Rare Marsupial Captured in Gibson Desert

by Clifford Young

It is a small animal, soft-furred and about the size of a domestic mouse but there the similarity ends. With its pointed snout, large darting eyes and sharp teeth it is an aggressive little ball of energy, by night leaping and scrambling with ease over its rocky habitat, maintaining its balance with the help of an extraordinary tail — twice the length of its combined head and body.

Despite its distinctive tail, the Long-tailed Dunnart *(Sminthopsis longicaudata)* has eluded biologists for the past century to the extent that it was classified as one of Australia's rarest marsupial mice. That is, until earlier this year when a colony was discovered in the Gibson Desert by members of the Western Australian Wildlife Research Centre.

Prior to this discovery, scientists only knew the animal from three whole specimens, two of which were collected last century. One of these was collected "somewhere in the Pilbara, Western Australia", and the other resides in the National Museum of Victoria under the vague notation that is was collected "in Central Australia". The third specimen was found at Marble Bar and presented to the Western Australian Museum by R. N. W. Bligh in 1940. In the same museum are some bones identified as belonging to a Long-tailed Dunnart which were found among the chewed-up remains in a Ghost-Bat roost, also near Marble Bar.

In addition, the damaged remains of a female Dunnart, identifiable by its long tail, were collected up by a biological survey team from the Western Australian Wildlife Research Centre in the Hann Breakaways, south of Warburton in 1976.

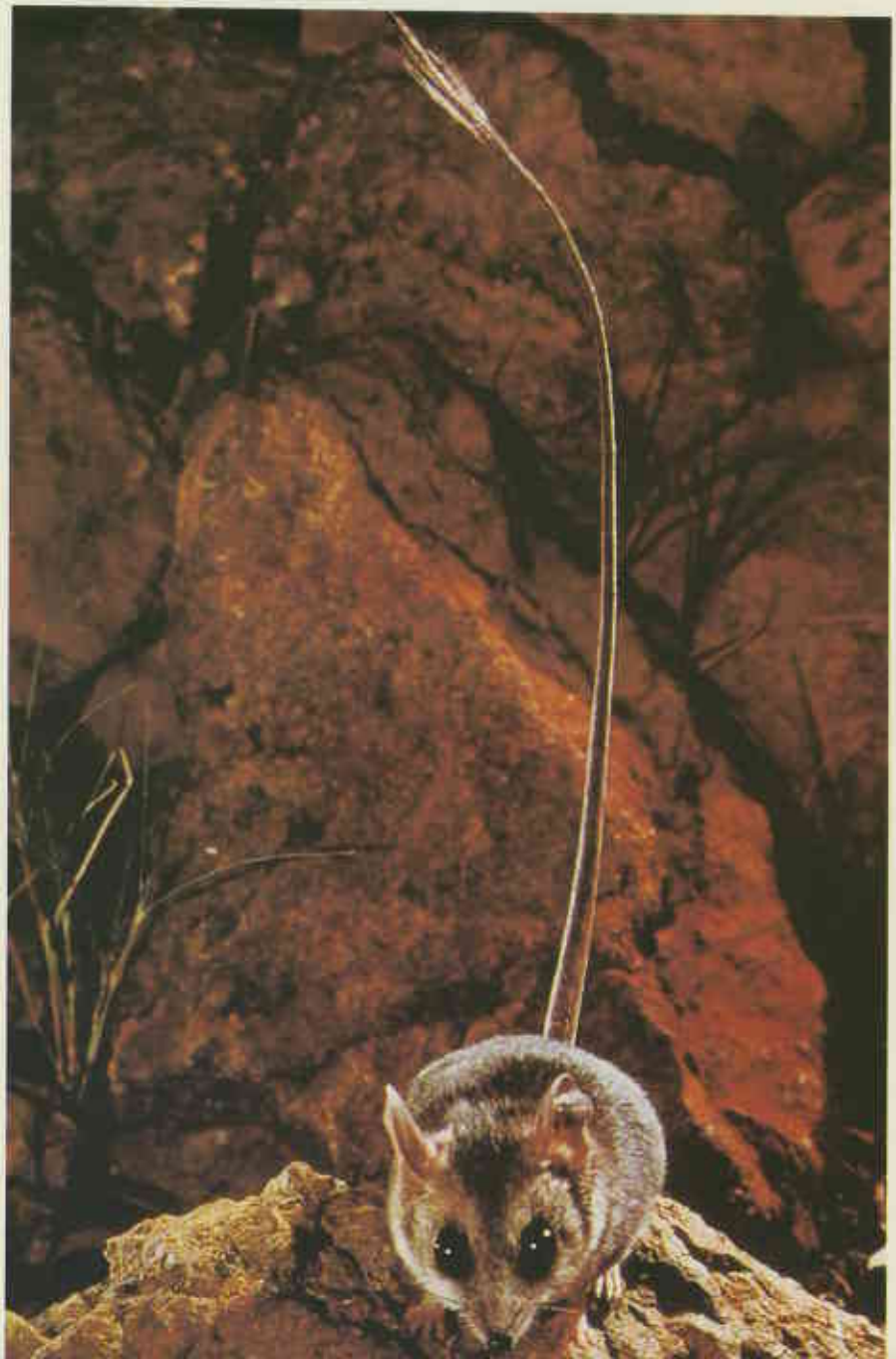
Although the team was looking for small marsupials, the discovery of the Long-tailed Dunnart was unexpected and represented an exciting find, immediately raising hopes of finding a live specimen. The Officer-in-Charge of the Research Centre, Dr. Andrew Burbidge takes up the story:

"Until we found the remains of the Dunnart, I had paid little attention to the animal. We started our series of desert surveys in 1975. We picked 1975 because it was a good season following three years of good rains, winter and summer, throughout the centre of Australia.

"This had resulted in prolific rejuvenation of vegetation accompanied by a massive increase in the number of small mammals, a typical reaction in the desert. We continued the surveys into 1976 but this wasn't nearly so successful as the number of mammals was then declining.

"However, while surveying an area around the Hann Breakaways, south of Warburton, we collected the remains of a small marsupial mouse from a clump of spinfex. It was almost certainly a Long-tailed Dunnart and we immediately saturated the hills with metal traps

▼ The long-tailed Dunnart *(Sminthopsis longicaudata)* — Photo Copyright A.G. Wells.



hoping to catch a live specimen. Two days later we admitted defeat and earmarked it for a later expedition."

Over the next few years, the Research Centre continued with its series of desert surveys, working in the Gibson Desert, the southern edge of the Little Sandy Desert and the Great Sandy Desert but at no stage was another Long-tailed Dunnart sighted. At that point, Dr. Burbidge concluded that, either the animal was indeed rare, or there was something wrong with the trapping technique being employed.

Previously, all small marsupial trapping was carried out using metal traps designed in Europe and the United States. These traps operate on the principle of attracting the animal with bait, for example nuts, to a position where a trapdoor closes behind them, cutting off escape.

Although the Long-tailed Dunnart is carniverous, preferring a diet of insects and small lizards to nuts, it had been hoped that the oily smell of nuts would have proved attractive or, if that failed, that the animal's curiosity and territorial sense would have led it to explore the foreign object placed on its doorstep. This had proved successful with other small carnivores on occasion but Dr. Burbidge thought something new may have to be employed for the Long-tailed Dunnart.

"As an experiment, we decided to return to the Hann Breakaways where we found the previous specimen and try to catch a live animal with pit-fall techniques, an age-old method we had adapted for use with small animals in 1978."

The pit-fall trap as used by the Department's biologists, consists of lengths of plastic piping set vertically into the ground over stretches of suitable countryside and connected by long rolls of nylon mesh 'fencing' about 45cm high. They work on the theory that any small marsupials coming up against the mesh while foraging for food at night will become alarmed and travel along the fence until falling into one of the holes created by the pipe set in the ground. In the case of the Long-tailed Dunnart, it was thought that the holes would have to be particularly deep as the animal, like many of its relations, probably was capable of quite high leaps from a standing position.

The new expedition was scheduled to get underway in June, 1981, but problems began almost immediately.

Dr. Burbidge, who had planned to lead the expedition, was involved in a traffic accident shortly before the starting date and was forced to withdraw from an active role to direct the field party by radio from the Centre's headquarters at Wanneroo.

The second major hurdle came when the field party reached Warburton and attempted to obtain permission from the traditional Aboriginal occupiers of the land surrounding the Hann Breakaways to trap for animals in the hills. Despite several days of negotiations with tribal elders, permission was refused as the land was considered sacred. The Aboriginals objected to the party's planned use of rock drills which were needed to sink the lengths

▲ The rocky habitat provided many problems to field staff trying to set pit-trap lines. A rock-drill was necessary in many cases. — Photo J. Lane.

▼ In some exceptional cases the ground defied even a rock drill and small charges of explosive were needed to break enough rock to set a trap. — Photo J. Lane.

of pipe into the rocky habitat.

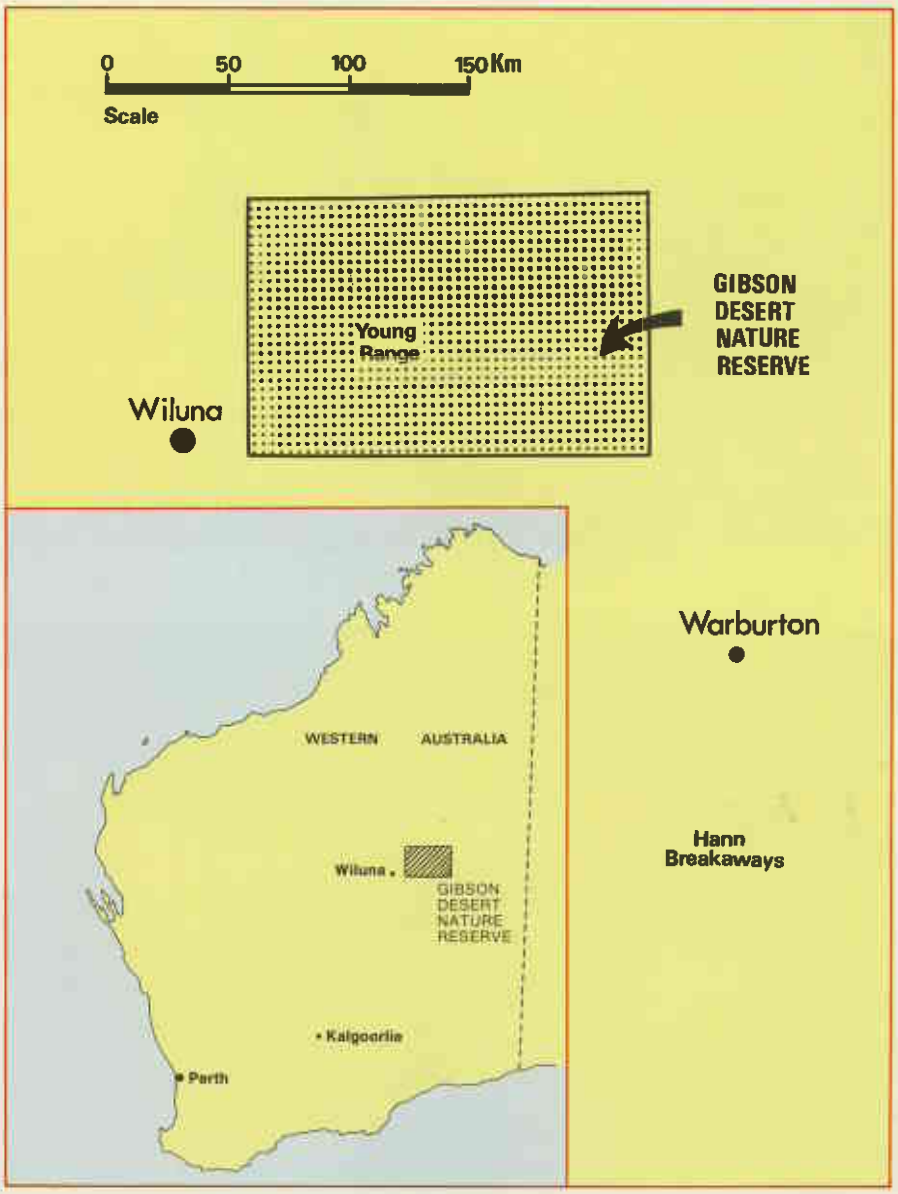
Following this setback, a radio consulation was held with Dr. Burbidge and it was decided the field party should travel further north to the Young Range, a range of hills and breakaways within the Gibson Desert Nature Reserve. Although the country wasn't anywhere near as steep or as rugged as the Hann Breakaways, the team was still confident that the habitat was similar enough to harbour Long-tailed Dunnarts—if they still existed.

Any doubts that the animal existed or about the effectiveness of the new trapping technique were laid to rest on the very first night spent at Young Range. Although only one and a half trap lines were set that night due to the difficulties imposed by the terrain and the need to use the rock drill to set each pipe, an inspection the following morning showed one Long-tailed Dunnart — a male — alive and well at the bottom of one of the holes.

Jubilant, the men immediately despatched the animal to Perth and set to work rigging more trap lines. By the end of a week, another eight animals had been captured, of which five were released.

Those animals kept, including the one sent to Perth, consisted of two males and two females. Surprisingly, of the nine Dunnarts caught, only five were found in the pit-traps. The remaining animals were caught in standard metal Elliott traps baited with strips of bacon. This was despite the fact that the same traps had failed to catch any Long-tailed Dunnarts when used in the same area during a previous field trip in 1978. Dr. Burbidge considered the reason for this year's success may have been related to an increase in numbers of the animal in the area, or possibly to the use of bacon — a new ploy. Most of the animals caught were last year's young, perhaps pointing to a particularly prolific breeding season.

Another interesting little marsupial caught at the same time and place as the Long-tailed Dunnarts was the Red-eared Antechinus, *Antechinus macdonnellensis*. Although



▼ A Pit-trap line has been set up across the valley floor in this view of the Young Range. However, most captures of the Long-tailed Dunnart were made on the broken ridges fringing the valley. — Photo P. Fuller.

After a hole was dug, a piece of pipe was set into the ground as a pit-trap. — Photo J. Lane.

A roll of mesh was laid linking the pit-traps to guide small marsupials into the traps. — Photo P. Fuller.

The first Long-tailed Dunnart captured alive using the new techniques is here displayed before the long trip to Perth. — Photo J. Lane.

occupying the same habitat, the Red-eared Antechinus has about four times the body weight of the Long-tailed Dunnart and is probably less agile. Its diet would also be different, probably eating larger prey such as geckos and possibly even young Dunnarts.

An interesting adaptation which both animals show to their rocky environment is striated (ridged) footpads enabling them to climb smooth slippery rocks with relative ease.

After keeping the animals under observation at the Wildlife Research Centre's headquarters for several weeks, Dr. Burbidge sent them to Dr. Patricia Woolley at La Trobe University in Melbourne. Dr. Wooley is an acknowledged expert in the breeding and rearing of small marsupials, and it is hoped that detailed information on the Long-tailed Dunnart's reproductive cycle will come from her work.

Asked if he still thought the Long-tailed Dunnart was rare after the success of this year's expedition, Dr. Burbidge said information on the animal was still scanty. However, two locations where the animal existed were now known and is was thought that the Long-tailed Dunnart was probably widespread throughout the desert area in similar rocky habitats.

To what extent they still occur in the Pilbara, taking into consideration that the early specimens were found near Marble Bar, is not yet known. Dr. Burbidge considers they may only ever have occurred on the fringes of the Pilbara and are basically a desert dwelling animal.

The Department of Fisheries and Wildlife has no specific plans at present to carry out follow up research on the Dunnart but will continue the surveys of their habitats as opportunity allows.

In addition to its success with Long-tailed Dunnart, this year's expedition proved particularly worthwhile in pioneering new methods of sampling rocky type habitats, an area which in the past has been poorly surveyed.