might occur are searched for footprints. None have been found.

C. Publicity Campaign

2000 copies of a sheet illustrating and describing Potoroos and the simplest means of differentiating them from superficially similar animals that live

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in the same areas (i.e. Quokka, *Setonix brachyurus*, Woylie *Bettongia penicillata*, and Short-nosed Bandicoot, *Isoodon obesulus*) were produced (Appendix 1). Approximately 1750 copies have been distributed for public display in the following situations or by the following organizations:

1. All branches of the Department of Fisheries and Wildlife in the S/W.
2. All branches of the Forest Department in the S/W.
3. All Police stations in the S/W.
4. All Shire Council offices in the S/W.
5. All secondary schools in the S/W.
6. All branches, mills etc. of Bunnings Pty. Ltd., in the S/W.
7. All branches of Millars Pty. Ltd. in the S/W.
8. Through the Farmers' Union of W.A.
9. Through the Country Womens' Association of W.A.

Copies have also been sent to all people requesting information on Potoroos following press reports and to those people who might be able to offer information.

The Sunday Times has published two reports on the

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programme including a photograph of a mounted specimen from N.S.W. in the W.A. Museum. -

The West Australian has published one report including a reproduction of the Potoroo from the information sheet (Appendix 1). Several reports have been published by local papers, school news letters and the official publications of the Farmers' Union and the Country Womens' Association.

The A.B.C. has approached me regarding the possibility of filming a report for the programme "This Day To-night".

As a direct response to the publicity campaign 15 members of the public have contacted me to report sightings of animals they thought to be Potoroos. Almost all have been found, on investigation, to be Bandicoots or Quokkas. Some could concern Potoroos but date back to 1930 or earlier.

It had been expected that we would receive many reports from people who had seen Bandicoots and misidentified them as Potoroos. However, it seems that the data given on the information sheet has enabled many people to identify the animals they saw successfully. Most reports concerning misidentified Bandicoots followed press reports where less data was given.

Conclusion

Although no definite evidence for the survival of Potoroos in W.A. has been obtained so far, there is still ample room for optimism. In Victoria Potoroos survived, unknown to man, in areas that have been logged, burned and where feral cats, dogs and foxes abound.

These predators exist throughout the areas in W.A. where it is thought that Potoroos might persist. However, there are many areas where human activity has had a far less pronounced effect on the habitats. During the first six months of the search representative areas of all the major habitat types were examined, particularly those potentially suitable to *P. tridactylus*. However, the huge size of these areas has meant that concerted trapping efforts have only been possible in a very small proportion of each habitat type.

Nevertheless, the exploration of many of these areas in conjunction with the (limited) knowledge of the former distribution and habitat requirements of Potoroos in W.A. and of the habitat requirements of *P. tridactylus* in Victoria has enabled me to choose several localities that would repay extensive trapping programmes during the next twelve months.

Thus it is planned to search for *P. platyops* in the Fitzgerald River and Bremer Bay areas. *P. tridactylus* will be looked for between Mt Manypeaks and Albany, between Broke Inlet and Augusta (both areas contain coastal heathlands, as well as some forested areas: Quokka are abundant in both) and in the Shannon Basin

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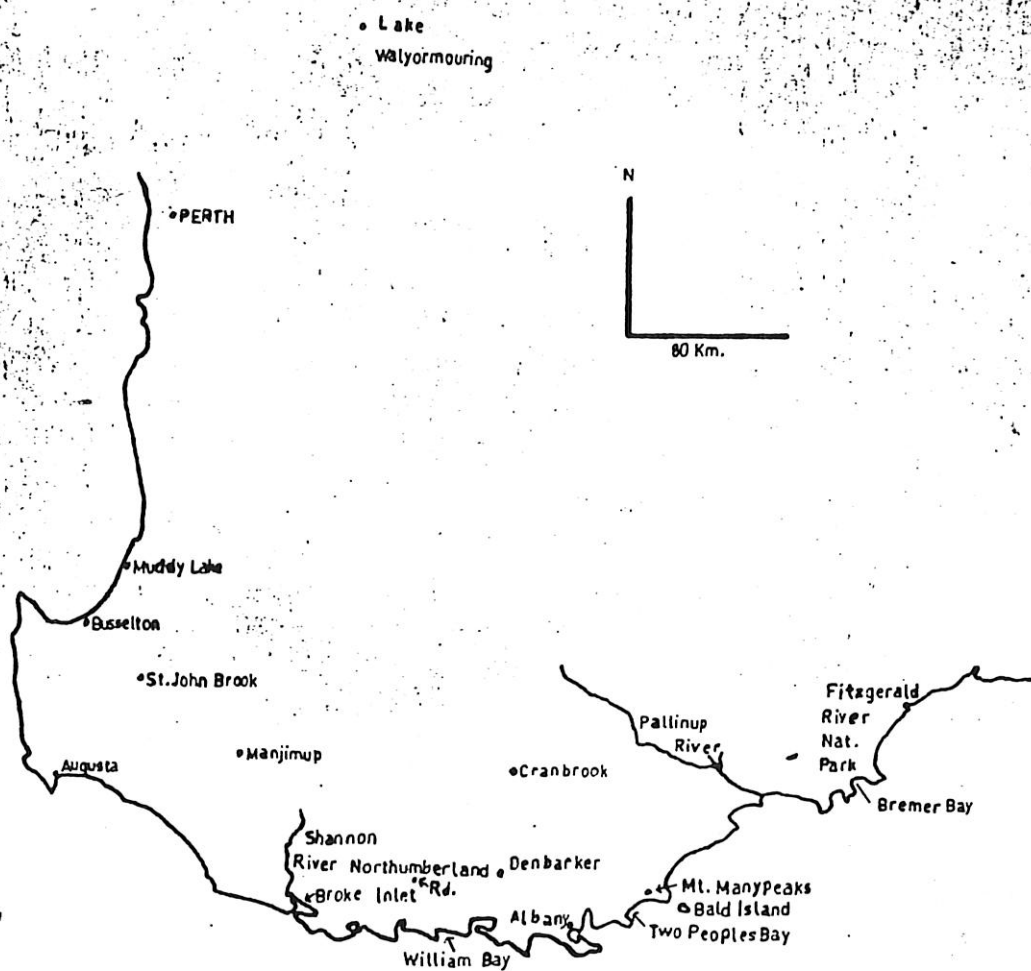
(a large area of wet and dry sclerophyll forest with many swamps). In the Shannon Basin emphasis will be placed on the locality at which an unidentified animal fitting the description of a Potoroo was captured and subsequently released by a forest officer. It is also hoped to visit Bald Island and Islands of the Archipelago of the Recherche which lie just off the south coast of W.A. The mammalian faunas of these islands are poorly known and Potoroos could well exist on some of them.

References:

- Baynes, A. The distributions of the native mammals of South-Western Australia. In Press.
- Brunner, H. & Coman, C. 1974. *The identification of mammalian hair*. Inkata Press, Melbourne pp.1-176.
- Butler, W.H. & Merrilees, D. 1971. Remains of *Potorous platyops* (Marsupialia, Macropodidae) and other mammals from Bremer Bay, Western Australia. *J. Roy. Soc. of W.A.*, 54 (2) : 53-58.
- Glauert, L. 1950. The development of our knowledge of the marsupials of Western Australia. *J. Roy. Soc. of W.A.*, 34 : 115-134.

FIG. 1.

MAP OF SOUTH-WESTERN W.A. SHOWING LOCATIONS OF PLACES
MENTIONED IN THE REPORT.



HAVE YOU SEEN A POTOROO?

TWO SPECIES OF POTOROO (OR RAT-KANGAROO) HAVE BEEN RECORDED FROM THE SOUTH-WEST OF WESTERN AUSTRALIA. THEY ARE GILBERT'S POTOROO, KNOWN FROM NEAR ALBANY AND THE BROAD-FACED POTOROO, KNOWN FROM NEAR GOOMALLING (A DOUBTFUL RECORD FROM THE ALBANY DISTRICT ALSO EXISTS). HOWEVER, NEITHER SPECIES HAS BEEN SEEN THIS CENTURY. THE DEPARTMENT OF FISHERIES AND WILDLIFE HAS INITIATED A SEARCH FOR THESE ANIMALS SO THAT, IF THEY DO STILL EXIST, NECESSARY STEPS CAN BE TAKEN TO ENSURE THEIR SURVIVAL.

WE WOULD LIKE YOUR HELP, PLEASE!

WHAT ARE POTOROOS? POTOROOS ARE THE SMALLEST OF THE KANGAROO FAMILY. THEY ARE ABOUT THE SIZE OF A RABBIT AND WEIGH UP TO THREE POUNDS. GILBERT'S POTOROO IS DARK BROWN; THE BROAD-FACED POTOROO IS THOUGHT TO BE A PALE SANDY OR GREY COLOUR. THEY HAVE SHORT EARS AND RELATIVELY SHORT, SPARSELY HAIRIED TAILS (SEE ILLUSTRATION).

POTOROOS COULD EASILY BE CONFUSED WITH:-

1. **BANDICOOTS** (SEE ILLUSTRATION) BUT ...
 - A. THE FUR OF POTOROOS FEELS SOFT.
THE FUR OF BANDICOOTS FEELS HARSH.
 - B. THE TAILS OF POTOROOS ARE ALMOST AS LONG AS THEIR BODIES.
THE TAILS OF BANDICOOTS ARE MUCH SHORTER THAN THEIR BODIES.
 - C. THE LOWER JAWS OF POTOROOS CONTAIN ONLY ONE PAIR OF LARGE INCISORS WHICH ARE SEPARATED FROM THE FIRST CHEEK TEETH BY A WIDE GAP.
THE LOWER JAWS OF BANDICOOTS CONTAIN THREE PAIRS OF SMALL INCISORS AND A CANINE TOOTH OCCUPIES THE SPACE BETWEEN THEM AND THE FIRST CHEEK TEETH.
 - D. THE FIRST CHEEK TEETH OF POTOROOS ARE VERY LARGE AND OF A CHARACTERISTIC SHAPE, QUITE UNLIKE THOSE OF BANDICOOTS (SEE ILLUSTRATION).
2. **QUOKKAS** (SEE ILLUSTRATION) BUT ...
 - A. POTOROOS ARE MUCH SMALLER (UP TO 3 LBS.) THAN QUOKKAS WHICH WEIGH UP TO 7 LBS.
 - B. THE FEET OF POTOROOS ARE SLENDER AND COVERED IN SHORT FUR.
THE FEET OF QUOKKAS ARE MORE ROBUST AND COVERED IN LONGER FUR.
 - C. GILBERT'S POTOROO HAS A LONG, POINTED FACE.
QUOKKAS HAVE SHORT BROAD FACES.
 - D. THE BROAD-FACED POTOROO IS THOUGHT TO BE A PALE SANDY OR GREY COLOUR.
QUOKKAS ARE USUALLY DARK BROWN.
3. **WOYLIES** (SEE ILLUSTRATION)

WOYLIES ARE OF SIMILAR SIZE AND BUILD TO POTOROOS AND THEY HAVE SIMILAR DENTAL CHARACTERS BUT THEY CAN AT ONCE BE DISTINGUISHED BY THEIR TAILS; THE TAILS OF WOYLIES HAVE A DISTINCTIVE BRUSH OR CREST OF BLACK HAIR NEAR THE TIP.

AS WE HAVE VERY LITTLE INFORMATION ABOUT THE DISTRIBUTION OF WOYLIES WE WOULD ALSO WELCOME ANY RECORDS YOU HAVE.

THEY ARE KNOWN TO LIVE IN THE TUTANNING WILDLIFE SANCTUARY, EAST OF PINGELLY, IN THE DRYANDRA STATE FOREST NEAR NARROGIN, AND IN THE TONE/PERUP RIVER AREA, EAST OF MANJIMUP.

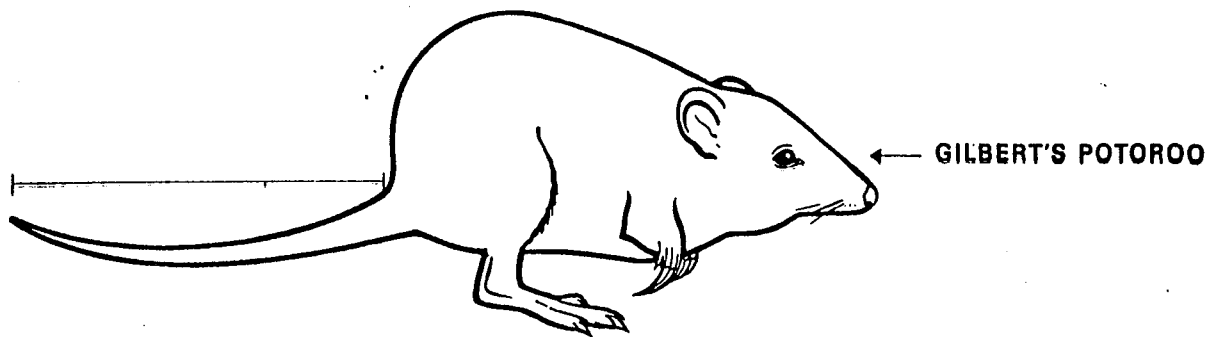
WHAT TO DO IF YOU THINK YOU HAVE SEEN A POTOROO (OR A WOYLIE) PLEASE LET US KNOW. INFORMATION CAN BE SENT IN AN ENVELOPE MARKED "POTOROOS" TO:-

THE DEPARTMENT OF FISHERIES AND WILDLIFE,
P.O. Box 51,
WANNEROO, W.A. 6065.

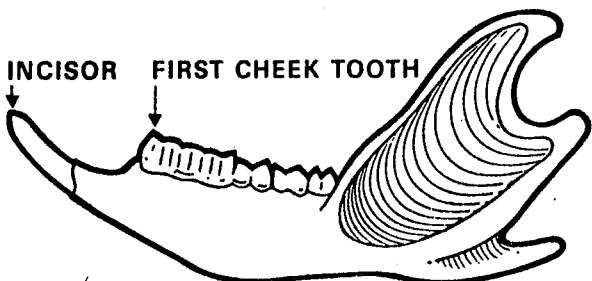
IT WOULD ASSIST US IF YOU INCLUDE THE FOLLOWING DETAILS:-

1. YOUR NAME, ADDRESS AND TELEPHONE NUMBER.
2. WHERE YOU SAW THE ANIMAL (E.G. NEAREST TOWN).
3. IN WHAT HABITAT YOU SAW IT (E.G. FOREST, SWAMP, FARMLAND, ETC.).
4. WHEN YOU LAST SAW ONE.
5. WAS IT ALIVE OR DEAD?
6. THE FEATURES THAT MADE YOU THINK IT WAS A POTOROO (OR A WOYLIE).

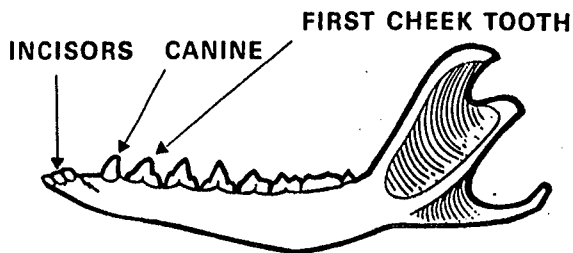
IF YOU CATCH A POTOROO (OR A WOYLIE) ALIVE OR FIND ONE DEAD YOU CAN 'PHONE US, REVERSE CHARGES, AT PERTH 91 1555. DEAD ANIMALS SHOULD BE KEPT IN A SAFE PLACE, PREFERABLY FROZEN IF THEY ARE FRESH. WHEN 'PHONING PLEASE ASK FOR DR START, DR BURBIDGE, OR MR MCKENZIE.



GILBERT'S POTOROO

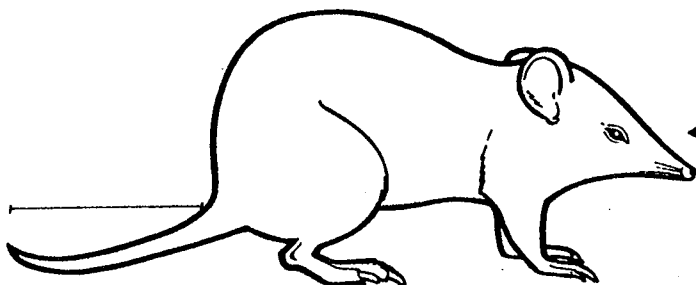


JAW OF POTOROO (OR WOYLIE)

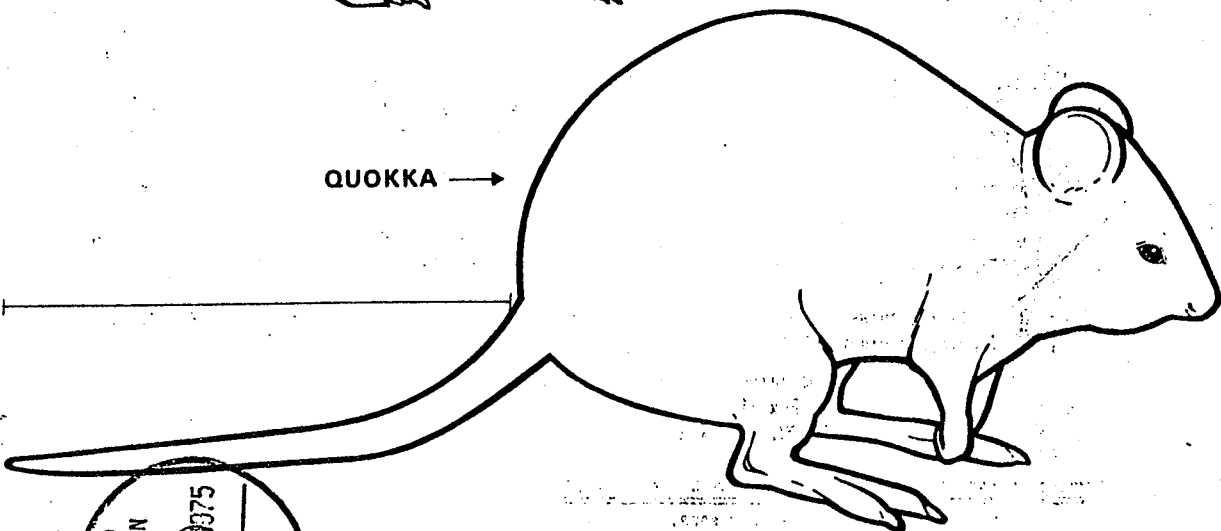


JAW OF BANDICOOT

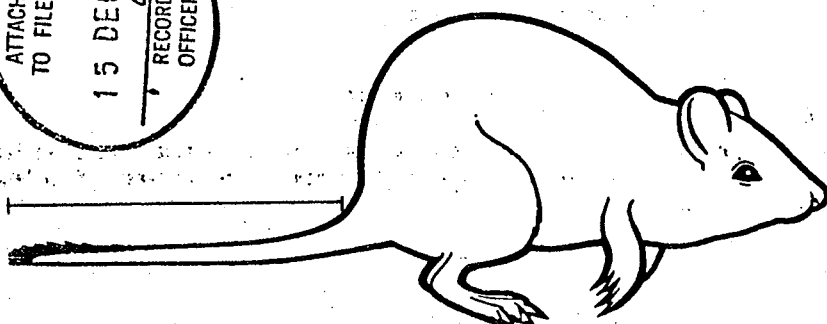
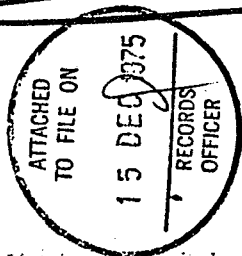
(Both are diagramatic)



SHORT NOSED BANDICOOT



QUOKKA



WOYLIE