MOUNTAINS *of* MYSTERY

by

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and

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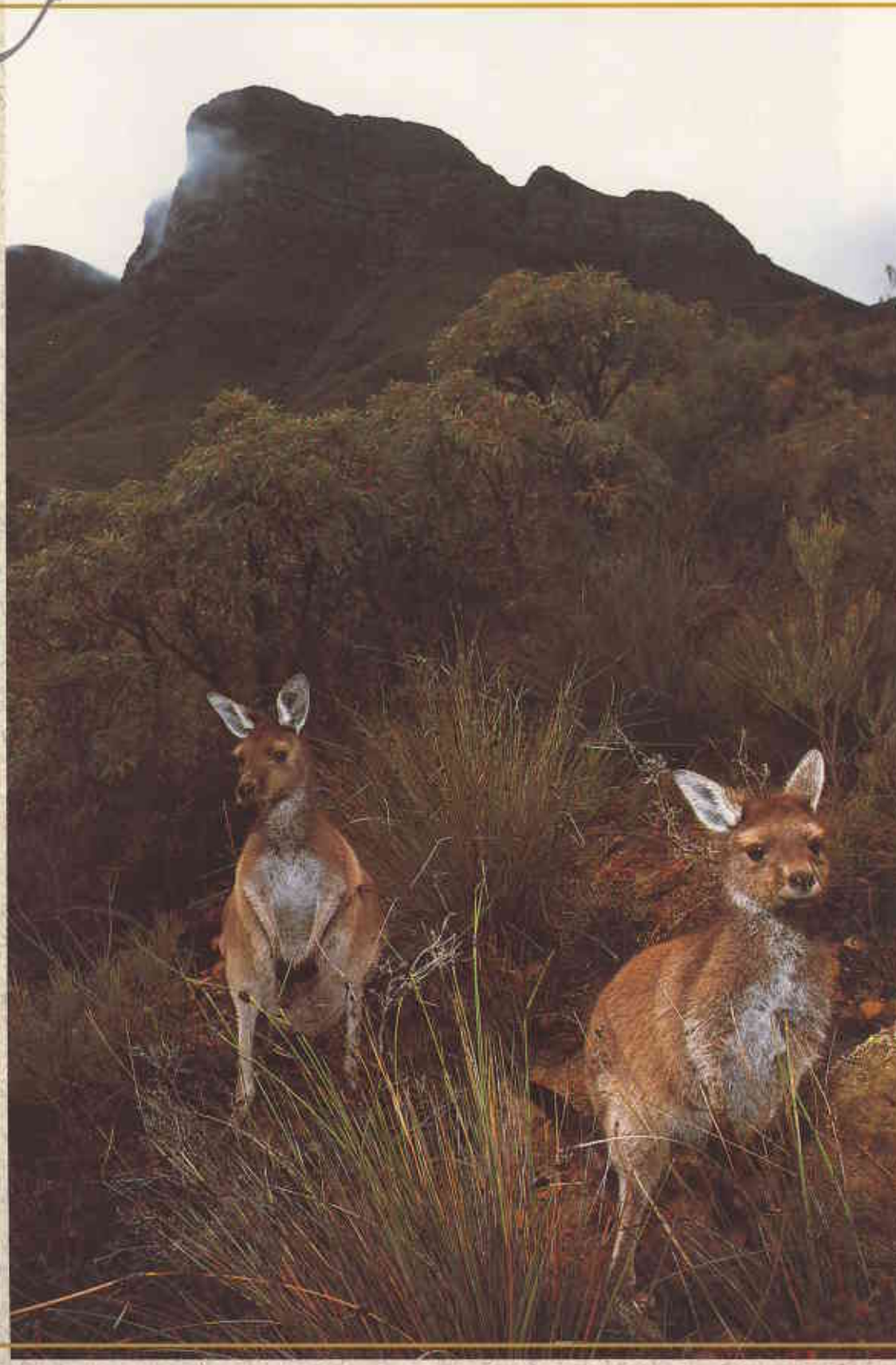
The unique flora of the Stirling Range has inspired botanists throughout the world, but what about the Range's mammals? Why have so many relatively common mammals disappeared from such a large and well-preserved reserve? Gordon Friend and Graham Hall shed some light on this enigma.



The rugged peaks, surrounding plains and brooding beauty of the Stirling Range has long captured people's imagination. The range was known as *Koi Kyeneuruff* by the Bibbulmun Aborigines who lived around King George Sound, and the various peaks like *Toodyeverrup* (Mt Toolbrunup) were significant landmarks in the otherwise subdued terrain and were the source of many Dreamtime legends.

The first known ship to visit the area of King George Sound was the Dutch *Guilden Seepaart* in 1627. In 1792 the French ships *Recherche* and *Espérance* visited the southern coastline, but the first recorded sighting of the Stirling Range was by English explorer Matthew Flinders, on 5 January 1802. Dr Alexander Collie, who explored the Woogenillup district in May 1831, was the first person to describe the Range. In January the following year Ensign Robert Dale led an expedition to the Range and was probably one of the first Europeans to set foot there.

PEAKS IN THE WILDERNESS

It was not until late 1835, however, that the range was named by Surveyor-General John Septimus Roe and the Governor of the Swan River Colony, Sir James Stirling, as they travelled from Perth to Albany. On 3 November, Roe glimpsed 'some remarkable and elevated peaks'. The following day they travelled closer to the Range and 'these remarkable and picturesque mountains being as yet unknown, and His Excellency having

kindly consented to my conferring on them a name, I called them the Stirling Range'.

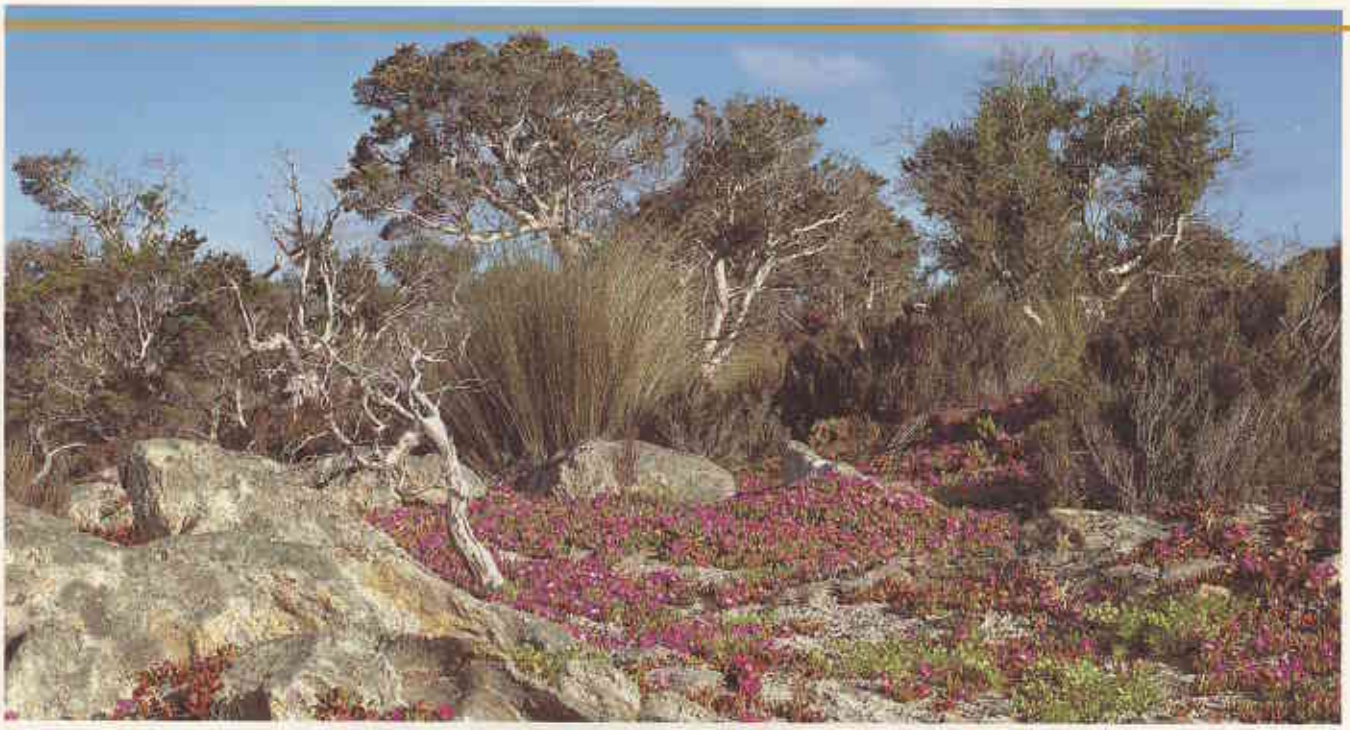
Roe was impressed with the area's wildlife and made numerous notes on the kangaroos, bandicoots, brush wallabies and birds that his horses and dogs flushed from the undergrowth.

A series of explorations followed Roe's trip. In 1839 the Government offered land grants to anyone who could discover coal in the vicinity of the south coast, and there were a number of hopeful claims. Any profitable venture in a colony so short of ready cash was enthusiastically received, and the Government in 1848 promoted the export of sandalwood from Fremantle and the tiny south coast port of Cape Riche. Soon cutters were hacking paths through rugged country to the east and north of the Stirling Range in search of the aromatic wood. With bulky loaded wagons making lengthy treks back to the coast the tracks soon became permanent arteries, along which the sheep and wheat farmers eagerly came to carve out their own fortunes. One of these early tracks has become the main road through the Ranges. The Chester Pass Road, named after the policeman and early settler George Chester, connects Albany with the agricultural country to the north.

These early developments in the region were relatively small-scale and probably did not impinge greatly on the native plants and animals. It was 116 years after Dale's exploration that the major agricultural clearing began near the Range. The South Stirling Land Settlement Scheme, one of the largest land development programs ever

Previous page:
Western grey kangaroos below Bluff Knoll.
Photo - Robert Garvey

Stirling Range from Bluff Knoll; lesser long-eared bat; willy wagtail; honey possum.
Photos - Allan Rose



Granite outcrop with flowering pigface and saltwater paperbark.
Photo - Jiri Lochman ▲▲

Brushtail possums are restricted to small pockets of taller forest along watercourses.
Photo - Jiri Lochman ◄

The spotted-thighed frog has well-developed webbing for climbing trees.
Photo - Allan Rose ▲

An echidna - one of the few ever seen in the park - photographed on the Red Gum Pass Road in 1979.
Photo - Babs & Bert Wells ►

undertaken in Western Australia, commenced in 1948. In the next 10 years many thousands of hectares of the 'almost endless plain' described by the early explorers was cleared and developed for pasture by post-war soldier settlers. This was made possible by the introduction of essential trace element fertilisers which corrected deficiencies in the sandy soils.

Such widespread impact on the region's plants and animals did not directly affect the Range, because it was dedicated as a national park in June 1913. It was Western Australia's third national park. The 115 000-hectare park was declared because of its outstanding wildflowers, spectacular scenery and unique geology. The strange aura of the mountains, contrasting with the flat, rather monotonous surrounding plains, had long attracted bushwalkers and naturalists and led to their being described as 'mountains of mystery' in an article in the *Albany Despatch* in 1927.

Long before this, some of the botanical mysteries of the Range had been revealed. Botanist James Drummond visited the area in 1843, 1846 and again in 1848 and was amazed at the richness and unique character of the flora. He collected many species which proved to be endemic to the Stirling Range, and fired the enthusiasm of botanists throughout the world. This interest persists to this day, and the park is understandably best known for its remarkable plant diversity, displayed at full bloom in spring, when visitors flock to the area.

NO MORE MAMMALS

By comparison, the fauna of the Range has received scant attention in recent times, perhaps because of the massive decline of the mammals since the turn of the century. Well-known zoologist John Tunney lived on his property, Gracefield, near Cranbrook in the early 1900s and made extensive collections of mammals and birds in the area. He led a scientific expedition through the Stirling Range in May 1900, but unfortunately most of his mammal specimens are simply labelled as from 'near Cranbrook' and provide no precise data on the composition of the mammal fauna of the park. Prior to Tunney's work, George Masters had collected animals in the south coast region in the late 1860s and recorded an impressive array of species, but, again, specific information for the Stirling Range was not available. Later visits to the actual Range by A W Milligan in 1902 and F L Whitlock in 1911 mainly dealt with the birds, and only general notes were made of the mammals.

The mammal fauna of the Range at

the time of these early collections probably comprised about 27 species (excluding bats) and included species like the numbat, the western barred bandicoot, the dalgyte (or bilby), the boodie (also known as the burrowing bettong) and the crescent nailtail wallaby, which have all long since disappeared from the region.

The boodie is a good example of a once-common mammal that has disappeared from the Stirling Range. Before European settlement, the boodie was one of the most widespread animals in Australia. These gregarious creatures were so common that early explorers and surveyors had to shoo them away from their tents. However, the boodie has now completely disappeared from the Australian mainland and is found on only four islands off the WA coast: Bernier and Dorre Islands in Shark Bay and Barrow and Boodie Islands near Dampier.

More puzzling than the disappearance of these mammals is the apparent rarity throughout the Stirling Range of species which are ubiquitous throughout much of the South West of Western Australia. The only systematic mammal survey of the park since Tunney's day was carried out by the former National Parks Authority in 1984 and recorded only 10 of the 27 species of mammals known from the region in 1900. The survey failed to record relatively common species such as echidna, yellow-footed antechinus (mardo), southern brown bandicoot (quenda) and brushtail possum.

The Stirling wilderness rises abruptly from the surrounding farmland.
Photo - Allan Rose ▼

The tawny frogmouth - one of the common nightbirds of the Stirling Range.
Photo - Allan Rose ▼▼

The echidna does not appear in the WA Museum listing for the park, and has thus never been officially recorded in the area. The 1984 survey report, however, refers to a record from 1905, and also mentions that an individual was captured and photographed by wildlife photographer Bert Wells on the Red Gum Pass Road in 1979. The rarity of the echidna in the Stirling Range is an enigma since the animal is readily observed, or detected by its characteristic droppings, and is quite abundant throughout the agricultural country to the north, though less common in the wetter forested areas of the South West.

The brushtail possum, by contrast, 'could be found anywhere in the white-gum belt' according to Milligan in 1902, and Tunney collected many around the Cranbrook area during the early 1900s. Although the species may have declined significantly during the intervening period, recent observations by the authors and by zoologist Barbara Jones suggest that moderate numbers still exist in the taller woodland areas in the damper valleys throughout the park (e.g. Kojoneerup Springs). Again, however, it is strange that such a common and widespread species as the brushtail possum seems to be relatively rare in the Stirling Range. Perhaps this reflects both a lack of survey work and the remote and inaccessible nature of much of the park. Likewise, the mardo and quenda appear to be restricted to the wetter habitats in the gullies and on the peaks, and their detection requires much effort and some degree of luck according to Allan Rose, the Assistant National Park Ranger for the Stirling Range.

Even these 'common' species are no longer common in the park. The exceptions are the western grey kangaroo, the western brush wallaby and the honey possum.

SEARCHING FOR REASONS

So why have these animals declined in such a large wilderness, which has been subjected to less disturbance than smaller areas where the same animals still exist? Tutanning Nature Reserve, for example, which is 200 kilometres north of the Stirling Range and only

2 000 hectares in size, still supports good populations of woylies, tammars and red-tailed phascogales. All of these species were known from around the Stirling Range in the early 1900s.

A number of theories have been put forward to explain the disappearance of most medium-sized mammal species from various habitats in Western Australia. These include competition with introduced herbivores, habitat clearing, changed fire regimes and the effects of exotic predators like the fox and cat (see *LANDSCOPE*, Spring 1990). In the Stirling Range the last two factors help explain the demise of these mammals. Before European settlement, fire was probably quite frequent in the Range, particularly in the drier summer and autumn months, but since this time there has been a marked change in the frequency and intensity of fire and the seasons in which they have occurred. At the same time foxes and cats have become more common in the Range.

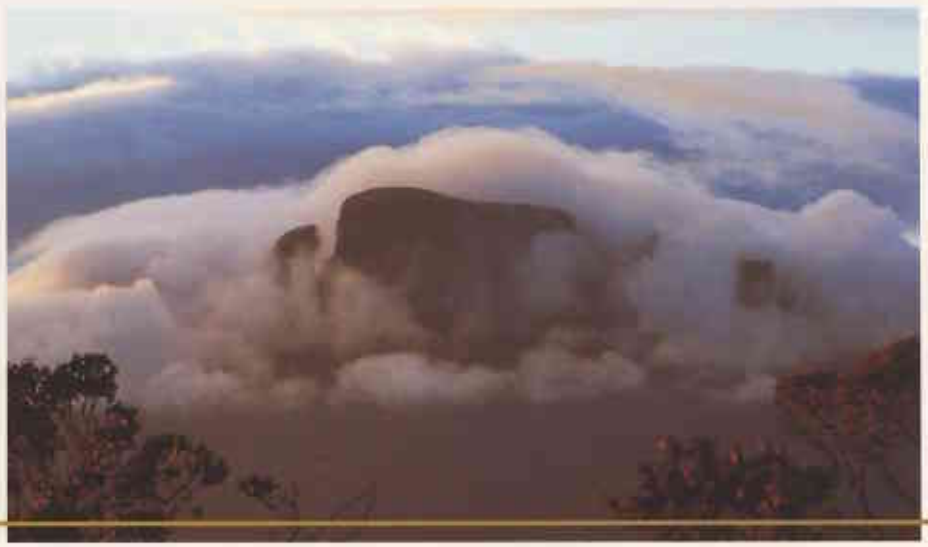
Another important factor, however, is that this region represented the southern limit of the distribution of many of the arid-adapted mammals that have now declined, and is near the northern and eastern boundaries of distribution for species adapted to wetter conditions, such as the mardo. Factors like exotic predators and altered fire regimes have compounded on this marginal habitat in the Range, and led to the disappearance of the species whose optimal habitats were the drier areas like Tutanning Nature Reserve. Species preferring wetter habitats with tall forest also declined in the drier mallee-heath vegetation types of the Range. The size of the respective reserves and the extent of habitat alteration around them have probably contributed less to mammal extinctions than has their geographic position in relation to the former distributions of these species.

However, another factor with increasing impact is dieback disease, which, by affecting plant composition and food resources (such as nectar for honey possums), has the potential to further reduce mammal populations and species-richness in the park.

It is certainly not too late to remedy the lack of attention the Stirling Range National Park mammals and other fauna have received to date, and delve into this puzzle with some systematic and detailed surveys. The impact of fire on the small vertebrate fauna is currently being studied by the authors and other CALM scientists. However, this work is being conducted in a small area on the southern plains of the park, and with pit traps that only attract small mammals. So far, the dunnart, the ash-grey mouse, and the pigmy and honey possums are the only mammals to be collected. The medium-sized mammals such as bandicoots, bettongs and brushtail possums are not being trapped in the fire ecology study, yet these are the species that have declined. Despite its limited nature, this project is the first systematic, long-term scientific research on fauna that has ever been done in the park.

Who knows what animals the damp, cloudy gullies of Bluff Knoll or the lofty summit of Toolbrunup might harbour? We may yet discover whether or not the Stirlings are truly 'mountains of mystery'.

The mardo is a relatively common species that is restricted to wet areas in the Stirling Range.
Photo - Michael Morcombe ▶



The range's abrupt rise and closeness to the Southern Ocean can cause some unusual cloud phenomena.
Photo - Allan Rose ▶

CALM Senior Research Scientist Gordon Friend and consultant ecologist Graham Hall are studying the effects of fires on small animals in the Stirling Range. Both are based at CALM's Wildlife Research Centre on (09) 405 5100.

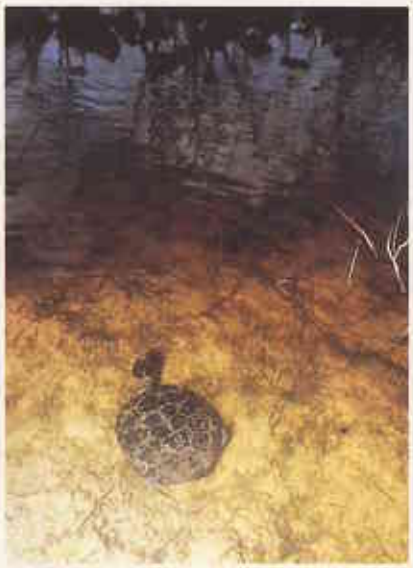
LANDSCOPE

VOLUME SIX NO. 4 - WINTER EDITION 1991

Cloud-capped Bluff Knoll, majestically brooding sentinel of the Stirling Range. Does it hold a secret in its stony heart - perhaps the answer to the missing mammal mystery? See story on page 9.

Mulga and fire - at best an uneasy relationship - sometimes symbiotic, sometimes disastrous. Find out when and where on page 20.

The Kimberley's rugged grandeur is deceptively fragile. Additional reserves managed by CALM help protect the region's delicate, complex and diverse ecosystems. See page 35.



A western swamp tortoise (Pseudemydura umbrina). *Could this be one of the last to be photographed? Not if CALM's ten-year recovery plan succeeds. See page 28 for details.*

An uncommon dragon, Caimaniops amphiboluriodes *inhabits mulga shrubs. Many other dragon lizards prefer harsher habitats such as rock-piles and salt lake beds. See page 51.*

FEATURES

REGULARS

COVER

Central netted dragon (Ctenophorus inermis), *one of the more than 60 species of dragon lizard that inhabit the arid and semi-arid parts of Australia. The acute eyesight and swiftness of dragon lizards are essential in order to avoid predators and to capture food. See page 51.*

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