OUR THREATENED SHOREBIRDS

Our shorebirds are threatened. Most New Zealand species have falling populations. These trends could eventually lead to extinction. Some species are already just one step away. This is a slower process than the dinosaur extinction. We do have a little time and we are doing something about it, but do need to do more.

GOODBYE DINOSAURS

NASA image, painted by Donald E. Davis of the Chicxulub event.

Sixty six million years ago the world was very different. Continents were in different locations. Antarctica had no ice sheets and palm trees grew on its beaches. This was the warm world that the dinosaurs lived in.

It was warm because the atmosphere was retaining lots of heat. It contained more than twice the amount of **greenhouse gases** that we have today.

Almost instantly the dinosaur's world changed from **global warming** to **global cooling**. A huge meteor collided with the earth in the Caribbean. The "eye" of the "Man in the Moon" is a similar impact crater from a meteor 40km in diameter!

Dust and soot filled the atmosphere and little light could get through. The plants at the base of the dinosaurs' food web didn't grow as well. It became too cold for the dinosaurs to survive. All of the dinosaurs and many other species became extinct. This huge loss of species is known as **a mass extinction.**

The very first **mammals** and **birds** survived and took over the dinosaurs' world. They could live in a colder world because they were **warm-blooded**. Today there are many species of birds, animals and plants that have evolved since that time.

Scientists are now saying that another **mass extinction** is underway. This is the sixth that the world has experienced. **We human beings are changing the world so much that some of the living creatures and plants we share the world with just can't keep up**. They have even given the process a name, **the Anthropocene Extinction,** a mass extinction caused by human beings rather than a meteor.

In New Zealand we have many unique birds. These bird species that occur only here are said to be **endemic species.** Many are bush birds but there are also several very special **shorebirds**. Seven of our endemic shorebirds are at risk of extinction. **Migratory birds** that are also found in other countries and breed in the Arctic regions are **native species** and some of these are also threatened.

SO JUST WHAT IS A SHOREBIRD?

They mostly live by the sea and there are lots of different **families.** Examples would be the **Stilt Family**, the **Oystercatcher Family** and the **Gull Family**, but there are more families. All of these families are related to each other although they can look very different. The name that scientists have for a group of related families is **an Order.**

Those shorebird families that we call **waders** don't have webbed feet**.** Most waders feed in an area between the land and the sea called the **inter-tidal zone.** This could be a nice sandy beach, perhaps a rocky shore, but, most often in a muddy estuary. Mud contains a lot of food for waders.

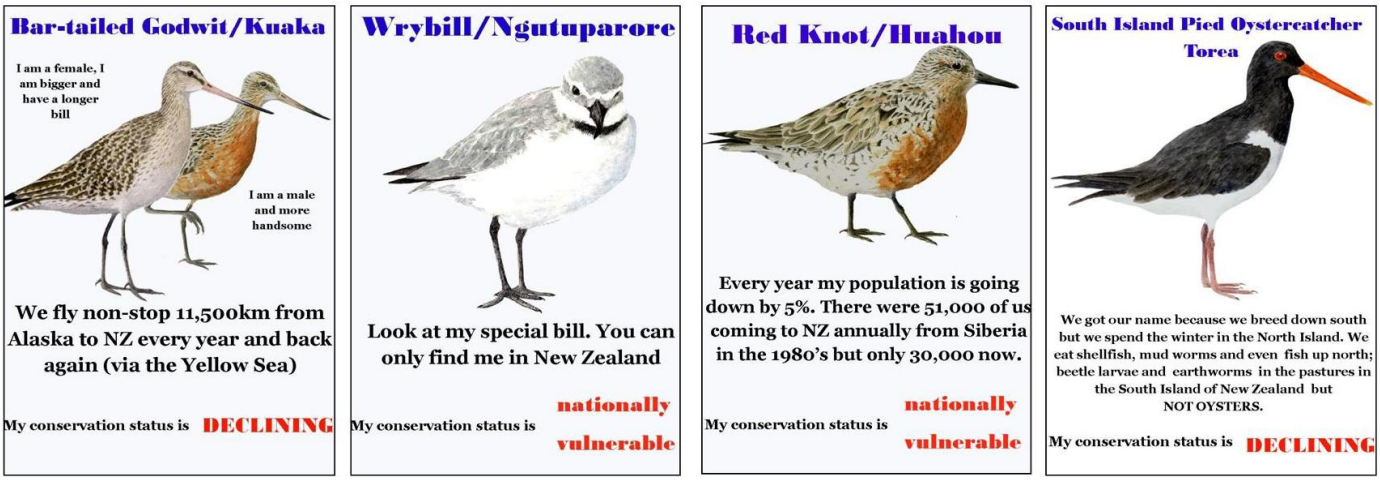
Some species however live in other habitats, like braided rivers. The endemic wrybill breeds in the braided rivers of mid-Canterbury.

Photo from NIWA

Some shorebird families, like the gulls and terns, feed on the shore and also out to sea. These do have webbed feet and often float and swim on water. They are shorebirds but are often also called seabirds.

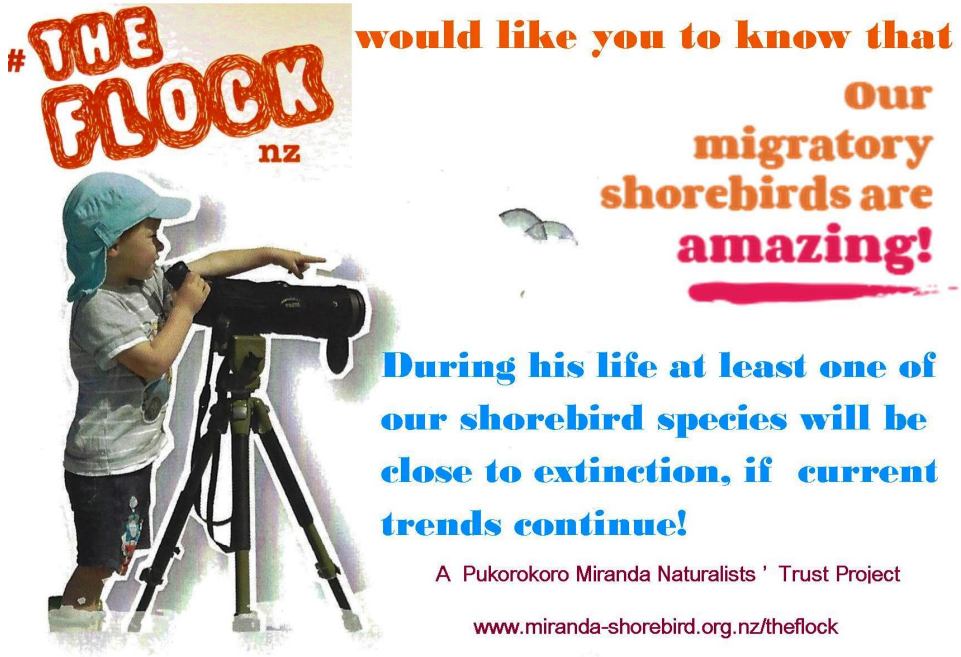
(There are other groups of birds, like the **penguins** and **albatrosses** that are also commonly called seabirds.)

Shorebirds you can see in New Zealand include the famous bar-tailed godwit, wrybill, red knots, sandpipers, oystercatchers, dotterels, plovers, stilts, gulls, terns and skuas.



From drawings by Keith Woodley.

HOW DOES EXTINCTION HAPPEN?



Extinction is a natural process. Species have become extinct for a whole lot of reasons before ever human beings appeared. What is worrying is that the speed at which species are being lost to the world is around 100 times faster than is natural.

Extinction happens more frequently on island groups like NZ and Hawaii. Islands do have more endemic species than mainland areas, so they have more species to lose.

A population falls when the number of young produced doesn't replace the loss of older members through death.

A species will usually have a number of populations, groups living in different locations. Another indication of species decline is a decrease in the number of populations. The **range of the species** starts to shrink.

Sometimes the **number of males to females gets out of balance**. This is the case with our endemic wrybill. The male wrybill incubated the eggs overnight. Predators are more active then and take more males off the nest than the day brooding females.

As a population declines its chance of survival will decrease. Very small populations lack genetic variability usually because members are closely related. The population is less able to adapt to change due to this **genetic bottleneck**. Fertility levels are also low in bottle necked populations.

SAVING SPECIES FROM EXTINCTION

All around the world the first step has been to decide just how threatened a species might be. The International Union for the Conservation of Nature (IUCN) developed its Red List. Both New Zealand and Australia have their own system.

Where a species is placed is dependent on a combination of many factors. The steepness of decline of a species population is a major factor, also included, would be the decline in the number of populations. If the entire species has only one location it is going to be at great risk.

The online poster gives the **THREAT STATUS** for a number of our shorebirds.

In New Zealand we have three **EXTINCT** snipe species.

South Island Snipe, photographed in 1964 by Don Merton

There are no species that are **EXTINCT IN THE WILD** but some are close.

There are many that are **THREATENED WITH EXTINCTION.** The sub-categories, starting with the most serious are:
nationally critical ; black-billed gull, southern NZ dotterel, black stilt and the fairy tern.
nationally endangered ; black fronted tern
nationally vulnerable; wrybill, red knot, banded dotterel, northern NZ dotterel, red-billed gull

AT RISK OF EXTINCTION is a lesser but worrying threat ranking; pied stilt, pied oystercatcher, bar-tailed godwit, white fronted tern

Only a couple of species are classified as **RECOVERING.** Their populations are growing; variable oystercatcher

Two species only are **NOT THREATENED,** the black-backed gull and the fairly recently arrived spur-winged plover.

SOME THREATS TO SHOREBIRD SURVIVAL

Habitat loss

Habitat is the place where an animal or plant lives. For a shorebird it is the beach, the rocky shore or mudflats. When they breed shorebirds might live in a different habitat. The habitat for our Arctic migrants is the tundra. For our endemic wrybill and for some other birds, it is the braided rivers of the S.I.

For our migratory shorebirds this is more of an overseas threat. On their journeys to their Arctic breeding grounds they have a refuelling stop in the Yellow Sea. China and S. Korea have reclaimed nearly 70% of the inter-tidal mudflats. Loss of these re-fuelling sites has resulted in big drops in the population of some species. They didn't go somewhere else to find food. There was nowhere else, so they died.

Saemangeum, South Korea, in 2006 with the birds and after reclamation in 2008, Adrian Reigen

Habitat degradation

When the habitat is there but is damaged in some way we say that it is **degraded**.

Oil spills on the shore and in harbours and estuaries are easy to understand.

Sometimes it is hard to see the damage. Extra sediment and fertiliser from farming can change mudflats.

Taking water from rivers to irrigate land can make them less safe for nesting birds.

When we use the beach or the river bed for recreation, without knowing, we can make problems for birds.

Introduced predators

New Zealand is sometimes called the “Land Of Birds”. Before man, there were mammals in the sea like whale, dolphins and seals. There were also some bats on land. None of these were a threat to birds. The first dangerous mammals in New Zealand were human beings and we brought other mammals from other parts of the world. Some of these were predators, like the rat, cat, hedgehog and stoat.

Birds from the countries where these predators live know all about them. They can also tell other birds about them. Think of a blackbird and the noise it makes when it sees a cat. They survive because they are predator wary.

Our endemic birds see these predators but don’t know that they are dangerous and they don’t make alarm calls to warn other birds. **They get eaten.**

Several shorebird species in New Zealand only exist because we help them. They are **conservation dependent.** Without this help they would become **extinct**.

Climate change

The cause of climate change is quite simple. There is more of a gas called **carbon dioxide** in the air than there used to be and this traps heat from the sun.

We use lots of energy today and we get it by burning coal and oil products like petrol.

The more we burn the more carbon dioxide there is in the atmosphere and the warmer it gets.

- There is a lot of ice on Antarctica but when it melts it leaves the land and goes into the sea. ***Sea level rise (SLR)*** *around the world is reducing the area of mudflats where shorebirds find their food.*

This is a Spring Tide at Pūkorokoro Miranda. It could be a metre higher by the end of the century.

- A warmer planet means that the **seasons change their length**. In the Arctic, where migratory shorebirds breed Spring comes 5-6 days earlier than 20 years ago. Autumn starts 10-12 days later than it did. *The change is happening so fast that some species cannot adjust to it. If they don't arrive earlier they might miss out on the big burst of insect life they need as food for their young.*
  Areas suitable for breeding could shrink by half, between now and 2070.

Photo by Adrian Reigen

- More carbon dioxide in the air means that there will also be more in the sea. When this gas goes into water it makes an acid. *Many shorebirds feed on shellfish but when **ocean acidification** happens it is harder for the shellfish to make their shells. They don't grow as big. Less food for the birds.*

CAN WE SAVE OUR SHOREBIRDS?

YES WE CAN. In fact we already are.

China and New Zealand have signed an agreement to help save migratory birds like the bar-tailed godwit and the red knot. Some important Yellow Sea re-fuelling sites for migratory waders are being given protection. **But more needs to be done.** We all need "to love the mud", everywhere in the world.

In NZ most of our threatened species have their own conservation programmes. Many people are involved in these programmes. At the moment there are six shorebird species that would become extinct without our help.

There is one species, the black-billed gull that is experiencing a very big population crash. They are having very poor breeding results. Experts are not sure that it can be saved from extinction. How sad it would be if it could only be seen in a museum case.

More does need to be done. Guess what. By joining The Flock Team, by fledging a shorebird you will be doing something.

You will be showing the world that you do care.

Let's keep the birds coming and make sure ALL shorebirds "are forever"!

www.birdsonlinenz.org.nz

www.miranda-shorebird.org.nz/education

www.doc.govt.nz/nztcs

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