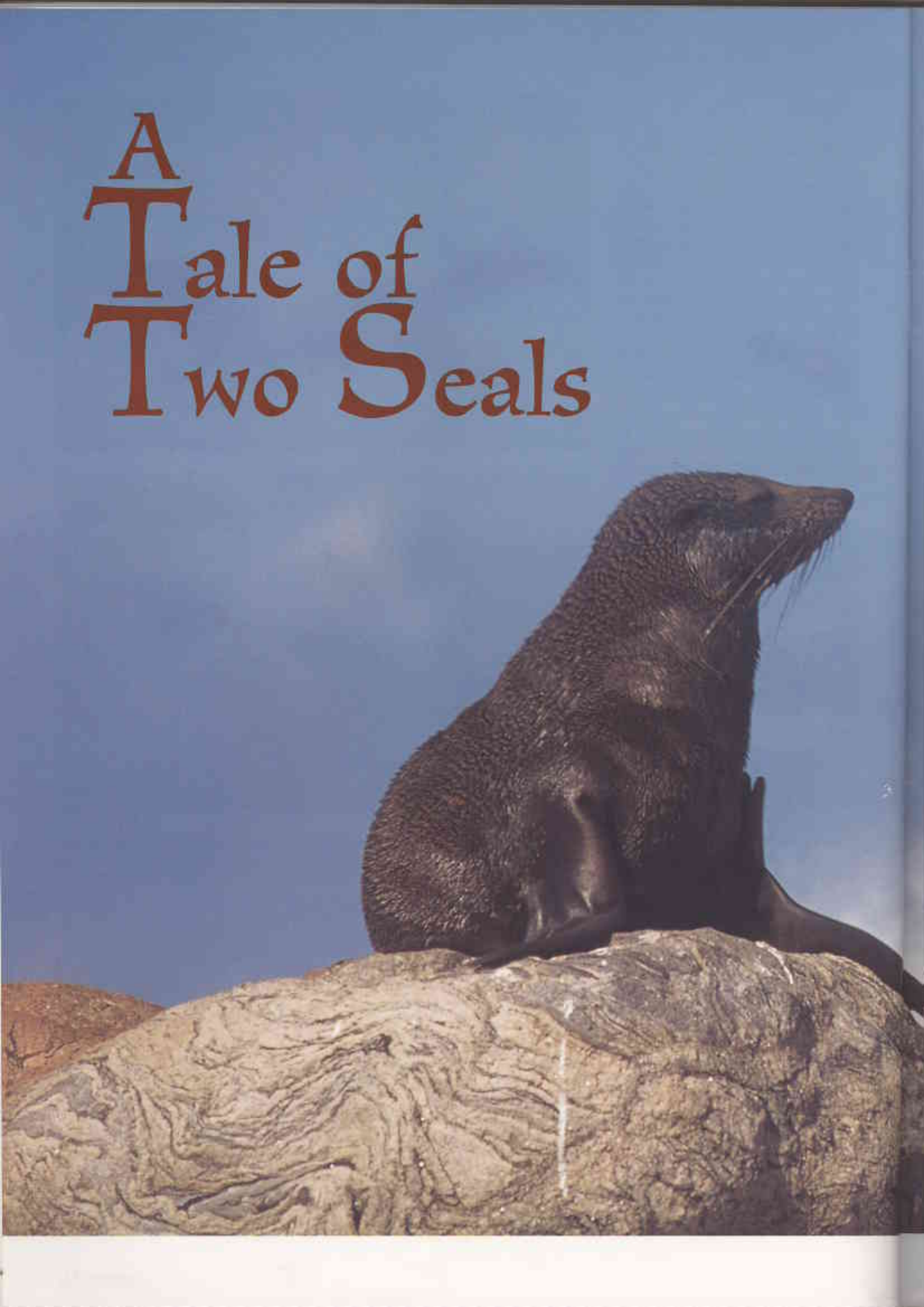
A Tale of Two Seals



Highly adapted to their underwater lifestyles, seals are exquisitely graceful swimmers with social behaviours that fascinate us. Seal populations are under pressure from human activities, so we need to keep an eye on Western Australia's seal communities.

by Nick Gales

Imagine the challenges of studying a creature that spends more than half of its time out at sea, under water, darting around at speeds of up to 20 kilometres per hour, at depths of up to 150 metres. The seal combines speed, precision and agility with an economy of movement that would make any gold-winning human swimmer sick with envy.

While the latest in diving technology allows us to explore at depths of around 30 metres, this seems a small achievement when we set out to study seals.

The champion in the seal diving world is the southern elephant seal, which routinely travels to depths below 1,500 metres, sleeping as it goes and remaining submerged for two hours. Its cousins, the sea lions and fur seals, have evolved to live and feed in shallower waters, but are still able to dive to well below 100 metres and spend up to 10 minutes under water on each dive.

These extraordinary feats are accomplished through the seal's ability to control the way its body uses energy and oxygen. It can slow its heartbeat to a few beats per minute, and store vast amounts of oxygen in its muscles. On account of their specialised physiology, seals don't suffer diving sicknesses like 'the bends' or decompression sickness.

Present range of sea lions

Former existing range of sea lions

Seals have many other special features. They can see in the dim light of deep water by opening the iris of their eyes very wide to let in more light. They have sharp senses of smell and hearing, and can even pick up the sound of shrimps moving in the reefs. They are dexterous in their manipulation of their whiskers, using them, for example, to feel around inside an underwater hole to find prey, and they can even position them to trap prey.

In general, we see seals only when they lumber and crawl on land, and it is only when we understand the life of seals at sea that we can appreciate what extraordinary animals they are.

Western Australia has two native seal species, the Australian sea lion (*Neophoca cinerea*) and the New Zealand fur seal (*Arctocephalus forsteri*). Before Europeans arrived, both were numerous and lived on the many nearshore islands off the southern half of Australia. At the start of the nineteenth century, however, early European industry exploited the apparently endless supply of marine mammals. By 1830, the seals that inhabited Western Australian waters had been butchered to the point where they were close to extinction. The sealers had virtually extinguished their own industry.

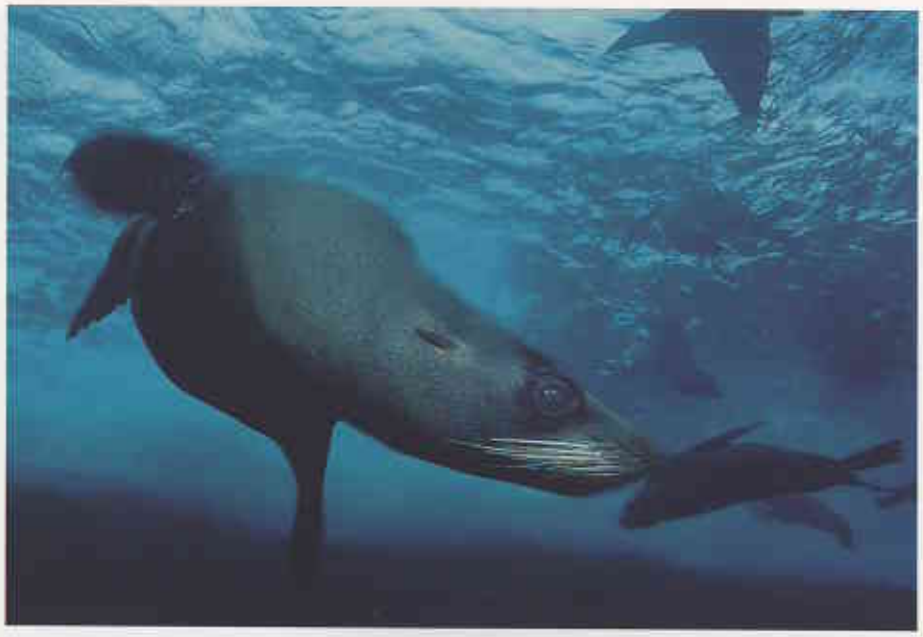
For the next 150 years our native seal populations struggled along at very low numbers, and any population recoveries were probably thwarted by occasional episodes of sealing. In 1979, a review of seal sightings reported that our sea lion population was very small and even fur seals numbered only a few thousand at the most.

COUNTING PUPS

About 10 years later, I was involved in the first complete survey of Western Australia's two native seal species throughout their current range of Western Australian and South Australian waters. It achieves little to count animals resting ashore because you never know how many are in the water at any time. The best approach

Previous page
Main: New Zealand fur seal basking on a typical south coast rocky island.
Photo – Jiri Lochman
Inset: Juvenile Australian sea lion resting on a beach.
Photo – Nick Gales/CALM

Left: A diving New Zealand fur seal in shallow water.
Photo – G. Saueracker/Lochman Transparencies



Right: A diving New Zealand fur seal near an island.
Photo – Peter & Margy Nicholas/Lochman Transparencies

Below right: Australian sea lion cow with its one-month-old pup.
Photo – Jiri Lochman

was to count the seal pups—as all are ashore during the pupping season—and then estimate the total population.

Counting pups was exciting work. To locate all of the seal colonies, we had the task (and the pleasure) of visiting all the islands within the species' range. It was a challenge to reach remote seal colonies on some small and hopefully seaworthy craft, to run the gauntlet of swimming through rough seas infested with white pointers onto slippery, barnacle-encrusted rocks, only to then do battle with testosterone-pumped bulls several times our body weight. Once ashore it seemed the pups were playing hide and seek with us, making sure we had to climb around every rock and bush in sight.

The New Zealand fur seal population in Western Australia was estimated at around 7,100, with breeding at 16 sites. There was a further population of an estimated 27,500 fur seals in South Australia, breeding at only 13 sites. Most of the fur seal colonies visited had not been recorded before.

Estimating the sea lion population was a tougher task. The survey confirmed an earlier, startling discovery that in contrast to the 12-month breeding cycle of other seals, the sea lion breeds every 17.5 months. While all fur seal colonies breed at the same time each year in December and January, sea lions breed at different times on different islands. It took more than three years of island hopping to estimate the sea lion population at 2,700 to 3,400 in Western Australia, breeding on around 27 islands. South Australia is the only other location where this species is found and has an estimated population of 6,600 to 8,300, making the Australian sea lion one of the rarest seals in the world.

This survey provided a benchmark that would reveal population trends,

Left: A juvenile sea lion with an identification tag that will be used throughout its life.
Photo – Nick Gales/Lochman Transparencies

Below left: An anaesthetised sea lion cow with the satellite tag and time depth recorder being glued to its hair, enabling all of its dives to be tracked for the next few weeks. Bernie Haberley (CALM District Wildlife Officer, Esperance) is holding the anaesthetic mask on the animal's face, while Nick Gales glues the satellite tag to its back and Richard Campbell (PhD student, UWA) examines its nether regions. Jeremy Gales (Nick's son) is in the background keeping an eye out for other sea lions that might attack while they work on the seal.
Photo – Nick Gales/CALM

and a follow-on survey in January 1999 showed the fur seal population in Western Australia had more than doubled to an estimate of more than 15,000. This was equivalent to a 10 per cent annual growth rate, and showed the New Zealand fur seals were finally recovering from the unregulated exploitation of nearly two centuries ago. At the same time, southern fur seal species throughout the Southern Ocean were experiencing dramatic and encouraging population recoveries, and evidence from New Zealand and South Australia supported this trend.

What about the sea lions? The unpredictable breeding seasons at the 27 or so colonies in Western Australia make it difficult to count pups, and although the follow-on study of sea lions is not yet complete, it is clear this is not a happy story.

Pup production at sea lion colonies on some islands in the Jurien Bay region of WA's mid-west has been monitored for some time, and this population appears at least to be stable. The population of sea lions at the Abrolhos Islands remains tiny, with less than 20 pups being born in a breeding season. The good news for sea lion populations on the west coast is that most islands used for breeding will soon have greater protection as part of the new Jurien Bay Marine Park or under the Houtman Abrolhos Islands System.

On the south coast, the trend in pup production is downwards on the islands visited to date. More information is needed to confirm this trend. Why sea lions are not enjoying the recovery of their neighbours, the fur seals, is a mystery, but there are many clues.

DETECTIVE WORK NEEDED

At 17.5 months, the longer breeding cycle of the sea lion considerably reduces the rate at which the sea lion population might recover.

Another possible factor is the length of the sea lion mating season, which is four to five months in comparison with the busy and relatively brief four to six weeks of the fur seals. The mating season is a dangerous time for newborn pups. They can be killed by an aggressive bull, or their mother might have to desert the colony during this chaotic and physically demanding period, which means they lose their essential food supply. Evidence suggests that many more sea lion pups die in the first six months of life than do fur seal pups.

We considered the possibility that feeding patterns may provide the answer. Is the fur seal equipped to exploit a more plentiful and reliable food source than the sea lion? We already know that the waters of south-western and southern Australia do not support the rich and abundant marine resources of other southern hemisphere continents. The Leeuwin Current, which flows south along our coastline for much of the year, brings warm, low-nutrient waters from the tropics and tends to prevent the up-welling of cold, energy-rich currents from the vast resources of the Southern Ocean.

At Kangaroo Island in South Australia the feeding patterns of fur seals and sea lions were compared, and it was found that they feed differently, at least at this location. Fur seals tend to head out to the continental shelf, where they feed at night on the small fish and squid that move up and down in the water column. By contrast, sea lions feed continuously at sea, restricting their range to waters on the continental shelf. Here, they dive to the bottom and feed on a wide diversity of prey—probably whatever they find.

Are some or all of these factors responsible for the lack of recovery of our important endemic sea lion, or is pressure from human activities the cause?

Worldwide, fur seal and sea lion populations are under increasing pressure from fisheries. While fur seal populations around the world appear to have largely recovered from exploitation, four of the five sea lion species have not shown similar recoveries.

THE NEXT 10 YEARS

Although we now treasure seals, our presence continues to threaten their wellbeing. The recreational and

Above: New Zealand fur seal females and juveniles on a typical haul-out habitat.
Photo – Nick Gales/Lochman Transparencies

Right: A sea lion cow swimming along with the aerial from the satellite tag showing clearly. The time depth recorder is further down its back and not visible.
Photo – Nick Gales/CALM

SEALS AND US

Most of us are fascinated by seals. There is a risk we would love them to death if commercial or recreational activities went unregulated. Both sea lions and fur seals are highly sensitive to human disturbance, not only on breeding islands, but also at haul-out sites. The approach adopted by CALM is to regulate carefully the ways, times and places where people and seals come into contact, and this is the only way to ensure our interactions with seals are positive on both sides. If our presence is thoughtfully controlled, we could watch seals at suitable beaches, such as on Shoalwater Bay's Seal Island, where male sea lions soak up the sun. Other sites, such as breeding rookeries, need special protection.

To some fishers, neither the recovery of fur seals nor the possible recovery of sea lions is welcome news. The fishing industry is looking for methods of protecting their fishing practices and fish stocks. When sea lions and fur seals are attracted to their catch, commercial fishers lose fish and suffer net damage, and many see these animals as nothing but a nuisance. Sea lions are unwelcome visitors to shark nets, because they like to dine upon the livers of enmeshed sharks, leaving only worthless remains behind, while for the sea lion the cost of this delicacy may be that it is trapped in the net and drowns. Crayfishing holds dangers for sea lion pups, which are attracted to the bait in a crayfish pot and can be fatally trapped. Some aquaculture operators have no love for seals because sea lions, in particular, can create merry hell in aquaculture pools, which the sea lion sees as handy fast-food outlets.

Recent legislation provides protection for seals by limiting the approach of aircraft, vessels and swimmers, prohibiting feeding, and requiring licensing of any commercial activities that may disturb them.

Two adult male sea lions on a beach at Seal Island while a tour boat looks on.
Photo – Jiri Lochman

A bull sea lion sitting comfortably on land. Note the thick net and white cap and neck that gave rise to an old name of 'counsellor seal'.
Photo – Jiri Lochman

commercial activities of fishing, aquaculture and tourism pose a real threat to the seal's delicate cycle of life.

While the growing fur seal population is good news for most of us, issues of competition for scarce marine resources need to be addressed now rather than later. We also know that we need to continue to study our apparently dwindling sea lion population to ensure that we arrest any downward trends and maximise the chances of recovery of this relatively rare local resident. The Department of Conservation and Land Management (CALM) will soon release a Pinniped Management Program (the Pinniped group covers seals, sea lions and walruses) that sets out work required on seal management for the next decade. The program will be integrated with conservation measures, such as establishing south coast marine parks.

Some work has already started. This includes a seal genetics project (to be carried out by CALM and The University of Western Australia), and a study (funded by Environment Australia and CALM) that investigates the foraging ecology of sea lions and fur seals. The foraging ecology study will make use of the latest in satellite, data-logger and biochemical technology to measure exactly where the two species feed, what they eat, and how deep, how often and for how long they dive. This information will be analysed in relation to human fisheries, aquaculture, tourism and recreation in our coastal areas.

The overall aim is to balance the competing needs of humans and seals on a sustainable and equitable basis so that we can, at last, enjoy our native seal populations as widespread inhabitants of our coastal ecosystems.

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Winner of the 1998 Alex Harris Medal for excellence in science and environment reporting.

LANDSCOPE

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How many seals or sea lions are there around WA's coasts? See 'A Tale of Two Seals' on page 42.

"What I wasn't prepared for was the magic of the experience." See 'Desert Impressions' on page 35 for the story of a LANDSCOPE *Expedition.*

The malleefowl has declined to 46 per cent of its former range. Read about the combined effort to save it on page 17.

Enjoy the WA environment—and don't get hurt! See 'Balancing Act' on page 23.

Traditional owners are working with CALM and other agencies to manage the land. See page 10.

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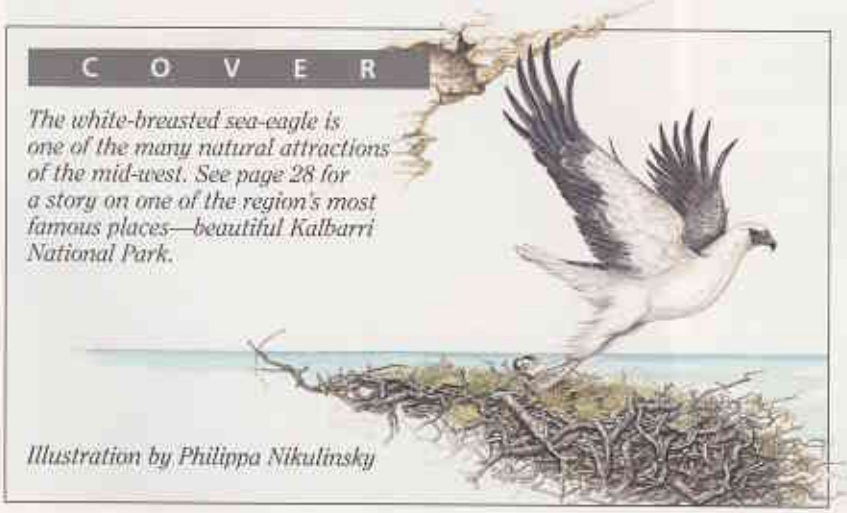
The white-breasted sea-eagle is one of the many natural attractions of the mid-west. See page 28 for a story on one of the region's most famous places—beautiful Kalbarri National Park.



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