

HOW MANY *geese* ARE ENOUGH?

Is the Western Australian subspecies of the Cape Barren goose threatened with extinction? Some people think it is, but a lack of knowledge about its numbers has prevented informed debate about its status. Scientists from the Department of Conservation and Land Management set out to find the answers.

Friday 15 January 1802.

The botanists landed in the morning upon Middle Island; for I had determined to stop a day or two, as well for their accommodation as to improve my chart of the archipelago. I went to the northern island, which is one mile long and near half a mile in breadth, and found it to be covered with tufts of wiry grass intermixed with a few shrubs. Some of the little, blue pinguins, like those of Bass' Strait, harboured under the bushes; and among the grass and upon the shores were a number of the bernacle geese, of which we killed nine, mostly with sticks; and sixteen more were procured in the course of the day.

After taking bearings from the uppermost of the small elevations of GOOSE ISLAND, as it was now named, I ascended the high, north-western hill of Middle Island ...

by Andrew Burbidge, Bernie Haberley,
Stuart Halse, Jim Lane and Grant Pearson



Matthew Flinders and his crew were not the first European explorers to see the Recherche Cape Barren goose, nor were they the first to 'procure' them for the cooking pot. Jacques-Julien Houton de Labillardière, the botanist with the French exploring expedition on the *Recherche* and *Espérance*, commanded by Rear Admiral Bruni d'Entrecasteaux, had shot some in 1792. Flinders records that on 16 January 1802, the master of His Majesty's sloop *Investigator*, John Thistle, landed on some rocky islets to the east of Middle Island and 'brought from thence twenty-seven more geese, some of them alive'.

The Cape Barren goose is well known on the islands of Bass Strait. It was named after Cape Barren Island, off the north-eastern corner of Tasmania, but it also occurs on islands off South Australia. Although persecuted for nearly 200 years by sailors, sealers, settlers and hunters, both eastern populations have recovered following legal protection. Indeed, they seem to have benefited from the development of farms with green pasture on some of the islands. There are now about 12 000 to 13 000 Cape Barren geese in Bass Strait, and 3 000 to 4 000 in South Australia.

The Western Australian or Recherche subspecies is much less common - people have speculated that there might be 800 to 1 000 birds in total. The fate of the Recherche subspecies is important because it appears to be genetically distinct from those of South Australia and Bass Strait, being larger and having slightly different coloured plumage.

The Recherche geese nest on islands of the Recherche Archipelago. The archipelago comprises more than 300 islands, islets and rocks off the south coast of Western Australia, from near the town of Esperance eastwards to near Israelite Bay. They breed from about June to August, laying between two and seven large eggs in a nest on the ground, constructed from grass and twigs and lined with down. By October most of the young can fly, and the adults moult, losing their power of flight, probably for about five weeks. In summer, birds are sometimes seen on mainland beaches, wetlands or on green pasture, including the Esperance golf course, but most appear to remain on the islands year-round. They are herbivorous, feeding



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Cape Barren geese feed mainly on grasses and prefer islands with open, grassy patches among the often dense, scrubby vegetation.
Photo - Jiri Lochman

Above: Cape Barren geese lay up to seven eggs in a down-lined nest on the ground.
Photo - Bernie Haberley



Top: Wind and wave swept, most islands of the Archipelago of Recherche are small with little or no vegetation.
Photo - Jiri Lochman

Above: Like their parents, the striped chicks feed mainly on green grass.
Photo - Bernie Haberley

mainly on green grasses, but also eating fruits and other vegetation.

APPARENT DECLINES

Comparing Flinders' account with recent records has caused several ornithologists to suggest that the Recherche goose has declined since European settlement. Numbers reported in recent years have never approached those recorded on the same islands by the early explorers. In 1953, an expedition to the islands found only 65 geese, with no more than 12 on any island (although many islands were not examined).

Numbers of Recherche geese have not been monitored closely in recent years. This is because in 1948 the archipelago was made a nature reserve, and it was reasoned that this would prevent any significant threat to the

geese. Although the vegetation of a few islands was affected by early attempts at farming and sheep grazing, most islands remain in their natural state.

Alarm bells rang in May 1991, when ornithologist John Dell of the Western Australian Museum found 22 dead birds and only 33 live birds on the 19 islands visited. He was taking part in an expedition organised by the Australian Geographic Society. The expedition included botanist Greg Keighery from the Wildlife Research Centre of the Department of Conservation and Land Management (CALM). Dell attributed the decline to summer drought and high temperatures. He raised his concerns about the status of the Recherche Cape Barren goose with CALM, suggesting that the goose population may have dropped below 200.

CALM's Esperance wildlife officer Bernie Haberley, already familiar with the islands and the habits of the geese, followed up John Dell's report by conducting a boat-based survey in February 1992. He surveyed 56 islands, finding a total of 232 geese on 38 of them, and on one mainland site. He also noted that island vegetation was recovering from the drought of 1990-91.

NEED FOR A SURVEY

Bernie's data and observations somewhat allayed the concerns raised after the 1991 survey. However, goose numbers seemed dangerously low and a proper census was needed to clarify whether or not conservation action was required. His survey showed that counting geese from a boat was time-consuming

and difficult. It is hard to sight the geese from a boat, often tossing in rough seas, and landing on most of the islands is far from easy. Bernie had to swim ashore to most of the larger islands he surveyed because the geese were often hidden by the terrain or vegetation.

Counting geese from a light plane was also considered inefficient, as the birds are often difficult to see from a fast-moving aircraft with poor manoeuvrability. Their greycamouflage blends into the somewhat drab colours of rocks, grass and shrubs. A helicopter-based survey was considered the only real option for obtaining an accurate census.

The Commonwealth Government's Endangered Species Program provided CALM with the funds to carry out the survey. In April this year, wildlife research

staff began working in Esperance with Bernie on the first comprehensive count of the subspecies. Using a Bell Jet Ranger chartered from a Perth company, West Coast Helicopters, the team was able to survey the whole archipelago in less than three days. Not only geese were counted; Australian sea lions and New Zealand fur seals resting or breeding on the islands were also recorded, and numbers of sooty oystercatchers, a rare though not threatened species, were noted.

The month of April was chosen for two reasons. First, and more importantly, it was considered that most geese would have returned to the islands, migrating from the mainland. Second, the weather during April is usually fine and calm, making conditions ideal for flying, and providing good visibility.



Landing on most islands from a boat is difficult and hazardous. Censusing geese from boats is time-consuming and it is not possible to locate all the birds.

Photo - Jiri Lochman

Counting geese from a helicopter is the only efficient method of obtaining a complete census.

Photo - Andrew Burbidge

Below: The prominent green-yellow cere, which covers most of the bill, and the pale crown to the head contrast with generally grey plumage.

Photo - Jiri Lochman



Survey routes for each day were plotted onto a map and flying times calculated to ensure they fell within the range of the helicopter. Then, with three observers, the flight got under way. On arriving at an island, the pilot slowed the helicopter to about 40 to 50 knots (70 to 90 kilometres per hour) and descended to about 15 to 20 metres above the sea. He then flew around the island above the shoreline. With most smaller islands, he flew upwind over the centre of the island so any geese on the top of the island could be sighted. For larger islands, extra circuits were made inland from the coast, so that all of the island could be viewed. All geese and seal counts were recorded on hand-held tape recorders and transcribed to note books that evening.

While planning the survey, one concern was that the geese might be frightened by a low-flying, noisy helicopter and would scatter. Not only might this have prevented us from seeing all the geese (we thought they might hide under shrubs), but it might also have unnecessarily stressed the birds.

Once we started work we found our fears were totally unfounded. Cape Barren geese appear to be completely unafraid of helicopters! They simply stood there and watched us fly past, often only 20 or 30 metres away, sometimes walking away from the direction of our approach and only very rarely taking to the wing. In contrast, when we landed on an island and walked towards the birds, they usually flew away before we were within 50 metres of them.

It was clear that most geese had left the mainland for the islands, because when we examined some mainland

haunts around Esperance from the helicopter, no geese were seen. Nevertheless, we conducted a survey of all mainland beaches and some inland areas from a light aircraft. We also asked the public to report any geese sighted on the mainland during the week of our survey.

NUMBERS REVEALED

While examining all islands and rocks in the Archipelago of the Recherche, we also surveyed a few islands to the west - Rocky Islands and West Island near Hopetoun, Red Islet, part of Fitzgerald River National Park, and the Doubtful Islands near Bremer Bay. We sighted a total of 612 geese on 75 of the Recherche islands, plus four on Red Islet. Seven were sighted during the mainland aerial surveys and a further eight were reported by the public on mainland farms. The total seen, therefore, was 631. In contrast with John Dell's survey in 1991, no dead

geese were seen. We believe that we missed very few geese in our survey and that the total number of Recherche Cape Barren geese is close to the number obtained by our census.

The number of Australian sea lions sighted in the Archipelago was 1 207, and 1 759 New Zealand fur seals were recorded. On islands to the west of Esperance another 104 sea lions and 246 fur seals were seen. Both species were found breeding. Fur seal breeding colonies were seen on Lybkie Island, Rug Rock, Salisbury Island and Seal Rock, as well as on the Rocky Islands near Hopetoun, and sea lions were found breeding on several islands, including one where they had not been seen breeding before.

A total of 430 sooty oystercatchers were counted. This is the second highest count recorded from a single locality in Australia, and shows that the Archipelago is an important area for the species.



The archipelago is a stronghold for the rare Australian sea lion. Here, a newborn pup, recognisable by its almost black colouration, rests with its mother.

Photo - Jiri Lochman

Recherche Cape Barren geese are usually found in small groups of two to four birds.

Photo - John & Val Butler/Lochman
Transparencies

IS 600 ENOUGH?

Now that we know that the total number of geese is a little more than 600, what next? Is this a population size that gives cause for concern? Should we be recommending conservation action?

Six or seven hundred animals is not a large number for any population. Draft international criteria for judging the conservation status of threatened species suggest that any species with less than 1 000 adults should be considered 'vulnerable' to extinction and any species with less than 250 mature individuals should be considered 'endangered'. However, it is also important to know whether numbers are increasing or decreasing.

The Recherche Cape Barren goose does have a population size that would suggest it be considered 'vulnerable', but not 'endangered'. But although we now have a good census, we don't know whether the population is increasing or decreasing. Only further censuses will tell us that.

We do know that many geese died in the summer of 1990-91, and Bernie Haberley's February 1992 survey suggested further geese died that summer. Weather records from Esperance show that January and February 1991 were very hot and dry. Temperatures reached 44°C on 31 January and 47°C on 1 February, the latter being the hottest day ever recorded in Esperance. This heatwave caused widespread death of native vegetation on the south coast, and seems to have affected goose numbers. This suggests that the Recherche goose is subject to occasional natural catastrophes. Similar dry periods must have occurred in the past without long-term ill effects. It seems likely the geese are now recovering from the recent hot dry summers and either have returned, or will return soon, to their normal population levels. This can only be confirmed by a further count, preferably in two or three years.

Had we found only three or four hundred geese, it is likely we would be seriously considering conservation action. One possible action is captive breeding. Between 1978 and 1982, the Western Australian Department of Agriculture's Poultry Branch showed that Cape Barren geese could be bred in



Top: CALM botanist Greg Keighery examines drought-affected vegetation on Bellinger Island during the 1991 Australian Geographic Society expedition.

Photo - Jiri Lochman

Above: When moulting, Cape Barren geese are unable to fly, making them easy prey to hungry explorers, including the crew of Matthew Flinders' *Investigator*.

Photo - Jiri Lochman

captivity, although the birds' aggressive territorial behaviour means that they require careful management.

For the time being, however, this sort of action does not seem warranted for the Recherche Cape Barren goose - other more threatened species have a higher conservation priority.



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LANDSCOPE

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Wildfires are synonymous with Western Australian summers, but what can be done to lessen the threat to life and property? Lachlan McCaw discusses the problem on page 49.



Daisies belong to the Asteraceae family, one of the world's largest families of flowering plants. Suzanne Curry presents some of them in 'Delightful Daisies' on page 41.



Aborigines have eked out a living in the harsh Western Desert region for thousands of years. Their intimate knowledge of the desert is helping scientists learn more about its plants and animals. See 'Digging Sticks and Desert Dwellers' on page 10.



'Rainforests and Bats', on page 34, tells the story of the recent LANDSCOPE Expedition to the Mitchell Plateau.



Can images from space help locate desert mammals? See 'From Buckshot to Breakaways' on page 23.

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COVER

Cape Barren geese live on the islands and rocks of the Archipelago of Recherche. A few years ago their numbers appeared very low and their survival was in doubt. However, a recent survey of the islands has brought good news with a marked increase in the bird's population.

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