





&

FOUND

LOST



GILBERT'S POTOROO

Believed extinct for more than 100 years, Gilbert's potoroo has been rediscovered alive and well at Two Peoples Bay Nature Reserve. CALM scientists and the discoverers describe the little that is known about Western Australian potoroos and outline some of the research that the rediscovery has triggered.

**BY TONY START,
ANDREW BURBIDGE,
ELIZABETH SINCLAIR & ADRIAN WAYNE**

In November 1994, Elizabeth Sinclair and Adrian Wayne set traps at Two Peoples Bay Nature Reserve. They were hoping to catch quokkas to help with Elizabeth's research at The University of Western Australia's Zoology Department. By Tuesday 29th, they had set 17 cage-traps for six nights without success. Then, the following morning, they found one of the traps occupied: not by a quokka, but by an animal that looked like a cross between a bandicoot and a small wallaby that neither of them had seen before. The day after, they trapped two more of the strange animals.

Mystified, Elizabeth and Adrian called in Leigh Whisson and Alan Danks, Department of Conservation and Land

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Main: Gilbert's potoroo pauses for a portrait.

Photo - Jiri Lochman

Inset: Elizabeth Sinclair found that the young male potoroo settled quickly into captivity.

Photo - Jiri Lochman

Below: Elizabeth Sinclair set traps for quokkas, but caught potoroos!

Photo - Jiri Lochman



Management (CALM) staff at the reserve, who had already helped set up their visit. Using mammal identification books and by a process of elimination, the four of them began to realise that the animal fitted the description of Gilbert's potoroo. But Gilbert's potoroos had not been officially recorded since 1879, so they wanted the find confirmed.

A team of scientists from CALM's Science and Information Division hurriedly prepared to set off for Two Peoples Bay. Several features of the potoroo's body are distinctive, and their teeth are unmistakable among known mammals, making their identity relatively easy to confirm. Nevertheless, it was considered prudent to compare the mystery animals with Museum specimens,

since another potoroo, the broad-faced potoroo, once lived in south-western Australia. It had been last recorded in 1869 and available information suggests that it lived in more arid areas, but it had to be taken into account.

Staff of the Western Australian Museum quickly gathered together relevant comparative material to help with the identification. This included the skin of a Victorian long-nosed potoroo and the skulls of Gilbert's and the broad-faced potoroos, as well as skulls of some other small wallabies that may once have lived in the area.

On their arrival late at night, CALM scientists Andrew Burbidge, Tony Friend, Norm McKenzie and Tony Start, together with Elizabeth, Adrian and Alan, compared the long-dead Museum specimens with one of the very lively mystery mammals, firmly grasped in Alan's hands.

To the visiting scientists, it indeed looked like a potoroo. It was about the size of a quenda (or southern brown bandicoot) and, like the quenda, it had a long nose and large claws on the fore feet for digging. But the animal in Alan's





hands had long, soft fur quite unlike the sleek, almost bristly hair of quendas, and its tail was much longer and stouter. Strikingly, it had the roundish face that is characteristic of potoroos.

Gently the animal's lips were parted to examine its teeth. Then, the length and width of its head was measured, since the skull shape of Gilbert's and broad-faced potoroos is quite different. Now there was no doubt—it was a Gilbert's potoroo!

EARLY HISTORY

Gilbert's potoroo was named as a new species in 1841 by John Gould, the famous nineteenth century artist and naturalist. Gould used specimens sent to him by the naturalist John Gilbert who found the potoroos near King George's Sound (as Albany was then known) in 1840. Gilbert's mission in Western Australia was to collect mammals and birds for Gould, who had spent some time in Australia but never in the west. Many of the paintings of Western Australian subjects in Gould's classic works *The Mammals of Australia* and *The Birds of Australia* were made from the specimens that Gilbert sent him. Mammal experts this century think that Gilbert's potoroo is probably a subspecies of the long-nosed potoroo, which occurs in the south-east of Australia. Another subspecies occurs in Tasmania.

While at Albany, Gilbert collected many specimens, including a mammal about the size of a quenda, but with many of the anatomical features of kangaroos. It was, in fact, a primitive relation of kangaroos and wallabies, and it had close relatives in the eastern Colonies that were called potoroos. Gilbert recorded that the local Nyoongar Aboriginal name was *Ngil-gyte*. Gould named the animal after Gilbert in recognition of the 'great zeal and assiduity he displayed in the objects of his mission'. Gould proposed the common name 'Gilbert's Rat Kangaroo'.

The next European to find Gilbert's potoroo was George Masters, who worked for the Museum of New South Wales (now the Australian Museum). He visited the Swan River Colony in 1866 and 1869 to obtain specimens for their collections, and collected seven Gilbert's potoroos from somewhere near King George's Sound, but he left scant information about his expeditions and no information about the potoroos.

Another collector, William Webb, obtained a single Gilbert's potoroo, again from King George's Sound, sometime between 1874 and 1879. This specimen is in the Macleay Museum at the University of Sydney. That was the last time Gilbert's potoroo was officially recorded and it was relegated to the lamentable list of Australian animals that are presumed to be extinct.



Above: The heathland on Mt Gardener is seemingly impenetrable, but quokkas and potoroos have made a network of tunnels that enables them to move about quickly under the canopy.

Photo - Marie Lochman

Left: As potoroos are nocturnal, Alan Danks and Adrian Wayne wait until dark to release a male at the same place he was caught.

Photo - Jiri Lochman

THE CONSTANT COMPANION OF QUOKKAS?

Just as Gould depended on Gilbert for specimens to describe and paint, he depended on him to provide information about the habitat and biology of Western Australian mammals for the text in his book. In fact everything that has been written on the life of Gilbert's potoroo until now has been derived from Gilbert's original notes.

Gilbert wrote:

This little animal may be said to be the constant companion of the *H. brachyurus* [*Halmaturus brachyurus* is an old scientific name for the quokka], inhabiting with them the dense thickets of spearwood and rank vegetation surrounding swamps or small running streams; the natives capture it by treading down the sticks and forming a long, narrow passage through the thicket, a portion of them remaining in the clear space with their spears, while others of the natives particularly the old men and women, go back and walk through the thicket, and by beating the bush and making a yelling noise, drive the affrighted animals before them, and as they run over the cleared space, the natives in readiness spear them. In this way a large tribe of natives will often kill immense numbers in a few hours. I can not learn that this species has ever been seen in any other part of the Colony but King George's Sound.

In 1975 and 1976 Tony Start and David Kabay, working for the then Department of Fisheries and Wildlife, had searched for surviving populations of Gilbert's potoroo. The only clues they had were Gilbert's notes and some knowledge of its former distribution, pieced together from subfossil bones found in caves and sand-blows.

Their 'constant companions', the quokkas, once occurred on the mainland near the coast from about Gingin southward and eastward to near Bremer Bay. Most people know quokkas from Rottnest Island, but there is also another large population on Bald Island, not far from Two Peoples Bay.

Tony and David were encouraged by a few old timers from the south coast who remembered 'miniature kangaroos'. These people sometimes saw them when hunting quokkas from horseback in the heathlands and occasionally caught them in rabbit traps. They knew the wildlife well and were emphatic that these were not quendas, although they were of a similar size. Nor were they quokkas, which they knew well.

Bearing in mind Gilbert's notes, Tony and David sought and found many places along the south coast where quokkas still lived in swampy places, including Two Peoples Bay. Ironically, although they found many quokka colonies and caught quokkas at some places, they never caught a potoroo; while Elizabeth and Adrian, hoping to catch quokkas at Two Peoples Bay, caught only potoroos.

FOXES

Sadly, the old timers agreed that about 1930 quokkas seemed to largely disappear on the mainland. The 'miniature kangaroos', as well as many other smaller mammals, went with them. This is a common story in the South West and the date fits in with the spread of foxes to these parts.

Above right: The sun rises over Two Peoples Bay as Adrian Wayne takes notes during the early morning 'trap round' on Mt Gardener.

Photo - Jiri Lochman

Right: Alan Danks and Adrian Wayne measure the ratio of head length to head width to confirm the animal is a Gilbert's potoroo.

Photo - Jiri Lochman

It was about the time foxes arrived in the South West that quokkas vanished from more open habitats. The evidence for foxes exterminating Australian mammals around the size of quokkas and potoroos has been all too clearly demonstrated. It is a plausible hypothesis that foxes wiped out the quokkas except where their habitat was so dense that it afforded shelter even from these marauders. This would also explain why people thought quokkas had become extinct on the mainland until they started searching for them in the very dense vegetation of swampy places.

It might seem odd, then, that at Two Peoples Bay, Elizabeth set her quokka traps in heathland, but that was where there were numerous runways with

quokka droppings along them. By mid-December she and Adrian had caught five potoroos in the same habitat. Is it coincidence that CALM has controlled foxes at Two Peoples Bay since 1988 and quokkas and potoroos are living in the heathlands? It seems likely that, with reduced predation from foxes, quokkas and potoroos spread from a densely vegetated refuge to re-occupy parts of their original habitat.

Perhaps it is also no coincidence that Gilbert's potoroos and noisy scrub-birds found refuge on the slopes of Mount Gardner. This is one place where extensive wildfires have been absent for a long time. The lack of fire in this area is partly due to its topography and, since the 1960s, to fire management strategies





that have been implemented by the reserve's managers. The draft management plan for Two Peoples Bay maintains the long-standing policy of fire exclusion at Mount Gardner. Fire exposes vulnerable prey to foxes and other predators until dense vegetation re-grows, and the densely vegetated gullies at Two Peoples Bay have provided a continuing cover for easily predated species.

WHAT NEXT?

It is not known if there are other populations of Gilbert's potoroos at Two Peoples Bay or elsewhere. Until other populations are found, it must be assumed there are none. Despite the constant presence of CALM staff at Two Peoples Bay, there is always a risk of wildfire from lightning, if not from other causes. Therefore it is prudent to keep a few of the potoroos in captivity, safe from that risk. In Victoria, the closely related long-nosed potoroo has adapted readily to captivity and breeds well.

A high priority for CALM scientists is a search for more populations—a task that is already under way. Now that we can observe wild potoroos and learn what signs may indicate their presence, this task will be easier. If we do find them in

other places, we may be able to release the captive colony. If not, plans will be developed to establish new populations.

Other tasks will include learning more about the population that Elizabeth and Adrian found. What is the size of the population? What area do the animals occupy? Are they gregarious? What do they eat? What range of habitats do they use? What dangers may threaten them? The list of 'whats' is almost endless.

CALM will also carefully review the strategies that are already in place to safeguard the many species of endangered animals that occur at Two Peoples Bay. A recovery team, now being set up, will address these important issues and keep abreast of research results to try to ensure that Gilbert's potoroo is never 'lost' again.

Above: The potoroo's ears are almost buried in long soft fur; but its eyes provide clear vision of things above and in front, and its front feet are armed with powerful claws for digging.

Photo – Jiri Lochman

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LANDSCOPE

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Flower arrangements featuring eucalyptus foliage are becoming popular with florists. Find out why on page 35.



Unseen for more than 100 years and believed to have been extinct, Gilbert's potoroo turned up quite unexpectedly. See page 28.



Salinity is a problem in the State's south-west, but farmers, communities and government agencies are working to find solutions. See page 39.



A giant dragonfly lives in the south-west of Western Australia. You can find out more about this ancient relict of the jarrah forest in 'Western Petalura' on page 52.



The thick-billed grasswren is one of several animals that may be reintroduced to Shark Bay as part of an ambitious project. See 'Return to Eden' on page 22.

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COVER

The stunning royal robe (*Scaevola striata*) is one of a host of fabulous fanflowers found in Western Australia. Suzanne Curry discusses this and other species in the family Goodeniaceae on page 10.

The illustration is by Philippa Nikulinsky.



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