

Jewels of Aotea / Great Barrier Island

A local guide



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AOTEA / GREAT BARRIER LOCAL BOARD



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Introduction

Aotea / Great Barrier Island is situated 93kms northeast of Auckland and is the largest island within the Hauraki Gulf at 285 km².

Aotea / Great Barrier Island is one of Auckland's biodiversity hotspots and has been classified as a Dark Sky Sanctuary because of its low light pollution.

This booklet highlights 25 special species found on the island, that are referred to as “Jewels”.

The booklet will introduce you to our jewels by the ecosystems in which they can be found, starting from the wetlands and leading on to streams, forests, dunes and the coast.

This booklet is the counterpart to “Pests of Aotea / Great Barrier Island”, which outlines the introduced plants and animals that threaten the island's biodiversity.



Kelvin Floyd



Jewels of the wetlands

Wetland ecosystems on Aotea / Great Barrier Island range from Raupo reedlands and tanglefern scrublands, to seasonally wet sedgeland. Wetland ecosystems are often seen on the margins of streams, estuaries and forests. Raupo reedlands are extensive on Aotea and can be seen along the roadside in Medlands, Kaitoke and Whangaparapara. Jewels within the wetlands include lady's tresses, brown teal, australasian bittern, banded rail and spotless crane.



Raupo reedland, Kaitoke: Renee Freeland.



Lady's tresses: Jeremy Rolfe



Lady's tresses

Orchid family: Orchidaceae

Spiranthes novae-zelandiae.

Special fact! Extremely uncommon (only known from a single site).

Features: Perennial herb, erect, flowers spiralled around the stem.

Flowers: January – April.

Fruiting: April – July.

Threats: Wetland drainage, invasive plants, absence of disturbance processes.

Status: New Zealand endemic.

At risk: Nationally vulnerable.

Where: Coastal to montane, open areas, wetlands, peat bogs, stream banks and tussock grasslands.



Lady's tresses: Jeremy Rolfe



Australasian bittern and chicks: Mike Soper

Matuku hūrepo

Australasian bittern

Botaurus poiciloptilus

Special fact! Fewer than 900 birds are left in NZ.

Features: Poor flyers, sensitive to disturbance, pose in a 'freeze' stance when threatened.

Feeding: Invertebrates, frogs, lizards and fish.

3-5 eggs: August – December.

Nest: Floating raised platform of reeds.

Threats: Wetland drainage, poor water quality, mammalian predators, reduced food availability.

Status: New Zealand native.

Threatened: Nationally critical.

Where: Wetlands, saltmarshes, drains and pasture.



Height: 74cm.

Weight: 900-1400g.



Australasian bittern and chicks: Mike Soper

Pāteke

Brown teal

Anas chlorotis

Special fact! Aotea is a stronghold for the brown teal population in NZ.

Features: Poor flyers, territorial, monogamous.

Feeding: Invertebrates, fungi, vegetation and seeds.

3-9 ducklings: July – September.

Nest: In dense rushes.

Threats: Mammalian predators, habitat degradation, domestic pets, developing human settlement.

Status: New Zealand endemic.

At risk: Recovering.

Where: Wet forests, swamps, slow-flowing streams, lakes, estuaries and pasture.



Pāteke duckling: Kay Stowell



Height: 48cm.

Weight: 580-600g.



Pāteke: Renee Freeland

Pūweto

Spotless crane

Porzana tabuensis

Special fact! Adults fake injuries to distract predators from their young.

Features: Distinctive red eye, territorial, monogamous, pairs share incubation.

Feeding: Omnivorous, seeds, fruit, plants and invertebrates.

2-5 chicks: August – January.

Nest: Raised woven cup.

Threats: Wetland drainage, habitat degradation.

Status: New Zealand native.

At risk: Declining.

Where: Dense wetlands and mudflats.



Spotless crane: Oscar Thomas



Height: 20cm

Weight: 45g



Banded rail: Windy Hill Sanctuary Collection

Mioweka/Konini

Banded rail

Gallirallus philippensis

Features: Strong but reluctant flyers, monogamous, pairs share incubation, distinctive eye stripe and intricately patterned plumage.

Feeding: Marine, littoral and terrestrial invertebrates, feeding is associated with tidal movements.

4-6 chicks: September – March.

Nest: Rough platform of reeds.

Threats: Introduced predators, habitat degradation.

Status: New Zealand native.

At risk: Declining.

Where: Wetlands, scrublands, swamps and estuaries.



Banded rail: Kay Stowell



Height: 30cm

Weight: 170g

Jewels of the streams

The freshwater catchment on Aotea / Great Barrier Island is typically composed of andesitic (volcanic) rocks, small steep waterways, a few rivers and well-developed flood plains. An abundance of native fish, mainly diadromous – meaning they are reliant on a passage from fresh to salt water to complete their lifecycles – can be found within the system. Jewels within and around our streams include koura, button daisy, chevron skink, giant kokopu and hochstetter's frog.



Trees reflected off a stream: Windy Hill Sanctuary Collection



Kōura: Windy Hill Sanctuary Collection

Kōura

Freshwater crayfish

Paranephrops planifrons

Special fact! Female Kōura produce 20-200 eggs.

Features: Exoskeletons, well-camouflaged.

Feeding: Scavenger, invertebrates including aquatic snails.

Threats: Chemical pollution, predators, habitat destruction, white tail disease.

Size: 70mm.

Status: New Zealand endemic.

Where: Freshwater streams, lakes and swamps with mud or gravel substrate.

Button daisy

Daisy family: Asteraceae

Leptinella tenella

Features: low-growing, wildly creeping perennial herb, forms loose patches.

Flowers: Green/yellow
August – November.

Fruiting: October – January.

Threats: Pest plants like kikyuyu, wetland drainage.

Status: New Zealand native.

At risk: Declining.

Where: Lowland streams, estuaries, cattle pugged swampy ground, saltmarsh.



Button daisy: Auckland Council



Button daisy: Auckland Council



Chevron skink: Windy Hill Sanctuary Collection

Niho Taniwha

Chevron skink

Oligosoma homalonotum

Features: Our largest skink has a life span of 20+years, terrestrial and arboreal, run and freeze anti-predator behaviour.

Feeding: Invertebrates.

Threats: Habitat modification, mammalian predators (including domestic cats), residential areas and vehicles.

Size: length of 30+ cms.

Status: Barrier islands endemic.

Threatened: Nationally vulnerable.

Where: Forests, riparian edges and streams.



Chevron skink: Windy Hill Sanctuary Collection



Giant kōkopu: Auckland Council

Giant kōkopu

Galaxiidae argentinus

Special fact! The name “Galaxiidae” refers to the galaxy-like patterning on the Giant kōkopu.

Features: Diadromous (migrating from fresh to salt water).

Feeding: Opportunistic, terrestrial and aquatic prey.

Breeding: Eggs laid on riparian margins, fluctuating water tables required for hatching.

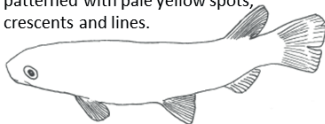
Threats: Agricultural expansion, exotic fish, road developments blocking water flow, disturbance by pigs and humans.

Status: New Zealand endemic.

Threatened: Data deficient.

Where: Coastal slow-moving streams, estuaries, swamps.

Vary from near-black to pale olive, patterned with pale yellow spots, crescents and lines.



20-35cm →

Hochstetter's frog

Leiopelma hochstetteri

Special fact! Only NZ native frog to have a tadpole stage.

Features: Semi-aquatic, partially-webbed toes, life span of 30-40 years, 4-22 eggs.

Threats: Habitat destruction by agriculture, forestry, sub-division and pigs causing stream siltation, rats, cats, diseases from introduced frogs.

Size: Males to 38mm and females to 50mm.

Status: New Zealand endemic.

At risk: Declining.

Where: Riparian edges and streams, native and plantation forests.



Hochstetter's frog tadpole: Hamilton Zoo



Hochstetter's frog: Windy Hill Sanctuary Collection

Jewels of the forest

The forests of Aotea / Geat Barrier Island range from regenerating kanuka scrub along the southern cliffs, to broadleaf gullies with an abundance of puriri, tararua and tawa. The montane podocarp forests, also known as cloud forests, are a distinctive ecosystem around the peak of Hirakimata. This exposed ecosystem has low-fertility soils, a humid, cool environment and is home to rare seabird burrows. The flora ranges from the presence of island endemics to an abundance of rata, yellow-silver pine, mountain toa toa, kauri and manoa. The forests support a biodiverse community.

Jewels found here include the long-tailed bat, black petrel, red-crowned kakariki, Peripatus and endemic jewels such as Aotea / Great Barrier Island kanuka, tree daisy, and the paua slug.



Hirakimata pinnacles: Shanti Morgan



Long-tailed bat: Gerald Kelly

Pekapeka

Long-tailed bat

Chalinolobus tuberculata

Special fact! Can fly up to 60 kmh.

Features: Low frequency echolocation 40khz, life span of 20+ years.

Feeding: Hawking (capturing aerial insects).

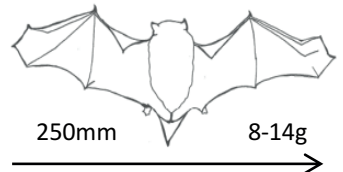
Mating: February – March, single pups emerge. December – January, roosts in cavities and loose bark of large canopy trees in groups of up to 120 female bats.

Threats: Introduced mammalian predators, domestic animals, habitat destruction through logging.

Status: New Zealand endemic.

Threatened: Nationally vulnerable.

Where: Native and plantation forests.



Great Barrier Island kanuka

Myrtle family: Myrtaceae

Kunzea sinclairii

Features: 3m x 1m sprawling silvery-grey shrub, hairy leaves, trailing branches, clustered white flowers with dark centres from September – January.

Fruiting: February – July, minute wind dispersed seed.

Threats: Forest succession.

Status: Aotea endemic.

At risk: Naturally uncommon.

Where: Open shrubland and exposed rhyolite rocky outcrops.



Great Barrier Island kanuka: Shanti Morgan



Great Barrier Island kanuka: Ewen Cameron



Great Barrier tree daisy: Shanti Morgan

Great Barrier tree daisy

Daisy family: Asteraceae

Olearia allomii

Features: Shrub, broad leathery leaves.

Flowers: large clusters of white flowers from September – December.

Fruiting: October – April.

Threats: Forest succession.

Status: Aotea endemic.

At risk: Naturally uncommon.

Where: Open shrubland and exposed rhyolite rocky outcrops.



Great Barrier tree daisy: Jeremy Warden



Kakariki: Oscar Thomas

Kakariki

Red-crowned parakeet

Cyanoramphus novaezelandiae

Special fact! There are five different species of native parakeet in NZ.

Features: Parrot, monogamous, mostly green, strong flyers.

Feeding: Insect larvae, seeds, fruit, invertebrates and flowers.

4-9 eggs: November – January.

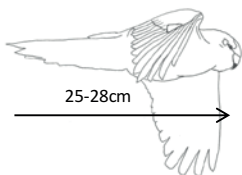
Nest: Cavities in trees, cliffs and dense vegetation.

Threats: Introduced mammalian predators, hybridisation, beak and feather disease.

Status: New Zealand endemic.

At risk: Relict.

Where: Offshore islands, tall forests, grasslands and scrublands.



Height: 25-28cm

Weight: 70-80g

Takoketai

Black petrel

Procellaria parkinsoni

Special fact! Aotea holds the largest population of Takoketai with an estimated 1000 breeding pairs.

Features: Solitary or small flocks at sea.

Feeding: Surface feeding by shallow dives, on squid, fish and crustaceans.

1 egg: November – January.

Nest: Burrows.

Threats: Feral cats, pigs, rats, fisheries by-catch.

Status: New Zealand endemic.

Threatened: Nationally vulnerable.

Where: Great Barrier and Hauturu-o-Toi Little Barrier Island, migrates to the eastern Pacific Ocean (July – October).



Height: 46cm

Weight: 700g



Takoketai: Isabel Mabey

Ngaokeoke

Velvet worm peripatus

Peripatoides sp.

Special fact! Known as ‘living fossils’ they have not changed for 500 million years.

Features: Cautious and slow-moving.

Feeding: Shoot out jets of sticky fluid to trap insects.

Breeding: Live births.

Threats: Habitat loss, increased dry periods caused by climate change, collectors, diseases, rats, pigs and cats.

Size: 5-20mm.

Status: New Zealand endemic.

At risk: Data deficient.

Where: Damp environments with logs and leaf litter.



Velvet worm peripatus:
Windy Hill Sanctuary Collection



Peripatus: Windy Hill Sanctuary Collection



Paua slug: Windy Hill Sanctuary Collection

Paua slug

Land snail family: Rhytididae

Schizoglossa novoseelandica barrierensis

Features: Land slug, vestigial shell (not used).

Feeding: Predatory carnivore.

Breeding: Eggs with a calcareous surface.

Threats: Introduced pigs and rats, birds and habitat destruction.

Size: 20mm long, 13mm wide and 6mm high.

Status: Aotea endemic.

At risk: Data deficient.

Where: Native broadleaf and coastal forests.



Paua slug:
Windy Hill Sanctuary Collection

Jewels of the dunes

The dune ecosystems on Aotea / Great Barrier Island are characterised by large stands of spinifex and pīngao, plants that are adapted to salt-laden winds and which provide habitat for shorebirds such as oystercatchers, gulls, dotterels and terns. The dunes extend across the eastern coast of the island, from Medlands to Whangapoua, their outer edges covered by muehlenbeckia, which provides habitat for rare reptiles such as the moko, copper and shore skink. Jewels found within these ecosystems include the New Zealand dotterel, golden sand sedge and golden sand tussock.



Kaitoke dunes: Shanti Morgan



New Zealand dotterel: Renee Freeland

Tūturiwhatu

New Zealand dotterel

charadrius obscurus

Special fact! Aotea is also home to the smaller banded dotterel, which has a distinctive dark breast band.

Features: Territorial, feigns injury around nests and young.

Feeding: Marine and terrestrial invertebrates, occasionally small fish, mussels and crabs.

2-3 eggs: July and February

Threats: Egg and chick loss to introduced predators and black-backed gulls, habitat degradation, human disturbance, vehicles and domestic dogs.

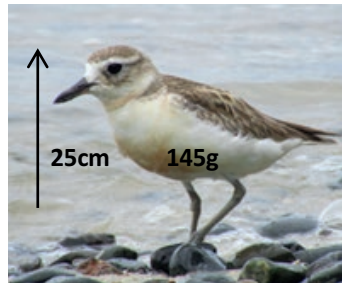
Status: New Zealand endemic.

At risk: Recovering.

Where: Coastal dunes, beaches, shell banks and short pasture.



New Zealand dotterel chick:
Oscar Thomas



New Zealand dotterel:
Oscar Thomas

Pīngao

Golden sand sedge

Sedge family: Cyperaceae

Fincia spiralis

Special fact! Māori use pīngao to weave bags, baskets and mats.

Features: Shortly creeping, harsh leaves, dune-building plant.

Threats: Competition from marram grass (*Ammophila arenaria*), trampling, dune compaction, vehicle traffic, browsing and seed destruction by rodents.

Status: New Zealand endemic.

At risk: Declining.

Where: Coastal dunes, sloping unstable surfaces.



Pīngao: Shanti Morgan



Pīngao: Shanti Morgan



Golden sand tussock: Jeremy Warden

Hinarepe

Golden sand tussock

Grass family: Poaceae

Poa billardierei

Features: Fine, rolled drooping leaves, green-fading silver colour.

Threats: Mammalian grazing, coastal development, vehicles, pest plants (marram grass).

Status: New Zealand native.

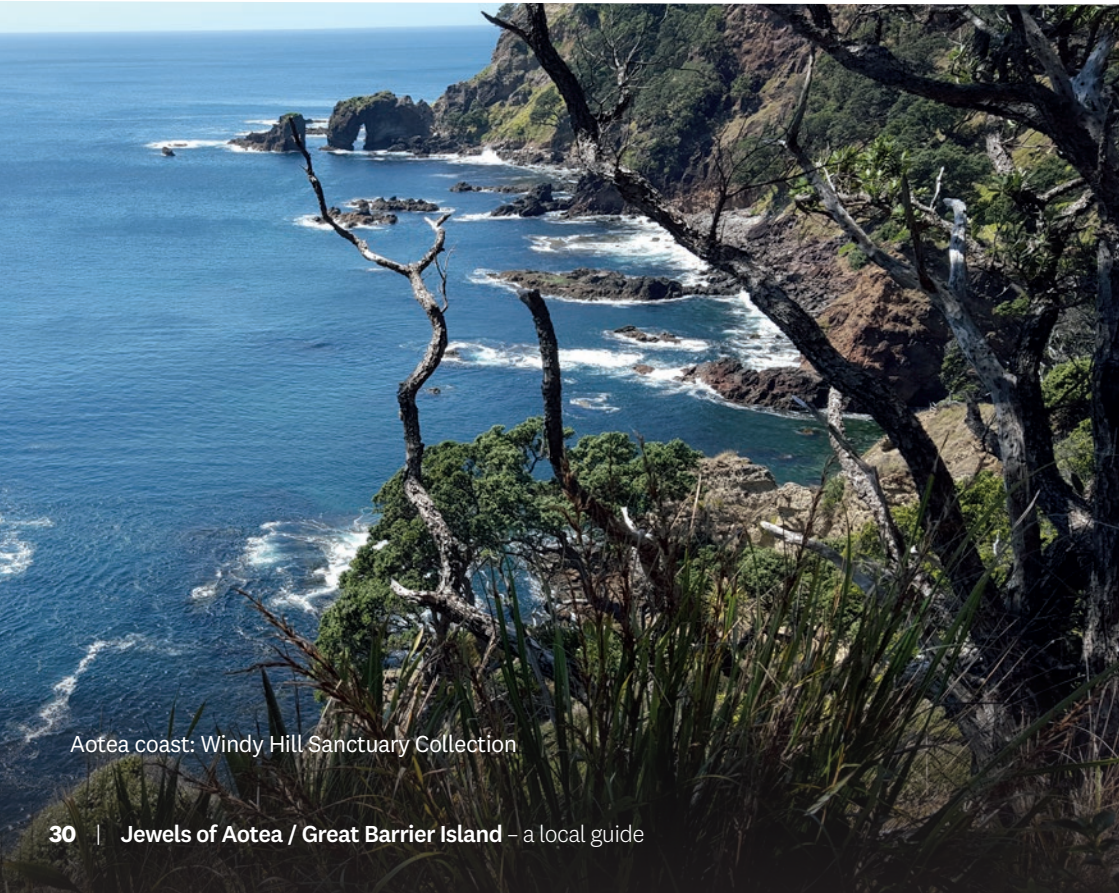
At risk: Declining.

Where: Coastal dunes, fore dunes.

Jewels of the Coast

Aotea / Great Barrier Island's coastline is exposed to strong winds and sea spray. This unique environment is characterised by dominant stands of pohutakawa, puriri and kohekohe, and moderately fertile soils.

These coastal forest systems lead down to rocky shores and sandy beaches where the warm environment provides habitat for kereru, bellbird and tui, which rely on an abundance of flowers and fruit. Jewels within and around the coast include, the little blue penguin, North Island kaka, duvaucel's gecko, cook's scurvy grass and an Aotea endemic hebe.



Aotea coast: Windy Hill Sanctuary Collection



Little blue penguin: Sara Dwyer

Kororā

Little blue penguin

Eudyptula minor

Special fact! The world's smallest penguin species at an average of 33cm and 1kg.

Features: Loud calls can be heard around nest sites, solitary at sea, must return to shore every two weeks to moult.

Feeding: Dive for prey in waters around 50m deep, shoaling fish, squid and crustaceans.

Breeding: Monogamous pairs lay 1-2 eggs from July – November, pairs commonly reuse nest sites.

Nest: Burrows, caves and rock crevices.

Threats: Cats, rats and dogs, set nets, human settlement encroachment to coastlines, vehicles.

Status: New Zealand native.

At risk: Declining.

Where: Coastlines, ocean.



Duvaucel's gecko: Jacqui Wairepo

Duvaucel's gecko

Hoplodactylus duvaucelii

Special fact! NZ's largest living gecko species.

Features: Life span of 35+ years.

Feeding: Large invertebrates (moths and weta), fruit and nectar.

Breeding: 1-2 live births per year.

Threats: Habitat loss and introduced predators.

Size: 300mm length and 120g weight.

Status: New Zealand endemic.

At risk: Relict.

Where: Forest, scrub, cliffs, bluffs and coastlines.



Duvaucel's gecko: Jacqui Wairepo

Kākā

Bush parrot

Nestor meridionalis

Special fact! Māori named the kākā after its loud call.

Features: Longevity of 20+ years, strong flyers.

Feeding: Insect larvae, seeds, fruit, nectar, sap and honeydew.

1-5 eggs: September – January

Nest: Tree cavities.

Threats: Introduced predators particularly stoats, forest clearing.

Size: 38-44cm length and 330-400g weight.

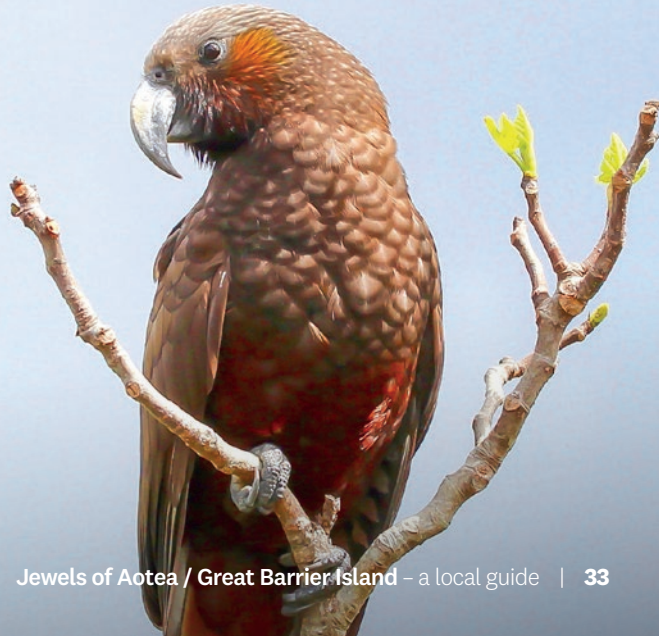
Status: New Zealand endemic.

At risk: Recovering.

Where: Forest dwelling.



Kākā chicks:
Judi Lapsley-Miller, Zealandia



Kākā: Renee Freeland

Nau/Ngau

Cook's scurvy grass

Cabbage family: Brassicaceae

Lepidium oleraceum

Special fact! Cook's scurvy grass is so named because the plant was used to fight off scurvy (Vitamin C deficiency) by Captain Cook in 1769.

Features: Pungent, perennial herb, edible, high in vitamin C.

Flowers: White, September – March.

Fruiting: December – April.

Threats: Reduction of seabird nesting grounds, introduced herbivorous insects, pest plants and fungus disease.

Status: New Zealand endemic.

Threatened: Nationally endangered.

Where: Coastal, well-manured soils high in guano, seabird nesting grounds and rock crevices.



Cook's scurvy grass:
Jeremy Warden



Cook's scurvy grass: Jeremy Warden



Great Barrier Island Hebe: Shanti Morgan

Koromiko

Great Barrier Island hebe

Plantain family: Plantaginaceae

Hebe pubescens ssp. *rehuarum*

Features: Bushy shrub, can be low-growing or erect.

Flowers: White/pink, August – July.

Fruiting: October – June, fine wind-dispersed seed.

Threats: Habitat destruction.

Status: Aotea Endemic.

At risk: Naturally uncommon.

Where: Coastal, rocky outcrops and cliff faces.

Glossary

Riparian	Land adjacent to rivers, wetlands and streams
Diadromous	Fish that migrate between the sea and fresh water
Arboreal species	Primarily tree-dwelling
Terrestrial species	Predominantly or entirely live on land
Rhyolite	An igneous, volcanic rock, of felsic (silica-rich) composition
Andesitic	An extrusive igneous, volcanic rock, of intermediate composition
Succession	The process by which a plant or animal community successively gives way to another until a stable climax is reached
Guano	The excrement of seabirds and bats, can be used as fertiliser

For more information on:

- Native birds of Aotea visit nzbirdsonline.org.nz/
- NZ freshwater fish niwa.co.nz/freshwater-and-estuaries/nzffd/NIWA-fish-atlas
- Reptiles of NZ doc.govt.nz/nature/native-animals/reptiles-and-frogs/
- New Zealand native plants nzpcn.org.nz/
- Aotea invertebrates windyhillsanctuary.nz/beauty/invertebrates/
- Pests of Aotea / Great Barrier a local guide (refer Auckland Council website)

Weed control advice

- pestplants.aucklandcouncil.govt.nz/plant-search
- weedbusters.org.nz

Pest animal control

- aucklandcouncil.govt.nz/EN/environmentwaste/biosecurity/Pages/pestanimals
- pestdetective.org.nz

Kauri dieback

- kauridieback.co.nz/

Planting advice

- aucklandcouncil.govt.nz/EN/environmentwaste/biodiversity/Pages/biodiversityonyourproperty

Email: biodiversity@aucklandcouncil.govt.nz

New Zealand Plant Conservation Network: nzpcn.org.nz

For more information on the biodiversity found on Aotea contact:

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Acknowledgements

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Thank you to the Aotea / Great Barrier Local Board for supporting this project and making the “Jewels of Aotea” possible.

Notes

PROTECT OUR HAURAKI GULF



Check

your
property
for pests



Clean

your boat
and gear
before you go



Close

your
bags and
containers



Dispose

of your
waste
responsibly



Visit ourauckland.nz/haurakigulf
to find out more from
Auckland Council



Department of
Conservation
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