THE MYSTERIOUS SEA LION

Australian sea lionnumbers were greatly reduced by sealers in the eighteenth and nineteenth centuries. Now this fascinating species is just beginning to receive some serious scientific attention.

The Australian sea lion is the only pinniped (seal or sea lion) that is unique to Australian waters. The animals are one of our most attractive and interesting sea creatures.

Sea lions breed and rest on offshore islands from the Abrolhos near Geraldton to Pages Island, just east of Kangaroo Island in South Australia. The animal's range once extended east to Bass Strait before it was wiped out of this area by sealers.

The animals usually are fairly tolerant of people, but can be dangerous, especially during the mating season.

Marine mammal expert Nick Gales is studying sea lion biology. The project is jointly funded by the Department of Conservation and Land Management, the South Australian Parks and Wildlife Service, the Australian Research Council and the former Atlantis Marine Park.

"The Australian sea lion is the only sea lion in the world with an 18-month breeding cycle," said Nick. "Just as unusual is the fact that breeding and mating on each island throughout the sea lion's range takes place at different times of the year."

Nick set out to investigate the theory that there must be delayed implantation, by collecting blood samples to measure hormone levels during the reproductive cycle.

Collecting the blood is no easy task! First Nick must find a cow with a pup that has been researched, so that the date the mother gave birth (the end and beginning of her breeding cycle) is known. This often involves trudging up and down the beach in a fruitless search.

Once a suitable animal has been located, three assistants must immobilise it, while another fends off the surrounding animals, which often charge the researchers. Only then can Nick take blood from the female, quickly locating a vein in her lower back.

Nick has found evidence that the Australian sea lion has a six-month delayed implantation and 12-month placental phase.

"I will be able to pinpoint the exact time that implantation occurs, as there are major changes in the concentrations of hormones in the blood at this time."

The diet of the Australian sea lion has also been investigated by collecting hundreds of sea lion scats. Analysis has shown that crayfish, squid, cuttlefish, octopus, small shark and fish make up most of the animal's diet.

"The south-west and south coast of Western Australia are very low energy waters, with only a small amount of food available all year round. Sea lions have to be opportunistic and take whatever's around," Nick said.

"This situation probably influences sea lion reproduction. Animals need to have their young when the most food is available, but the

Don't be deceived by these snoozing sea lions. Though they are usually tolerant of people who keep their distance, they can quickly become aggressive and deliver nasty bites.

Australian sea lions "haul out" from their two-day fishing trips and breed in isolated coastal and island settings. While away fishing, mothers hide their pups under bush or behind a rock. Photos - Carolyn Thomson

Australian sea lion inhabits waters where there is no appreciable difference between food availability in winter and summer.

"Instead, mothers feed their pups over a longer period of time, which is an advantage in an environment low in food sources. It takes a tremendous amount of energy to provide young with milk," he said.

Nick is the first researcher to systematically document how many sea lions there are and where they are found. Until recently, it was thought that the entire population of Australian sea lions was about 5 000. Nick has estimated that the population is actually between 10 000 and 15 000.

During the study, DNA sampling of sea lions was done for the first time. Seven or eight small populations have been sampled. It is believed that there is very little interaction between each population, so genetic fingerprinting will give researchers a rough idea of where the population boundaries are within the species' range.

Eventually, Nick plans to visit every colony to find out where the exact population boundaries start and finish. The results should reveal precisely where the boundaries are and how much genetic exchange there is overall.

Nick Gales tries to sneak up on a female to test whether her pup has been tagged. If so, the mother is a prime target for blood sampling, as the beginning and end of her breeding cycle will be known.

The Australian sea lion is the only seal or sea lion in the world with an 18-month breeding cycle.

Four assistants hold down a female sea lion while Nick Gales extracts blood from a vein near her tail.
Photos - Carolyn Thomson

You don't have to go far from Perth to enjoy the peace and quiet of the bush. The forest is right on our doorstep. See page 10.

LANDSCOPE

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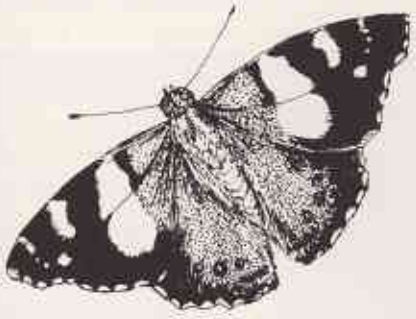

Painted ladies, northern admirals, southern admirals and Western Australian skippers - not the stuff of a sailor's dream, but all members of the butterfly family. See page 23.

Our native animals are prey to introduced species. While baiting gives them a fighting chance, scientists are looking for more long-term, humane solutions. See page 16.

The increase of births in captivity for cockatoos seemed promising, but was it related to the upsurge in 'birdnapping' in the wild? To Catch a Thief *explains how forensic experts unravelled the mystery. See page 28.*

The bilby has many names, including ninu and dalgyte. Ninu Magic *tells the story of this shy animal and its remarkable survival skills. See page 43.*

FEATURES

REGULARS

COVER

The red-tailed black cockatoo (Calyptorhynchus magnificus) *is one of several cockatoos native to Western Australia. These spectacular birds nest in tree hollows and can be found in the woodlands and grasslands of the south-west of Western Australia.*

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