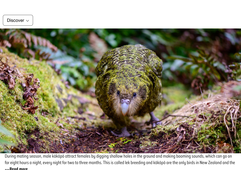

Dazzling mating season, male kākapō attract females by digging shallow holes in the ground and making booming sounds, which can go on for eight hours a night, every night for two to three months. This is called lek breeding and kākapō are the only birds in New Zealand to do this. **—Read more**

ANTHROPOCENE

New Zealand's quirky kākāpō are pulled back from the edge of extinction

By Tamsin Blanchard

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Kākāpō are large, ground-dwelling, flightless parrots that were once widespread across New Zealand but hunted to near extinction. Thanks to highly specialised conservation efforts, these unique birds are slowly bouncing back.

What makes kākāpō so unique?

Kākāpō are unusual creatures for many reasons. They are the heaviest living species of parrot in the world, weighing up to four kilogrammes.

They are also the only living species of parrot that cannot fly. Instead, they have strong legs for travelling several kilometres a day. They are also excellent climbers and can leap off tall trees, using their wings for balance.

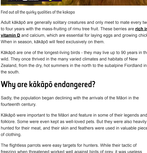
As an island species, they originally had few avian predators which hunted during the day. Kākāpō evolved forest camouflage in shades of greens and, when faced with a threat, they freeze, making it difficult for predators to spot them from above.

Kākāpō are nocturnal, which is how they got their name: it means 'night parrot' in Māori.

Andrew Digby, a conservation biologist at the Department of Conservation in New Zealand, says, 'Kākāpō don't come across like birds - they're more like mammals, maybe like badgers.

'Our team have been working with the same individual birds for over 40 years, which is really special.

'Kākāpō have definite personalities which you get to see when you work with them regularly. We know which ones we will have to chase because they often run, and others are noisy and we know about all you a lot. Some are really friendly and will approach you.'



Find out all the quirky qualities of the kākāpō

Adult kākāpō are generally solitary creatures and only meet to mate every two to four years with the mass-fruiting of rimu tree fruit. These berries are **rich in vitamin B** and calcium, which are essential for laying eggs and growing chicks. When in season, kākāpō will feed continuously on them.

Kākāpō are one of the longest-living birds - they may live up to 90 years in the wild. They once thrived in the many varied climates and habitats of New Zealand, from the dry, hot volcanic zone in the north to the subalpine Fiordland in the south.

Why are kākāpō endangered?

Sadly, the population began declining with the arrivals of the Māori in the fourteenth century.

Kākāpō were important to the Māori and feature in some of their legends and folklore. Some were even kept as well-loved pets. But they were also heavily hunted for their meat, and their skin and feathers were used in valuable pieces of clothing.

The flightless parrots were easy targets for hunters. While their tactic of freezing when threatened worked well against birds of prey, it was useless against humans and their dogs on the ground.

Rats that escaped ships were one of the first mammal predators on the islands, and they devoured kākāpō eggs and chicks, reducing the populations even further.

The Māori also cleared vegetation to build their own homes and farmlands, reducing the habitat range for kākāpō.

A male kākāpō may mate with several females but does not bear any responsibility for raising the chicks.© Andrew Digby

—Read more

By the time European settlers arrived in the nineteenth century, kākāpō had become extinct in many parts of the islands. However, they were still abundant locally.

Europeans decreased kākāpō habitats further as more land was cleared for farming and grazing. Many mammalian predators such as cats, black rats, ferrets and stoats were introduced to the islands and inflicted serious damage.

Once the Europeans learned of the kākāpō, they started hunting them for food and out of scientific curiosity. Thousands were captured or killed for zoos. By the late nineteenth century, scientists believed kākāpō were on the brink of extinction. It was only then people started trying to preserve them, but with little success.

Effective conservation by the Kākāpō Recovery programme

By 1995, only 51 birds were known to exist. It was time for drastic action so the Department of Conservation implemented the **Kākāpō Recovery programme** to restore the population. Scientists, rangers, volunteers and donors worked hard together to protect the critically endangered species.

The remaining few kākāpō were collected and placed on five off-shore, predator-free islands that are safeguarded against invasive species. Anyone who visits the islands must go through a strict quarantine process, with clothing, food and equipment inspected carefully.

Anchor Island in Dusky Sound - one of the main kākāpō breeding islands.© Andrew Digby

Each kākāpō is named and tagged with a smart transmitter so scientists know their whereabouts and can collect data on their behaviour.

The birds receive supplementary food during breeding seasons in spring and summer to make sure they have sufficient energy reserves to breed and raise chicks in autumn. During breeding season, nests are carefully observed 24 hours a day by specialists.

Andrew says, 'Throughout the entire season, we camp near the breeding site, which is often at the top of the islands.

'We receive a signal when a female leaves her nest, and that's when we can go and check to see if there are any eggs. It's quite nerve-wracking as we don't know what we'll find. It's exciting when there are loads of eggs, but it can also be very sad if they're not fertile.'

When the eggs are laid, they are usually removed to be artificially incubated. The chicks are then returned to nests when they hatch. The females receive help with the chicks if needed. For example, if a mother is struggling to manage the number of chicks, some may be removed and put into other nests where they can be better taken care of. Each breeding season several chicks which would die if left in nests are hand-reared by members of the kākāpō team.

When an egg is removed from a nest, it is replaced with a lifelike 'smart egg' which mimics the temperature and sounds of a chick. This is to prepare the mother for when the chick returns a day after hatching.

If breeding season starts early, some chicks are hand-reared to encourage the mother to nest again.© Andrew Digby

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So far, 65 chicks have been successfully hand-reared and returned to their natural habitat. Without this intervention, they would have most likely died.

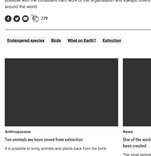
Young birds are checked between one and five days as they develop in the nest. Once they have fledged, they are checked every two to six weeks for first months, and then every three months until they are two years old. All birds receive **special tracks and tracking chamber** which include checking for injury, illness and parasites such as sticking blood sausages. The rest of the time, they are left to live as naturally as possible.

The information gathered through this intensive conservation care is put into a national database which allows scientists to track the birds throughout their lives and continue learning about them.

How many kākāpō are left?

Currently, there are 208 kākāpō, a record-breaking number since the conservation work began over two decades ago.

However, this is still extremely low for a species and poses an issue with breeding. A lot of kākāpō are inbred, meaning there is little genetic diversity. The lower the genetic diversity, the less adept they are at survival.



The Kākāpō Recovery Programme have recently completed the Kākāpō DZ+ Project, which supervised the genes of mating living adult kākāpō, as well as some deceased birds. **—Read more**

Andrew says, 'We've had a couple of disease issues over the last few years, which is worrying as the population is so small.

'About half the population have the same set of one type of disease resistance genes. So it's possible that if one disease comes along and that particular genome is susceptible to that disease then the entire population will be in danger of being wiped out.'

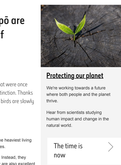
Kākāpō also have a low fertility rate. Currently, only about 60% of eggs are fertile and about a third of those become fully fledged chicks. Scientists think this is partially because of inbreeding.

Andrew says, 'Species go extinct every day and people don't know about it, but there are impacts of that that we may not see until a hundred years later.

'Kākāpō used to be very common and they would have played a really important role in the ecosystem by providing services like spreading seeds and maintaining the health of the forests.

Kākāpō have been distinct for 30 million years. There's nothing like them in the world. If they become extinct, we'll lose something really special, an important part of natural history. We may not see the effects straight away but there certainly will be consequences.'

The New Zealand government has launched a programme to clear the mainland of invasive species so the parrots, and many other species, can return to their original home by 2080. While this may be an ambitious goal, it is possible with the consistent hard work of the organisation and kākāpō lovers around the world.



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