



# TE MANA O TE TAI AO

## AOTEAROA NEW ZEALAND BIODIVERSITY STRATEGY 2020

**Te Mana o Te Taiao - Aotearoa New Zealand Biodiversity Strategy 2020**

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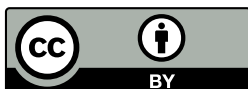
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COVER: Giant Kauri tree (Tane Mahuta), illuminated by person with torch. *Photo: Rob Suisted*

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## Tauparapara

Whakarongo rā te taringa ki te hau e papaki  
mai nei ki tōku kiri karamū

He manawa whiti, he manawa rere, he  
manawa kapakapa

Taku manawa whenua e hika nei

Ee! Ko te ngawekitanga o te whenua,  
te ngahuetanga o te moana

Waiho ake nei ko ngā tamariki a Rangi me Papa

I tukua mai ki au te puna o te ora.

Ko te wai te toto o te whenua, te whenua  
te toto o te tangata

I herea ki te tapu, ki te mana, ki te mauri  
o te ora

Te tātai o taku ora, te matū o te ora, he  
korerehū o te mātāmuri

Ka ohotū ki te ao, rapu noa nei au

Ki te angiangi, ki te memeha, ki te momotu  
Taku whenua kura

He matawara nōku ki taku ahurea i whītikihia  
e te tipua

Nō wai te mana? Nō Te Tiriti te mana, nō te Kōti  
te mana, nō te mana Māori motuhake

Nō Te Mana o te Taiao tonu

E ohu koutou ki te whakapai ake.

Hei whakamōmona i te whenua. Kei mate ai  
ōku tamariki

Ka warea te ware, ka area te rangatira,

Hongihongi te whewheia, hongihongi te  
manehurangi, kei au te Rangatiratanga.

Harken thine ears to the winds that cause  
the hairs on my skin to rise

My heart is startled, flits and palpitates

It is my beloved land alight with life

Manifest by the abundance of land and seas

Let alone the children of Sky and Earth

Given up to me the fountain of life

For the water is the blood of the land, and the  
land is the blood of the people

Lashed together by the hallowed and precious  
thread of life

This is my life's lineage, a mirage of the past

Waking to the world, searching in vain

Lean and degraded, a severed connection

My treasured land

I longed for my culture secured to me by my  
ancestors (by the supernatural)

Under who's authority? By the authority of  
the Treaty, the authority of the Courts, the  
authority of Māori

From the authority and power of  
the environment

Gather ye together to make it right.

To fatten the land. So my children will  
not suffer

Ignorance is the oppressor, vigilance is  
the liberator.

Know the scent of your enemy, know the  
scent of your vision, so that you may  
achieve liberation.

Composed by Puke Timoti

# Kupu whakataki

## Foreword

Many of Aotearoa New Zealand's indigenous plants and wildlife are found nowhere else on Earth. They are ancient and unique – we have giant invertebrates, flightless birds, penguins that live in the forest, trees that can live for over a thousand years, and the smallest dolphin in the world. Many of these creatures and plants have been isolated to the islands and waters of Aotearoa New Zealand since the days of the dinosaurs.

Healthy nature is central to human health, wellbeing and our economy. Here in Aotearoa New Zealand our natural environments, and the plants and wildlife they support, are part of our Kiwi identity. Nature provides us with green spaces and recreation for wellbeing, supports our primary and tourism industries, and allows us to gather kai. When nature is thriving, people are thriving. This has long been recognised in Māori culture, where nature and people are interwoven through whakapapa. People are kaitiaki (guardians) of nature, and nature is kaitiaki of people.

But nature in Aotearoa New Zealand is in trouble and it desperately needs our help.

Despite all that we are doing to try to protect and restore habitats and assist species, Papaptūānuku and Aotearoa New Zealand's indigenous biodiversity is in crisis. Around 4000 species are threatened or at risk of extinction. Many plants and wildlife continue to decline or are just hanging on. Biodiversity in Aotearoa New Zealand, the strategy's companion report presents the sobering evidence. It's not just a crisis for our country, but for global biodiversity – any indigenous species that we lose from these islands is gone forever.

We need to act urgently to ensure that nature is healthy and thriving for its own sake and for current and future generations. Taking action to protect and restore biodiversity now will also create nature based jobs and support our nation's economic recovery.

*Te Mana o te Taiao* – Aotearoa New Zealand Biodiversity Strategy - comes at a time when nature needs us the most. In order to halt the decline of biodiversity and protect and restore our ecological taonga, we need to build capacity and capability so that our actions make the biggest impact possible.

I would like to acknowledge all those who were involved in developing this strategy. It has been a collaborative effort involving Treaty Partners, whānau, hapū, iwi and Māori organisations, regional and central government and statutory bodies,



landholders, communities and organisations involved in conservation, research and science institutions, and a wide variety of industries. Your contributions have ensured that the strategy is aspirational and representative of all of Aotearoa New Zealand.

The release of *Te Mana o te Taiao* is one step towards better addressing the biodiversity crisis. We need to make some changes to the way we work and support each other. Collaboration will be at the heart of how *Te Mana o te Taiao* is implemented, and this starts with working together to design a plan for action.

We all depend on Papaptūānuku, and we all have a responsibility to safeguard nature. If everyone is involved and has a clear role to play – whānau, hapū and iwi, central and local government, industry and businesses, researchers, community organisations, landholders and individuals – we can make the biggest difference.

Hon Eugenie Sage

Minister of Conservation

# Tākiri mai ko te ata, korihi te manu Ka pō! Ka ao! Ka awatea!

Our relationship with te taiao is special and when we draw on a Māori world view the interconnected and holistic relationship between all living things build a profound respect for our natural world. Sadly our biodiversity is under threat, there are 4000 species across Aotearoa New Zealand that are now considered threatened or at the risk of extinction. We must not sit idle, what we do now can make a difference for the next generation.

Last summer I helped to launch the consultation on what will be one of the most ambitious plans for our natural taonga in this country, the National Policy Statement for Indigenous Biodiversity (NPSIB). The development of a proposed NPSIB will be one of the key tools for achieving Te Mana o te Taiao. The NPSIB proposes a solution of working together to ensure that nature can thrive on public, private and Māori land. By providing clear direction at the national level, the proposed national policy statement aims to help us increase our efforts to protect our most significant biodiversity and encourage restoration of what has been lost. We are proposing a toolkit with a range of measures to assist our efforts.

I am pleased that the important work of iwi and community groups in protecting and restoring biodiversity has now been recognised in Te Mana o te Taiao. Our local conservation champions play a significant role in inspiring the actions of others in their communities. Resourcing to help community groups grow, connect with others, and gather and share knowledge will bolster the fantastic work already being done to protect and restore our taiao.

I am also encouraged with the work undertaken across councils and regions to incorporate planning practices of working with landowners to improve biodiversity outcomes.

Indigenous biodiversity is found not only on public land, but also on private and Māori owned land where many of our threatened species, habitats, and ecosystems are also found.

Starting with strengthening the Treaty Partnership between Māori and the Crown, it is my hope that Te Mana o te Taiao will also help to create and support partnerships throughout local government and iwi. Coming together, sharing and using knowledge, especially mātauranga Māori, will have great positive impacts on our work to protect and restore nature.



Te Mana o te Taiao includes goals that will make the roles and actions of local government clearer and easier. Over time, this will also add to the quality of life attributes in our communities and regions – we have a beautiful country.

Together, all New Zealanders are responsible for protecting and restoring our unique nature. The responsibility we share today will be the reward that our children will benefit from.

And finally remember we can achieve the seemingly impossible. There were only five black robins in this world in 1980, with just a single breeding pair left. The outlook was really bleak, but a dedicated team of New Zealand Wildlife Service staff took the daring step of cross-fostering eggs and the young to boost numbers. The result is that there are now 250 black robins in Aotearoa New Zealand. Let birdsong of the great forest of Tāne remind us of our challenge, to protect and restore our precious biodiversity.

Pai Mārire

Hon Nanaia Mahuta

*Associate Minister for the Environment*

# Mō tēnei rautaki

## About this strategy

### What does Te Mana o te Taiao mean?

Ko te mahere rautaki e kīia nei ko Te Mana o Te Taiao, he mahere kōtuitui i ō tātou whakaaro ki te whakaora, ā, ora rawa atu nei o ngā momo kōiora kei roto i ō tātou taiao. Me te mōhio hoki ki te whakaora tātou i ērā mea, me whakaora hoki tātou i ngā taura here a te tangata ki ōna whenua, mai i ōna maunga, tae noa ki te moana. Kei te kī tātou he mana tō te taiao, he whakapapa tō te taiao, he mauri tō te taiao. Kei noho tātou ka memeha tōna mana. Amo akehia e tātou ki roto ki te ao tūroa.

The strategic plan, called Te Mana o te Taiao, is a plan which weaves together our ideas for restoring the biological species in our natural world, and ensuring their survival. We know full well that if we restore those things, we must also reinvigorate the kinship ties of people to their lands, from the mountains to the sea. We say that the natural world has its own power, genealogy, and life force. We can't allow that power to wane. Let us carry it with us into the natural world.

# The structure of this strategy

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## Some key technical terms

**Biodiversity**, or biological diversity, means the variability among living organisms from all sources, including land, marine and freshwater ecosystems and the ecological complexes of which they are a part; this includes diversity within species (including genetic diversity) between species and of ecosystems (based on the definition of the Convention on Biological Diversity).

- **Indigenous biodiversity** is the diversity (or range) of indigenous species. This includes diversity within and between species.

**Nature** is a holistic term that encompasses the living environment (te taiao), which includes all living organisms and the ecological processes that sustain them. By this definition, people are a key part of nature. This strategy uses the term 'biodiversity' to refer to biological diversity and 'nature' when considering the wider processes, functions and connections in the natural environment, of which biodiversity is a part.

**Species** means a group of living organisms consisting of similar individuals capable of freely exchanging genes or interbreeding. In this strategy, the term 'species' also includes subspecies and varieties.

- **Indigenous species** refers to species that occur naturally in Aotearoa New Zealand.
- **Non-indigenous species**, or introduced species, refers to species that have been brought to New Zealand by humans, whether intentionally or unintentionally.
- **Valued introduced species** are introduced species, including sports fish, game animals and species introduced for biocontrol, which provide recreational, economic, environmental or cultural benefits to society.

Additional definitions are provided in the Glossary of technical terms at the end of this strategy.

## Some key te reo terms

**Kaitiakitanga** is the obligation to nurture and care for the mauri of a taonga, or the ethic of guardianship or protection.

**Mātauranga Māori**, or Māori knowledge, is the body of knowledge originating from Māori ancestors. This includes the Māori world view and perspectives, Māori creativity, and cultural practices.

**Mana** is prestige, authority, control or personal charisma.

**Mauri** is the life principle, life force or vital essence.

**Rangatiratanga** means chieftainship, the right to exercise authority, sovereignty or self-determination.

**Taonga** refers to a treasure or something that is prized.

The term can be applied to anything that is considered to be of value, including socially or culturally valuable objects, resources, phenomena, ideas and techniques.

**Te Mana o te Taiao** is the mana of the living environment.

**Tikanga** is a custom, practice or correct protocol. It refers to the customary system of values and practices that have developed over time and are deeply embedded in the social context.

**Whakapapa** means genealogy, genealogical table, lineage or descent.

Translations of all Māori words and phrases used in this strategy are provided in the Glossary of te reo terms.

## 1.1

# Te wawata – Te Mauri Hikahika o te Taiao The vision – the life force of nature is vibrant and vigorous

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*The vision provides inspiration and motivation for Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy (hereafter Te Mana o te Taiao – ANZBS) It paints a picture of the future we aspire to for biodiversity in Aotearoa New Zealand*

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*Te Mauri Hikahika o te Taiao* – the life force of nature is vibrant and vigorous.

The vision we set out for this strategy is not only for the return of health to the natural world in a way that we can measure but also for the return of a health and vibrancy that we can feel, touch, smell and hear, as well as an emotional reconnection with nature.

Central to this vision is the recognition that people are a part of nature – and that we can only thrive when nature thrives.

Achieving *Te Mauri Hikahika o te Taiao* is possible if we all work together. There is a place for everyone living in Aotearoa New Zealand to help restore the mauri (life force) of nature, ensuring that it is healthy for ourselves, our families, communities and cultures, as well as for future generations.

Mauri can be understood as the life force or life essence and is intrinsically linked to whakapapa (genealogy). Everything has a mauri and it plays a crucial role in the interconnectedness and ordering of elements within whakapapa. Connections that foster your emotional experiences are critical to understanding mauri, as Te Mahururangi Te Kaawa shares:

“Te ihi, te wehi, te wana. Those are your emotions. Those are your indicators in a Māori worldview to assess the vitality of the mauri and the mana. When you travel in different areas, you feel the essential energy.”

(Te Mahururangi Te Kaawa 2015; Mātauranga o te taiao workshop; translated from Māori, Ruatāhuna)<sup>1</sup>

One way of visualising *Te Mauri Hikahika o te Taiao* is through the stories of kaumātua (elders) and their emotional response to experiencing a thundering flock of kererū within their rohe (region). The ihi (thrill) that emanates from experiencing large flocks of 300 kererū gathering in the forest during autumn to feast on the fruit of the toromiro is described by kaumātua as reflecting the vibrancy of the mauri of the forest – or *Te Mauri Hikahika o te Taiao*.

“No sooner had I finished my prayers, I heard this thundering coming up the valley like a jet and I thought, ‘Oh! I’m in trouble here’. Then I heard this sound, ‘Whoooooosh!!!’. By crikey, the trees are moving and it was white everywhere. There was a constant cooing all over the place. I was in awe and shivering with fear. I was so afraid I could feel my hairs standing. Some time went by and my excitement finally settled.”

(Poai Nelson; Mātauranga o te Tuawhenua 2011, translated from Māori, Ruatāhuna)<sup>1</sup>

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<sup>1</sup> The above section is drawn from the paper cited below and is used with permission from Puke Timoti. Timoti, P.; Lyver, P.O.B.; Matamua, R. Jones, C.J.; Tahī, B.L. 2017: A representation of a Tuawhenua worldview guides environmental conservation. *Ecology and Society* 22(4): 20. <https://doi.org/10.5751/ES-09768-220420>



We are connected with nature through the places where we spend our time. *Photo: Rob Suisted*

## 2.1

# Ngā take e hiahiatia ana Te Mana o te Taiao – he rautaki kanorau koiora ā-motu

## Why we need Te Mana o te Taiao – a national biodiversity strategy

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*Biodiversity is in crisis globally, including in Aotearoa New Zealand.  
A strategy is needed to address the complex issues causing biodiversity loss.*

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### 2.1.1 The world is in a global nature crisis

“Biodiversity and nature’s contributions to people are our common heritage and humanity’s most important life-supporting ‘safety net’. But our safety net is stretched almost to breaking point.”

(IPBES global assessment 2019)<sup>2</sup>

Nature is essential for our livelihoods, health, economic wellbeing and food security. Clean air and water, the food we farm, catch or hunt, and our tourism- and primary industry-based economy all depend on nature. We are also connected with nature through our many different cultures and the places where we live and spend our time, and nature is part of our identity.

Nature can only thrive when biodiversity thrives. Nature can better provide the benefits we rely on when environments are rich in biodiversity. However, biodiversity is rapidly declining around the world, with around one million animal and plant species currently facing extinction – more than ever before in human history. The rate of extinction appears to have been accelerating over the last 40 years and does not show any signs of stopping.<sup>3</sup> This loss of species and ecosystems, and the services they provide, threatens people’s existence.

There are many causes of biodiversity decline. Direct pressures include the historical and ongoing impacts of invasive species, changes in land and sea use, direct exploitation of species, climate change, and pollution. Biodiversity can also be impacted by the different values people hold about nature and the ways we use it.

### 2.1.2 Nature in Aotearoa New Zealand is also in trouble

Papatūānuku (Earth mother), Ranginui (sky father) and their offspring are in serious trouble, and we urgently need to do a better job of looking after them. The state of nature is a legacy that we leave for future generations.

Nature in Aotearoa New Zealand is unique in the world and makes a significant contribution to global biodiversity, with our country being internationally recognised as a biodiversity ‘hotspot’. Therefore, we have a duty of care to make sure that the unique animals, plants, fungi and microbes that are found in our country are healthy and thriving.

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<sup>2</sup> IPBES 2019: Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Brondizio, E.S.; Settele, J.; Díaz, S.; Ngo, H.T. (Eds). IPBES secretariat, Bonn, Germany. <https://ipbes.net/news/Media-Release-Global-Assessment>

<sup>3</sup> Information in this section has been taken from the IPBES global assessment 2019: <https://ipbes.net/global-assessment>.

However, nature in Aotearoa New Zealand is in trouble. Biodiversity is declining in the face of the same direct pressures as are affecting other parts of the world. And these direct pressures are caused or exacerbated by a number of indirect pressures, including not having the right systems in place in terms of policy, legislation and leadership, people not having enough knowledge or resources to act, and a disconnect between people and nature.

Here in Aotearoa New Zealand we are already successfully taking action to protect and restore nature. There is now an opportunity to further invest in our successes and firmly place nature at the heart of all we do, which will benefit both nature and our livelihoods. Te Mana o te Taiao – ANZBS sets out how we can expand and build on the strong foundation we have already built to allow our natural world, and the people in it, to thrive.

## 2.2 Scope of Te Mana o te Taiao – ANZBS

*Te Mana o te Taiao – ANZBS sets a strategic direction for the protection, restoration and sustainable use of biodiversity, particularly indigenous biodiversity, in Aotearoa New Zealand.*

The scope of Te Mana o te Taiao – ANZBS includes all domains – land, fresh water, estuaries and wetlands, and the marine environment from the coastline to the outer edges of the Exclusive Economic Zone and the extended continental shelf. It also includes all types of tenure, including public lands, private land and Māori-owned land, and covers all indigenous and non-indigenous species, as well as migratory species that swim or fly between Aotearoa New Zealand and international waters or other countries.

Introduced (or non-indigenous) biodiversity is an ecological reality in Aotearoa New Zealand that is neither ‘all good’ nor ‘all bad’, with the benefits or impacts of introduced species to their surrounding environment often depending on the situation.

In Te Mana o te Taiao – ANZBS, we recognise and prioritise the special responsibility we have towards indigenous species, while still recognising the recreational, economic and cultural benefits and human sustenance of valued introduced species.

Protecting and restoring biodiversity can, in some cases, be compatible with its sustainable use. Therefore, while Te Mana o te Taiao – ANZBS is focused on the protection and restoration of biodiversity, its scope also includes aspirations around customary harvest and sustainable use.

**‘Sustainable use** means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.’

(Convention on Biological Diversity)

## 2.2.1 Strategic direction for all of Aotearoa New Zealand

Te Mana o te Taiao – ANZBS provides the overall strategic direction for biodiversity in Aotearoa New Zealand for the next 30 years. It is intended to guide all those who work with or have an impact on biodiversity, including whānau (family groups), hapū (clans) and iwi (tribes), central and local government, industry, non-government organisations (NGOs), scientists, landowners, communities, and individuals.

As well as setting an aspiration and direction, a strategy needs to set out a pathway for meeting the goals and objectives and specify who will be working on these. Now that Te Mana o te Taiao – ANZBS is in place, the next phase of strategy development will be to collaboratively design an implementation plan for 2021–2022. Together, Te Mana o te Taiao – ANZBS and the implementation plan form the Aotearoa New Zealand Biodiversity Strategy.

Progress and new discoveries we make along the way will influence the pathways we take towards the vision of *Te Mauri Hikahika o te Taiao*, so a new implementation plan will be developed for 2023–2025. After this, implementation plans will be produced every 5 years.

As a national strategy, Te Mana o te Taiao – ANZBS is closely connected to and guides local and regional biodiversity action. While some aspects of the strategy will be implemented nationally, much of the implementation will need to happen locally. This recognises that local aspirations and the most appropriate approach will vary from place to place so it is important that implementation is driven by those who know a place best.

Te Mana o te Taiao – ANZBS acts as a ‘canopy’ strategy, providing overarching direction and guidance to related strategies and work programmes (see Fig. 1 on page 15). These could include plans for specific parts of the biodiversity system (e.g. the control of specific pests or management of threatened species), iwi or hapū environmental management plans, large-scale programmes (such as Predator Free 2050), and industry or sector strategies.

## 2.2.2 Placing the Treaty partnership at the centre of biodiversity work

Te Mana o te Taiao – ANZBS recognises the Crown’s legislative accountability to actively engage with iwi, hapū and whānau to acknowledge the Treaty of Waitangi. Te Mana o te Taiao – ANZBS aims to guide collaboration to actively give effect to legislation, such as section 4 of the Conservation Act 1987, demonstrating a collaborative expression of the principles of the Treaty of Waitangi. Crown agencies, through Te Mana o te Taiao – ANZBS, will act in good faith with iwi, hapū and whānau to achieve Treaty settlement obligation outcomes. This includes both those that have been settled and those that are yet to be settled.

These obligations and directions will need to be considered at all levels of implementation for the strategy and will need to be resourced.

Whānau, hapū and iwi have strong connections with their whenua (land), awa (rivers) and moana (sea) and as kaitiaki (guardians) have a strong interest in the management and wellbeing of the natural world. Throughout the development of this strategy, iwi, hapū, whānau and Māori organisations showed a strong interest and willingness to participate in and deliver on goals for protecting and restoring both nature and mātauranga Māori (Māori knowledge).

Relationships, responsibilities and practices can be sustained when iwi, hapū and whānau exercise rangatiratanga (authority) and carry out kaitiakitanga (guardianship). Te Mana o te Taiao – ANZBS includes values, objectives and goals to achieve this, including the Government sharing knowledge and helping to build capacity and capability to support iwi, hapū, whānau and Māori communities in their aspirations.

The release of Te Mana o te Taiao – ANZBS is just the first step towards finding better ways to work together. Planning and implementation of the strategy will provide an opportunity to elevate partnerships and improve how we all work together to deliver on our shared goals. Beginning with strengthening the Treaty Partnership between Māori and the Crown, Te Mana o te Taiao – ANZBS will also help to create and support wider partnerships, including with local government and communities.



Figure 1.

Who is involved in Te Mana o te Taiao – ANZBS?

Te Mana o te Taiao – ANZBS is intended to be owned and implemented by all people who live in Aotearoa New Zealand. There is a place for everyone to be involved, no matter how big or small their contribution. By working together towards common goals, we can achieve much more than we would alone.

## 3.1

# Ngā raru kei mua i te aroaro o te ao tūroa The problems nature faces

*Several key pressures and issues are contributing to the ongoing biodiversity loss in Aotearoa New Zealand. These are the areas we need to focus on in order to improve biodiversity*

### 3.1.1 Current state of Aotearoa New Zealand's unique biodiversity

The companion report to this strategy, *Biodiversity in Aotearoa*, provides an overview of the state and trends of New Zealand's indigenous biodiversity. It draws on key national datasets and published accounts of scientific research to present and explain the evidence we have as a snapshot in time. The information in this section is drawn from that report.

We live among a mix of species that have recently evolved and those that are truly ancient, creating a biodiversity that is unique in the world.

Aotearoa New Zealand comprises a thread of isolated islands that are little more than dots within a vast ocean. The surging of the Earth's crust over millions of years left them here, stranded in time and space. Aboard these lifeboats from the wreck of Gondwana were plants and animals that are today found nowhere else on Earth (fig. 2).

### Proportion of New Zealand indigenous species found nowhere else on Earth

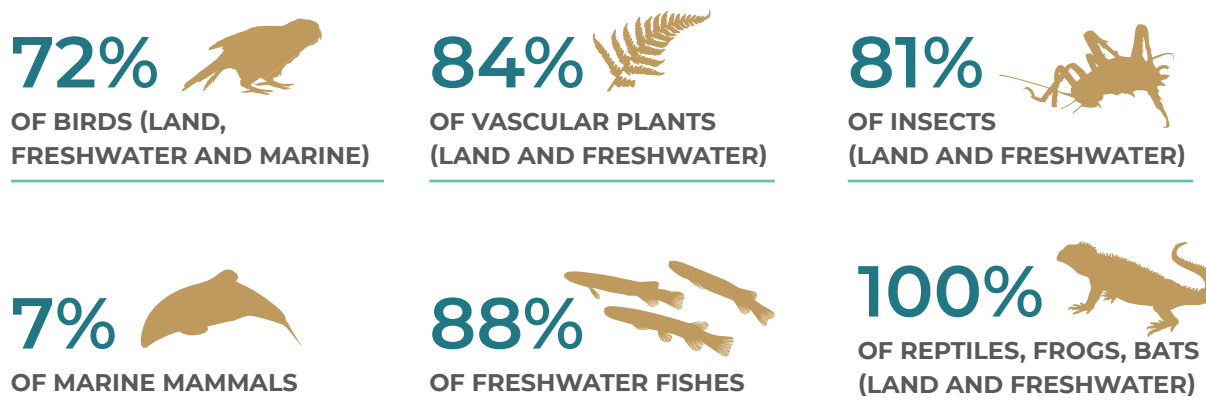


Figure 2.

Note: These data do not include extinct, exotic or non-resident native (Coloniser, Migrant or Vagrant) species. Source: Biodiversity in Aotearoa.<sup>4</sup>

<sup>4</sup> <https://www.doc.govt.nz/anzbs-biodiversity-report>.



Up until the arrival of humans, the oceans surrounding Aotearoa New Zealand kept out predatory mammals that were common everywhere else. Aside from three species of bats, Aotearoa New Zealand was a land of birds, ancient reptiles such as the tuatara, and areas covered by forests and tussock.

Some species in Aotearoa New Zealand are exclusively found in very small homes, such as on a single island or mountain, while others are restricted to highly specific habitats, such as hot springs. And our marine life is also distinctive – for example, Aotearoa New Zealand has the highest number of endemic seabirds globally.

Since the arrival of humans, 79 species have been recorded as lost to extinction, including 59 birds, as a result of changes to the landscape and the introduction of predatory mammals. But this biodiversity decline is not only historical – many elements of Aotearoa New Zealand's biodiversity continue to be threatened today. The New Zealand Threat Classification System<sup>5</sup> is used to assess the conservation status of Aotearoa New Zealand's native species. However, these threat rankings may not tell us the full story, as many species are ranked as 'Data Deficient', meaning we don't know enough about them to assess their risk of extinction. For example, of our 45 indigenous marine mammal species, 16% are listed as 'Threatened' and a further 4% as 'At Risk',<sup>6</sup> but the great majority (67%) are classified as 'Data Deficient', so we cannot be certain whether these species are declining or stable.

Environmental scientists have also identified that many ecosystem types are naturally uncommon and/or heavily reduced in extent and health – particularly those in lowland, freshwater and coastal marine environments. And mātauranga Māori monitoring practices have tracked a decline in the cultural health indicators of ecosystem integrity. For example, among 41 waterways that were tested between 2005 and 2016 for their cultural health from a te ao Māori (Māori world view) perspective, which interweaves environmental and socio-cultural aspects by assessing cultural health indicators and mauri, 11 were very good or good, 21 were moderate and 9 were poor or very poor.<sup>7</sup>

There is variability in the health of our nature between and within domains, ecosystems and species, and some successes have been achieved where individual species have received active/intensive management. However, areas of ecosystems or the biodiversity in them are continuing to be lost, fragmented or degraded each year, and many populations of threatened species are continuing to decline. Therefore, although the picture is incomplete, it is clear that our biodiversity is still declining overall.

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<sup>5</sup> Molloy, J.; Bell, B.; Clout, M.; de Lange, P.; Gibbs, G.; Given, D.; Norton, D.; Smith, N.; Stephens, T. 2002: Classifying species according to threat of extinction. A system for New Zealand. Threatened Species Occasional Publication 22. Department of Conservation, Wellington. 26 p.

<sup>6</sup> 'Threatened' means that a given species faces the threat of extinction, while 'At Risk' means that a given species would likely become 'Threatened' should pressures on its populations worsen. Data exclude extinct, exotic or non-resident native (Coloniser, Migrant or Vagrant) species.

<sup>7</sup> Ministry for the Environment & Stats NZ (2019). New Zealand's Environmental Reporting Series: Environment Aotearoa 2019, p20.

# State of biodiversity

## Marine birds

- 28 (31%) are 'Threatened'
- 53 (60%) are 'At Risk'

Some species have improving population trends. The conservation status of 23 bird species improved in the 2016 assessment as a result of population increases, mainly because of management intervention.

Based on modelled Trophic Level Index values, 46% of over 3000 lakes larger than 1 ha are estimated to be in poor or very poor ecological health.

250 000 ha of inland wetlands remain in Aotearoa New Zealand – around 10% of their former extent. Wetland loss is still occurring: At least 5000 ha of wetland is estimated to have been lost since 2001.

Naturally uncommon ecosystems are those which covered less than 0.5% of the country's land area in prehuman times. There are 72 of these, of which 45 (63%) are now threatened.

Around 40 800 ha of indigenous forest, scrub and shrubland was converted to non-indigenous land cover between 1996 and 2018. In the same period, 44 800 ha of indigenous grasslands and 5 500 ha of other indigenous cover were also converted to non-indigenous cover types.

Around 43% of Aotearoa New Zealand's land area remains in native cover.

Many species are in decline. Population declines of 61 vascular plant species means they have moved to a worse conservation status in the latest 2017 assessment.

## Freshwater fish

- 22 (43%) are 'Threatened'
- 17 (33%) are 'At Risk'

## Land reptiles

- 37 (35%) are 'Threatened'
- 52 (50%) are 'At Risk'

Around 5000 of the assessed 14 000 terrestrial, freshwater, and marine species are 'Data Deficient' – i.e. there is not enough information to know if they are in trouble.

For example, 609 marine macroalgae (68%) and 105 earthworms (59%) are assessed as 'Data Deficient'.

A large body of research has found that concentrations of nutrients, sediment and pathogens in rivers increase as the catchment area in pastoral land use increases.

Rivers in urban areas are contaminated with nutrients, suspended sediment, pathogens and heavy metals.

Biogenic marine habitats (created by living plants or animals) support high biodiversity and provide ecosystem services. Many of them have been degraded or lost. For example, there has been a near total loss of kuku/green-lipped mussel beds in the Firth of Thames.

214 non-indigenous marine species now live in Aotearoa New Zealand's marine environments. Some of these have the ability to compete with and prey on indigenous species, modify natural habitats or alter ecosystem processes.

Figure 3.

State of biodiversity

## 3.2 Pressures and their impacts on biodiversity

The *IPBES global assessment 2019*<sup>8</sup> outlined five global pressures on biodiversity: historical and ongoing impacts of invasive species, changes in land and sea use, direct exploitation of species, climate change, and pollution. All of these pressures are also key factors driving the loss of biodiversity in Aotearoa New Zealand. In addition, because ecosystems are connected, the decline or degradation of biodiversity and ecosystems on land can have negative impacts on marine and freshwater environments, and vice versa.

Below is a high-level overview of these pressures and how they are affecting indigenous biodiversity in Aotearoa New Zealand, more details on which can be found in *Biodiversity in Aotearoa*.<sup>9</sup>

### 3.2.1 Introduced invasive species

- A suite of predators and browsers that have been introduced to Aotearoa New Zealand threaten many indigenous species. These introduced species include possums, stoats, ferrets, weasels, rats, mice, cats, hedgehogs, pigs, rabbits, deer, goats, invasive introduced fish and wallabies.
- Invasive invertebrates such as wasps prey on indigenous insects and out-compete birds for nectar.
- Invasive plants and algae (e.g. didymo) can have severe effects on indigenous vegetation and ecosystems in both freshwater and marine environments.
- Invasive microorganisms pose significant concerns. Kauri dieback and myrtle rust are two recent examples that are having widespread and devastating impacts on iconic flora and the ecosystems they support.
- As well as the invasive species that are already here, there is the constant biosecurity threat of new invasive species arriving and becoming established, and this threat is likely to increase with climate change.

### 3.2.2 Climate change

- We don't yet know what many of the ongoing effects of climate change on biodiversity will be, but we do know that they are likely to be significant. Many ecosystems are already being adversely impacted, and some species and ecosystems will be more vulnerable to climate change than others.
- Sea level rise, ocean acidification and increased sea temperatures are among the largest threats, as they will compromise the extent and health of coastal and marine ecosystems and species.
- Hydrological alteration (e.g. an increased prevalence of low flows, droughts and flooding) and altered water temperatures will affect freshwater ecosystems.
- Introduced invasive animals, plants and pathogens may become more widespread on land, and storms, droughts and floods are likely to increase in frequency.
- Actions we take to respond to and mitigate the effects of climate change may also have impacts on biodiversity. Examples include the construction of infrastructure such as coastal defenses and accessing resources (minerals and metals) that are needed to transition to a low-emissions economy.

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<sup>8</sup> <https://ipbes.net/global-assessment>

<sup>9</sup> <https://www.doc.govt.nz/anzbs-biodiversity-report>

### 3.2.3 Changes in land and sea use

- Historical clearing of forests was carried out by Māori and then European settlers, and the further clearance of indigenous forests remained legal on public land up until 1987. Stricter controls on forest clearance on private land were imposed in 1991 through the Resource Management Act.<sup>10</sup> However, forests, streams and rivers, wetlands, indigenous grasslands, and shrublands still continue to be reduced in extent or condition, often as a result of land use intensification and urban development.
- Fragmentation, pollutants, and changes in the nutrient and water cycles impact on indigenous biota within urban ecosystems.
- Levels of erosion, sedimentation and eutrophication have increased as a result of land use changes, each of which affects the quality of water and the health of the species that live in aquatic environments.
- Changes in the hydrological regimes of freshwater ecosystems is a pervasive issue. The allocation of surface and groundwater for irrigation has the most widespread influence on seasonal flows and water levels, while engineering works, such as flood protection works and gravel extraction, can alter or completely destroy habitats.
- Increased coastal development causes habitat degradation, while increased shipping traffic can affect marine species and ecosystems by introducing invasive species, pollution, noise and ship strikes.

### 3.2.4 Direct exploitation of organisms (harvesting)

- The commercial, recreational and cultural harvest of indigenous marine and freshwater species has the potential to impact on the health of populations.

- Fishing can also have unintended impacts on biodiversity, including the bycatch of non-target species and causing damage to habitats on the sea floor.

### 3.2.5 Pollution

- Many forms of pollution affect New Zealand's biodiversity, including liquid and solid wastes, light and noise pollution, chemicals, and sediment.
- Sediment and run-off from intensive agricultural and urban activities can damage the quality of freshwater and marine habitats (including estuaries).
- Plastic pollution is a significant issue for marine biodiversity, even in remote areas of Aotearoa New Zealand.



Marine ecosystems are vulnerable to the effects of climate change. Poor Knights Islands Marine Reserve.  
*Photo: DOC*

<sup>10</sup> [www.legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html](http://www.legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html)



Saharalee with kūtai (mussels) on Mitimiti Beach. *Photo: Papa Taiao Earthcare*

## Young people caring for nature

Papa Taiao Earthcare is a sustainability and ecological restoration training organisation that enables young people to lead enterprising social, cultural and environmental projects while gaining National Certificate of Educational Achievement (NCEA) qualifications and earthcare skills.

Pyura is a biosecurity threat in Aotearoa New Zealand and is smothering kūtai (mussel) beds on Mitimiti reef in the Hokianga. Kūtai is an important mahinga kai (traditional food source) for the community. When the Papa Taiao class of year 12 and 13 taiohi (young people) from Te Kura Kaupapa Māori o Panguru learned about the situation, they got angry. They demanded “What are you gonna do about it?” The Papa Taiao facilitator’s response was, “This is your place, what are you going to do about it?”

The students’ first response was “Let’s get rid of it!” But after a couple of hours of picking pyura off the rocks and still only having 20 kg in the bucket, the students declared “This is useless! How can you do it better?” We turned the question back on them, “How can you do it better?” This stimulated the students to come up with the idea of a competition that inspired their community to help clean up the reef. Students raised \$800 to give away as prize money. Of the approximately 100 people in the Mitimiti community, 68 participated and managed to clear half a tonne of pyura from the reef in one day.

Next, the student group researched how to make fertiliser from the pyura. They sold a few bottles, made a few dollars and then received an order for 1000 litres, earning them thousands of dollars. The project not only gave the students a sense of success through problem-solving but also linked in enterprise, encouraging them to think about how they can make money through doing positive work for their environment.

## 3.3 Key gaps and issues with the current system and management approaches

The biodiversity system is the structure that provides methods for maintaining and managing Aotearoa New Zealand's biodiversity on behalf of all New Zealanders. However, several aspects of our current biodiversity system, including decision-making and regulatory processes, act as barriers to protecting and restoring biodiversity.

### People, organisations and agencies involved in the biodiversity system include:

- Whānau, hapū, iwi, Māori organisations and Treaty partners.
- Members of society, including individuals, community conservation and recreation groups, kaitiaki rūpū (conservation guardianship groups), landowners, and environmental organisations working in rural, urban and coastal areas.
- Industry, including productive land or sea users, the tourism sector, electricity generators and the mining sector.
- Government and statutory bodies, including the Department of Conservation, Ministry for the Environment, Ministry of Foreign Affairs and Trade, Ministry of Primary Industries (including Te Uru Rākau, Fisheries New Zealand and Biodiversity New Zealand), Land Information New Zealand, New Zealand Fish and Game Council, Game Animal Council, Māori statutory bodies and Treaty settlement entities.
- Local government, including local, territorial, regional and unitary councils.

See Appendix 1 for further details on the roles and responsibilities of these players.

### 3.3.1 The current system is complex

The current biodiversity system includes legislation, governance and leadership, science and monitoring, and a range of players, including those with statutory roles and responsibilities, such as central and local government, as well as the community, industry and NGO organisations, iwi and hapū, and individuals – i.e. everything and everyone that delivers something for biodiversity.

The system delivers:

- On-the-ground action
- Policy and strategy
- Science, data and knowledge
- Tools and support
- Monitoring, reporting and stories about biodiversity
- Regulation and legislation

However, the current biodiversity system isn't working as well as it should be, as it is failing to tackle issues at the scale needed to address the ongoing and cumulative loss of indigenous biodiversity.

As can be seen in the table of roles and responsibilities of those who are involved in the biodiversity system presented in Appendix 1, the current system has no single, overarching point of governance, leadership or coordination. Because of the vast number of players (each with their own governance and leadership structures), strategic policy, planning and implementation are for the most part carried out independently. This also means that there is no overarching accountability for any of the players, or at least no single body that actively monitors and polices the system and those in it. In any system, all players must play their roles

effectively for the whole to be effective. Therefore, the challenge in the first instance is to try to link these structures.

### 3.3.2 Our regulatory and policy frameworks for biodiversity are also complex

Legal protection, such as public conservation land and marine reserves, is an important tool for managing some of the pressures on biodiversity. A number of Māori tools, such as rāhui (temporary prohibitions), can also be used to put temporary bans or prohibitions in place to protect the environment. However, legal protection doesn't solve all of the problems within these areas. For example, introduced invasive species and external impacts (such as water extraction, excessive nutrients and sediment, and direct human impacts) cause significant damage to indigenous ecosystems and habitats even in protected areas.

The regulatory and policy frameworks we have in place for protecting biodiversity in Aotearoa New Zealand have been criticised for being inconsistent, disjointed, under-resourced and poorly enforced, resulting in a failure to achieve many biodiversity outcomes. There is no clear and universal mandate to protect or manage species or ecosystems across all environments, and there are inconsistencies in how species and habitats are managed under different legislation. See Appendix 2 for a list of key current legislation relating to biodiversity.

### 3.3.3 Competing interests and values can affect biodiversity

There are a wide range of values and interests around biodiversity, some of which compete. People making decisions about land/sea and resource management have to consider difficult trade-offs and costs, especially when considering the possible effects of productive land, sea or other resource uses on indigenous habitats.

Our decision making and economic systems often fail to account for the value of nature – both in terms of money and other benefits, such as the physical, cultural or social wellbeing of people. If the full value of biodiversity and mātauranga

Māori are not recognised or reflected in decisions about resource use in land, freshwater and marine environments, biodiversity is more likely to be negatively impacted.

These trade-offs will only be resolved with more accurate valuing of biodiversity and ecosystem services and the social, cultural, economic and environmental benefits they provide to people. Finding ways to work together and achieve win-wins for biodiversity and prosperity will mean that protecting and restoring biodiversity doesn't need to come at a cost to wellbeing and sustainable livelihoods.

## 4.1

# Ngā hononga i waenganui i te ao tūroa me te tangata Connections between nature and people

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*People can only thrive if the natural world is thriving, as nature is essential for our health and cultural and economic wellbeing.*

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### 4.1.1 Nature and health

Many different types of plants, animals and smaller organisms inhabit the natural environments of Aotearoa New Zealand and are our mauri. Without biodiversity, we wouldn't have the food, clear air and clean water we need to live. Biodiversity loss puts the health of nature, people and living indigenous knowledge systems (such as mātauranga Māori) in danger.

There is growing recognition that access to nature is vital for our mental and social wellbeing. Spending time in nature can provide physical activity, create social bonds with others who share the same space and improve our mental health through relaxation and restoration. A high proportion of people in Aotearoa New Zealand live in urban areas, so it is important that people can access nature in or close to towns and cities.

### 4.1.2 Nature and cultural wellbeing

As well as its life-giving qualities, many people admire aspects of nature for its rarity, beauty, wonder, complexity, and scientific, historic or spiritual significance. Valuing something for what it is rather than what it can provide is often referred to as intrinsic value.

Our home is made up of a wide range of places, from the rohe of whānau, hapū and iwi and the wild coastlines, glaciers, high mountain peaks and ocean depths to the rivers that run through towns, cities and farmland and our own backyards. Nature in Aotearoa New Zealand is the inspiration for our national icons and helps to define the 'kiwi' character. It also contributes to our increasingly multi-cultural society's sense of national identity. Each culture experiences different ways of viewing, appreciating and relating to nature.

People living in Aotearoa New Zealand take advantage of the huge range of recreational activities available in our great outdoors, from sightseeing, boating, tramping and fishing to mountain biking and skiing. We also experience nature through hearing birdsong in the cities we live in, being involved in community projects to restore streams or the bush, visiting the beach, catching fish and many other ways. For many of us, the time we spent in nature as children has shaped our memories.

In Māori culture, nature and people are entwined through whakapapa, te reo (the Māori language), tikanga (customs), the arts, food, rongoā (medicine) and spirituality. This relationship flows both ways – people are kaitiaki of the natural world and the





A thriving biodiversity means increased populations of indigenous species in urban areas. *Photo: Rob Suisted*

## A snapshot in time

### *Tēnei te ruru te koukou mai nei*

Moa were once present at Ōtākou. Munro (1844); “for some hours after sunrise, the woods resounded with the rich and infinitely varied notes of thousands of tūi and other songsters”.<sup>†</sup> Trees lined the inner harbour, leaves drooping into the sea at high tide, kiwi roamed the hills and whales frequented the harbour. HK Taiaroa (1880); “... the rich fishery and many fixed customs and reasons for settlements by the sea river ‘Ōtākou’.”<sup>‡</sup> M Karetai (1915); “... weka were a local food source”<sup>¶</sup>. In the 1950s; the ruru (morepork) call could be heard, īnanga and tuna were available in season, the harbour would froth with schooling maka (barracoota) and seasonally teem with krill, flounders speared night or day, finfish and kaimoana (seafood) were varied and plentiful. Today, the moa, kūkupa (New Zealand pigeon), kiwi, weka, ruru are absent, visits by whales are rare and there is a greatly reduced presence of tūi, īnanga, tuna, maka, pātiki (flounder) and kaimoana, while the toroa (albatross), hoiho (yellow-eyed penguin) and kororā (little blue penguin) persist.

Traditional lifeways at Ōtākou intersected with ngā hua of Tane and Tangaroa and customary harvest, and at times rāhui prevailed – a kinship connection based on reciprocity and recognition of the primal function of mauri. A localised knowledge originating from Māori ancestors, framed in the Māori world view and perspectives, creativity and cultural practices developed. Expressed in everyday practices, descriptions for weather, seasons, tides and in place names, waiata (songs), whakaara, pepeha (proverbs) and pakiwaitara (narratives) – for example, ‘kai te haere’ was coined for the months between potato digging and storing.

A scenario repeated across Te Waipounamu (the South Island), an erosion of taonga species that may seem imperceptible during a lifetime, but calamitous when measured over several generations, and alienating for whānau, hapū and the associated mātauranga.

An account narrated by Edward Ellison, Ōtākou, Ngāi Tahu.

<sup>†</sup> Munro, D., *Notes of a Journey Through a Part of the Middle Island of New Zealand* in the Nelson Examiner in several parts from July to October 1844

<sup>‡</sup> Section 88, Kaawa Moana (Seafood areas), Ngāi Tahu 1880, Hori Keri Taiaroa

<sup>¶</sup> Personal diary of Maaki Karetai

natural world is kaitiaki of people. The loss of biodiversity and the growing distance between whānau, hapū, iwi, Māori communities and Treaty partners and what remains are making it harder to sustain relationships, responsibilities and practices. For example, mātauranga-ā-iwi, mātauranga-ā-hapū, mātauranga-ā-whānau (local place-based knowledge that is held within tribal groupings) relating to particular taonga (treasured) species can only survive if kaitiakitanga can be carried out for those taonga – which in turn requires exercising rangatiratanga.

### 4.1.3 Nature and economic wellbeing

Although biodiversity underpins our economy, the value of nature is often not fully incorporated in our decision making. In addition to the benefits nature provides through ecosystem services to support primary industries, its cultural, social and human health benefits also need to be recognised and considered as part of its value.

Our primary industries – agriculture, forestry, fisheries and horticulture – are all closely linked with the natural environment. They provide incomes and opportunities for many regional communities, with

primary sector exports having reached a record \$46.4 billion in the year ended June 2019.<sup>11</sup>

Our activities on coasts and in oceans, such as fishing, aquaculture, shipping and coastal development, also provide economic value and support growth. In 2017, New Zealand's marine environment was estimated to add at least \$7 billion to our economy.

There are also many opportunities for nature-based employment through primary industries, tourism, recreation and conservation. Nature supports our recreational activities and visitor-based economy. Much of our domestic tourism is based on people who live in Aotearoa New Zealand wanting to experience nature, and the rest of the world also

sees our country as one of natural beauty and wonder, with breathtaking places to visit and explore. Tourism is traditionally one of our top export earners and is likely to continue to be a significant sector of our economy.<sup>12</sup>

Many landowners, farmers and rural communities have recognised the value of biodiversity and are working to enhance biodiversity on their land. Improving biodiversity on productive land and in catchment areas can have benefits for both indigenous species and farming. For example, planting indigenous trees as a shelterbelt provides habitat and food for indigenous birds and insects, while also providing shade or warmth for livestock and preventing soil erosion.

## National Plan of Action – Seabirds 2020

The third iteration of New Zealand's National Plan of Action – Seabirds 2020 (NPOA) was published in 2020. It represents the culmination of three years' work by government agencies (Department of Conservation and Fisheries New Zealand) and the Seabird Advisory Group. The Seabird Advisory Group was established in 2013 and includes members from environmental organisations, the fishing industry, Te Ohu Kaimoana and the recreational fishing sector. The multi-sector Group worked constructively to provide valuable advice to Government during the review and development of the NPOA-Seabirds 2020. It will continue to play an important role in monitoring and implementation of the new NPOA.

The NPOA-Seabirds 2020 sets out the Government's commitment to reducing fishing-related captures. It acknowledges that while significant progress has been made since the first NPOA was published in 2004, we can do better. The focus of the new NPOA is on supporting all fishers, commercial, recreational and customary, to ensure they are equipped with the knowledge they need to avoid catching seabirds. The plan recognises that New Zealanders are naturally innovative and encourages development of new solutions to seabird mitigation.

The NPOA-Seabirds 2020 takes a risk-based approach to the management of interactions between commercial fishing and seabirds. It is underpinned by the seabird risk assessment, which is a model that assesses risk from fisheries to seabird populations. The outputs of the risk assessment are used to prioritise management actions. For example, efforts can be focused on specific seabird species, fishing methods or areas that have been identified as having elevated risk levels. The plan also recognises that New Zealand's seabirds forage globally, and sets out objectives to promote the management of seabird captures beyond New Zealand waters.

The Department of Conservation and Fisheries New Zealand will report on a range of performance measures to ensure that the NPOA-Seabirds 2020 will have positive outcomes for marine biodiversity and achieve its goals.

<sup>11</sup> Ministry for Primary Industries 2020: Situation and outlook for primary industries. [www.mpi.govt.nz/news-and-resources/economic-intelligence-unit/situation-and-outlook-for-primary-industries/](http://www.mpi.govt.nz/news-and-resources/economic-intelligence-unit/situation-and-outlook-for-primary-industries/)

<sup>12</sup> Ministry for the Environment & Stats NZ (2019). New Zealand's Environmental Reporting Series: *Our marine environment 2019*, p5.



Karen and Bob Schumacher's forest covenant in eastern Taranaki. *Photo: Nick Graham*

## The Schumachers' Inglewood Kiwi Haven

In the rugged hills of eastern Taranaki, Karen and Bob Schumacher registered their first forest covenant with QEII National Trust to protect kiwi on their farm in 2004.

"We always wanted to have bush that we could put a QEII National Trust covenant on and give a bit back. It's all very well talking but you have to give."

In 2009, the Schumachers worked with QEII to protect another two covenants of remnant tawa-podocarp forest on their home farm south of Inglewood. These forest remnants together with other small lowland forest fragments provide a larger habitat for a range of native bush birds. They are a corridor between the forest on Mount Taranaki and the hills to the east. Their fourth covenant expands on the Otunahe forest and was added in November 2017.

The Otunahe forest is home to native bird species such as fernbird, whitehead, North Island robin, North Island brown kiwi, New Zealand falcon and the threatened long-tailed bat. It is also home to bellbird, tūi, and kererū. Of particular botanical interest in these blocks is swamp maire (Threatened – Nationally Critical) which although not uncommon in Taranaki is now threatened by myrtle rust.

The Schumachers' private land protection and stewardship work in Inglewood, Taranaki, has expanded to many neighbouring farms. It is now included as part of the Pūrangi Kiwi Project. This predator-controlled area is cared for by the East Taranaki Environment Trust (ETET). The ETET is a group of landowners dedicated to creating a safe habitat for kiwi, long-tailed bats, North Island robin and New Zealand falcon by managing pests across 13,000 hectares.

Predator control includes stoat, rat, possum and feral goats. Because of these efforts, kōkako were recently released into a core area with suitable habitat. Kiwi numbers have grown to over 500 pairs thanks to the Trust's work controlling predators. Members of the public can visit the reserve or book a guided walk.

In the marine environment, efforts have been made to support the recovery of protected species and to reduce the impacts of fishing on the wider ecosystem.

#### 4.1.4 Nature and community conservation

Many of the people who live in Aotearoa New Zealand are dedicated to improving nature, and this brings benefits both for nature and to the people who take part. Community conservation has been increasing in recent years, with many volunteers playing their part in restoring and protecting nature in their neighbourhoods and local areas. Involvement in community conservation groups

can help to strengthen social bonds as well as improving the environment.

Individuals make a significant contribution to protecting Aotearoa New Zealand's biodiversity through activities such as trapping pests and predators in their own backyards, contributing to citizen science projects, and planting more indigenous species.

Local organisations provide free advice and guidance on which species will best support local environments. Councils also provide environmental advice, as well as funding for local environmental education and protection programmes through grants.

#### Guardians of Pāuatahanui Inlet – 19 years of counting cockles to monitor water health

The Guardians of Pāuatahanui Inlet was founded in 1991 by a group of local residents who were concerned about the environmental health of the inlet, which forms one of the two arms of Te Awarua-o-Porirua Harbour. Since 1992, the Guardians have been counting hundreds and thousands of tuangi (cockles) every 3 years.

##### *Why are cockles key to the health of the inlet?*

Cockles are essential to the water quality of the inlet, helping to keep the water clear by removing plankton and minute particles of organic debris. Indeed, cockles in the inlet filter up to one-third of the incoming tidal volume through their gills.

As a keystone species, any changes in the cockle population can be a useful indicator of the biological health of the inlet – the more cockles, the healthier the inlet.

##### *Monitoring the health of the inlet*

Cockle surveys are carried out every 3 years by the Guardians, with help from other agencies and community volunteers. Scientists at the National Institute of Water and Atmospheric Research (NIWA) helped to establish this research programme and the associated survey transects and methodologies and also analyse the results of each survey.

In 2019, about 90 people of all ages gathered at Pāuatahanui Inlet, donning gumboots, to take part in the tenth cockle count. The event seemed to take longer this time than previously, prompting optimism that this was due to increasing numbers of cockles in the inlet.

The survey results have just been announced and there is good news – the cockle population has increased by 41% since the last survey in 2016, representing the highest population size since 1976, and the cockle density is also above that recorded in the previous two surveys.

Lindsay Gow, Chairperson of the Guardians, says “the cockle count is probably the longest running citizen science programme in New Zealand, and it’s heartening that it continues to make a valued contribution to understanding the health of the Pāuatahanui Inlet ecosystem”.



Excellent progress in removing bamboo and reusing it for terrace wall by the Street Guardian's group. *Photo: Tomorrow Inc*

## Kaipātiki Project involvement in Te Ara Awataha & restoration of the Jessie Tonar Scout Reserve

Kaipātiki Project had the privilege of working with mana whenua and members of the community alongside Panuku Development Auckland to regenerate the Awataha Stream as part of Te Ara Awataha greenway project. Following a mauri indicator framework developed by mana whenua, Kaipātiki Project is piloting the use of a whole systems approach to community restoration. This framework will boost the mauri of the stream, improve its water quality, and allow it to become a habitat for birds, insects and tuna (eels) once more. It will also reconnect the community with this lost environmental taonga.

Kaipātiki Project has also co-created a regeneration plan for the Jessie Tonar Scout Reserve following the same mauri indicators framework. To encourage engagement with the immediate neighbours and locals, monthly working bees have been established at the site, the initial focus of which is on the removal of a large stand of running bamboo. In addition, corporate groups, local schools and community groups have been brought in. One of the highlights for Kaipātiki Project members has been working regularly with Street Guardians in conjunction with City Mission and Tomorrow Inc. Charity. Another significant highlight was the recent finding of tuna for the first time after a year of monitoring, confirming that they are returning to the stream to continue their life-cycles.



#### 4.1.5 Non-indigenous species are also a part of nature

As well as the unique biodiversity found in Aotearoa New Zealand, there are also more recent arrivals. Many species have been introduced to Aotearoa New Zealand over the last 800 years. These include livestock and crops, trees that make up the forestry industry, garden plants, animals and fish that are hunted for sport or food, and many more.

Many of these species are critical to our everyday lives and to the primary sector, while others provide recreational and commercial opportunities and avenues for conservation efforts – and some are considered mahinga kai by Māori. These species are considered valued introduced species. However, a number of introduced species can threaten indigenous species, valued introduced species and ecosystems through predation, browsing, disease, competition and habitat degradation.

Reaching a balance to ensure that valued introduced species continue to provide the benefits they are valued for, while also ensuring that indigenous biodiversity thrives, is a key challenge for Aotearoa New Zealand.

To maintain such a balance, it is important that our biosecurity system works to reduce the number of new species arriving and becoming established in Aotearoa New Zealand, while also eradicating or managing the impact of priority introduced invasive species.



An angler fishing for trout in the Okuru River, South Westland. Photo: Fish & Game New Zealand

## Trout and the complexity of modern biodiversity

Trout were first introduced to New Zealand in 1867, when three brown trout ova (eggs) brought from Britain via Tasmania hatched in Christchurch's botanical gardens. Having been brought to New Zealand by British settlers as a source of food and recreation, trout in many ways embody the complexity of our modern biodiversity.

To many thousands of New Zealanders and international tourists, trout represent a hugely valued introduced species that provides food and recreation alongside many associated mental, physical and nutritional health benefits. To others, trout are a threat to indigenous fish and should be controlled to support indigenous biodiversity.

The value placed on trout provides an avenue for strong habitat conservation advocacy. Many keen trout anglers, as well as those who hunt other game species, also spend time taking part in protection and restoration projects to keep freshwater resources and wetlands healthy through involvement in community conservation groups or initiatives led by organisations such as Fish & Game New Zealand.

To date, Fish & Game has secured 12 out of 15 Water Conservation Orders, including one in the Nevis River to explicitly protect the indigenous Gollum galaxias, and has also undertaken countless cases under the Resource Management Act to protect Aotearoa New Zealand's freshwater environments.



## 4.2 Mātauranga Māori and its important relationship with biodiversity

Māori culture and language evolved in the ecosystems and landscapes of Aotearoa New Zealand. Generations of Māori people lived as an integral part of the natural world, forming an interwoven relationship with nature.

The collective understanding and ways of knowing of these generations is preserved through mātauranga Māori, which is unique to Aotearoa New Zealand. Mātauranga is a complete indigenous scientific knowledge system that is drawn from the relationship Māori have with all natural environments.

Just as this relationship was essential to the creation of Māori culture before colonisation, it is still essential today as it enables Māori culture to flourish.

“Growing up, I would often hear kaumātua talk about the connection between the Manu and our reo. In preparation for whaikōrero, young men were told to copy the Tūi. The Tūi learns songs from other birds in the forest and uses it to make a unique song of its own. So young men were told to go out and listen to as many whaikōrero as possible to make a style that was unique to ourselves.”

(Tame Malcolm)

Te Mana o te Taiao recognises the importance of mātauranga-ā-iwi, mātauranga-ā-hapū and mātauranga-ā-whānau as culturally specific place-based knowledge that is held within tribal groupings, as well as the interwoven relationship these knowledge bases have with biodiversity.

All waves of human settlement and colonisation in Aotearoa New Zealand have had an impact on our unique biodiversity. Colonisation in the 19th century and the resulting environmental impacts and biodiversity losses caused by these new settlers had wide-ranging effects on the relationship that whānau, hapū and iwi had with biodiversity.

One of these impacts has been the loss of mātauranga in relation to those species that have vanished. It only takes one generation to lose such mātauranga. Hence, Te Mana o te Taiao – ANZBS actively seeks to support the regeneration and continuation of mātauranga Māori through the enhancement and regeneration of biodiversity.

The loss of some indigenous species over time has led to some whānau, hapū, iwi and Māori communities developing relationships with non-indigenous species, which act as a proxy for maintaining their active relationship with the environment. In some cases, these non-indigenous species play a significant role for whānau, hapū, iwi, Māori communities and Treaty partners in maintaining both connection and mātauranga Māori.

## 5.1

# Te whakawhanaketanga o Te Mana o te Taiao – ANZBS Development of Te Mana o te Taiao – ANZBS

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*Te Mana o te Taiao – ANZBS was developed with input from a wide range of parties and based on learnings from the previous strategy. He Awa Whiria, the concept of braided river systems, has been adopted as an approach to implementing and understanding it.*

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### 5.1.1 Approach to developing Te Mana o te Taiao – ANZBS

The development of Te Mana o te Taiao – ANZBS was led by the Department of Conservation on behalf of Aotearoa New Zealand. It was built on the advice and ideas of Treaty partners, whānau, hapū, iwi, Māori organisations, communities, individuals, stakeholders, NGOs, industry organisations, and central and local government – i.e. all those who will be vital to its success.

### 5.1.2 Input from the public

Public consultation and Treaty partner hui (meetings) on *Te Koiora o te Koiora*,<sup>13</sup> a discussion document on the Biodiversity Strategy, was held between August 2019 and February 2020. The Discussion Document Summary of Submissions<sup>14</sup> provides more details of the process and the input received.

### 5.1.3 Input from experts

Three reference groups appointed by the Minister of Conservation also provided valuable input and support throughout the development of this strategy. These groups contributed te ao Māori expertise, science expertise and stakeholder perspectives.

Local government plays an important role in carrying out vital biodiversity work across Aotearoa New Zealand. Therefore, regional and local councils also contributed expertise to ensure that biodiversity management will be effective on the ground.

### 5.1.4 Biodiversity in Aotearoa – companion report

To enable the country's unique biodiversity and taonga to be protected and restored, it is important that we understand the state they are in, the trends at play and the many pressures they face, all of which can be informed by the complementary perspectives, histories and world views of mātauranga Māori and science. The companion report to Te Mana o te Taiao – ANZBS, *Biodiversity in Aotearoa*,<sup>15</sup> provides the evidence base for this strategy by summarising the present state, as well as trends and pressures on Aotearoa New Zealand's plants, animals and ecosystems on land, in fresh water and at sea.

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<sup>13</sup> Department of Conservation 2019: *te Koiora o te Koiora: our shared vision for living with nature*. Department of Conservation, Wellington. 70 p. [www.doc.govt.nz/globalassets/documents/conservation/protecting-and-restoring/biodiversity-discussion-document.pdf](http://www.doc.govt.nz/globalassets/documents/conservation/protecting-and-restoring/biodiversity-discussion-document.pdf)

<sup>14</sup> <https://www.doc.govt.nz/anzbs-summary-submissions>

<sup>15</sup> <https://www.doc.govt.nz/anzbs-biodiversity-report>

### 5.1.5 International links

Aotearoa New Zealand is a party to the international Convention on Biological Diversity (CBD).<sup>16</sup> The CBD's current strategic plan has a vision that people are living in harmony with nature by 2050 and includes three objectives:

- The conservation of biological diversity
- The sustainable use of its components
- The fair and equitable sharing of the benefits arising from the utilisation of genetic resources

Each country that is party to the CBD is required to have a national biodiversity strategy and action plan. New Zealand's previous national strategy (New Zealand Biodiversity Strategy 2000<sup>17</sup>) and action plan (New Zealand Biodiversity Action Plan 2016–2020<sup>18</sup>) expired in 2020.

### 5.1.6 What we've learned from the last New Zealand Biodiversity Strategy

The last New Zealand Biodiversity Strategy set a direction of 'halting the decline' of indigenous biodiversity loss by 2020. It was reviewed after being in place for 5 years and an updated action plan was released in 2016. This previous strategy made some progress, but biodiversity is still declining today.

To make sure that we are learning from the past, the review of the last strategy has informed the development of Te Mana o te Taiao – ANZBS. Some missing aspects that could have strengthened that strategy included carrying out regular reviews and reporting on progress, setting time-bound and measurable actions, prioritising actions more effectively, setting out clearer roles and responsibilities for all those involved, and obtaining ongoing targeted funding.

More details on the lessons learned from the previous strategy can be found in the lessons learned paper.<sup>19</sup>

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<sup>16</sup> [www.cbd.int/convention/](http://www.cbd.int/convention/)

<sup>17</sup> Department of Conservation; Ministry for the Environment 2000: New Zealand Biodiversity Strategy. Department of Conservation and Ministry for the Environment, Wellington. 146 p. [www.doc.govt.nz/nature/biodiversity/nz-biodiversity-strategy-and-action-plan/new-zealand-biodiversity-strategy-2000-2020/](http://www.doc.govt.nz/nature/biodiversity/nz-biodiversity-strategy-and-action-plan/new-zealand-biodiversity-strategy-2000-2020/)

<sup>18</sup> Department of Conservation 2016: New Zealand Biodiversity Action Plan 2016–2020. Department of Conservation, Wellington. 58 p. [www.doc.govt.nz/Documents/conservation/new-zealand-biodiversity-action-plan-2016-2020.pdf](http://www.doc.govt.nz/Documents/conservation/new-zealand-biodiversity-action-plan-2016-2020.pdf)

<sup>19</sup> <https://www.doc.govt.nz/anzbs-lessons-learnt>



Many species, like the Fiordland Crested Penguin, have continued to be under pressure since the last Biodiversity Strategy. *Photo: Andrew Walmsley (andrewwalmsleyphotography.com)*



Braided rivers are found in only a few places in the world. In Aotearoa New Zealand they provide habitats for many indigenous species. Photo: Dave Murray

### 5.1.7 Our approach to implementing and understanding Te Mana o te Taiao – ANZBS

Te Mana o te Taiao – ANZBS adopts the He Awa Whiria approach to implementing and understanding the strategy. He Awa Whiria refers to braided rivers, which are made up of multiple and interconnecting channels of water. The size and shape of a braided river is continually changing as channels shift and the water finds new paths.

In Te Mana o te Taiao – ANZBS, He Awa Whiria is used as a cross-cultural conceptual framing tool. He Awa Whiria brings together all peoples, across all cultures, sectors and knowledge paradigms in Aotearoa New Zealand to contribute to realising the strategy.

Developed by Māori scholars through Māori research methods, the He Awa Whiria approach has been used across a range of disciplines as a way to recognise the Treaty partnership between the Crown and Māori, as well as to draw from multiple scientific disciplines and ways of seeing and understanding the world, including mātauranga Māori.<sup>20</sup> This approach:

- Recognises these as stand-alone and equally valid knowledge systems, much like how two different sources can feed the waters of a braided river.
- Identifies where these knowledge systems mingle and mix, like the ever-changing

streams of a braided river, to generate new approaches and ways of understanding.

### 5.1.8 He Awa Whiria and Te Mana o te Taiao

He Awa Whiria, in the context of Te Mana o te Taiao, acknowledges both mātauranga Māori and other scientific disciplines and ways of seeing and understanding the world as equally valid, distinct and separate knowledge systems in biodiversity management.

Te Mana o te Taiao – ANZBS sets a direction for active protection of the unique role that Treaty partners, whānau, hapū, iwi and Māori organisations play in biodiversity and mātauranga regeneration both as rangatira and kaitiaki, and in partnership with the Crown.

He Awa Whiria also acknowledges the roles different people, groups and sectors have in biodiversity protection and restoration and their respective worldviews and values. We use this metaphor as a way to be inclusive of all forms of knowledge and peoples in Aotearoa New Zealand while ensuring that the Treaty partnership is honoured and mātauranga Māori is elevated to equal standing with other forms of knowledge.

He Awa Whiria shines a light on the areas where the river braids – joining mātauranga Māori with other knowledge systems to support actions and innovations that result in thriving biodiversity.

<sup>20</sup> Macfarlane, A., Macfarlane, S. and Gillon, G. (2015). Sharing the food baskets of knowledge: Creating space for a blending of stream. In: A. Macfarlane, S. Macfarlane and M. Webber, ed., Sociocultural Realities: Exploring New Horizons. Christchurch: Canterbury University Press.

# 6.1

## Ngā āheinga ki te whakarerekē i te āhua o tā tātou mahi

### Opportunities to shift the way we work

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*Despite our best efforts to turn the tide, biodiversity loss is still happening in Aotearoa New Zealand. We now have the opportunity to be bold and make some big changes to how we interact with nature and biodiversity.*

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“[It] is not too late to make a difference, but only if we start now at every level from local to global. Through transformative change, nature can still be conserved, restored and used sustainably.”

(IPBES global assessment 2019)<sup>21</sup>

Te Mana o te Taiao – ANZBS provides direction on how to respond to the pressures and issues facing biodiversity in Aotearoa New Zealand. We will start by strengthening the biodiversity system, empowering action for all those involved, and putting steps in place to improve the protection and restoration of nature (see the strategic framework on page 43).

With a new strategy comes the opportunity to make improvements or changes to the ways we work. The problems and challenges we face with the current biodiversity system can be addressed by putting nature at the heart of our economy and strengthening our ability to work in partnerships, commit to action, create connections and be flexible. This will provide a strong foundation that enables everyone to help achieve the vision of *Te Mauri Hikahika o te Taiao*.

#### 6.1.1 Recognising nature as at the heart of our economy

Aotearoa New Zealand, along with the rest of the world, will be on a pathway to economic and social recovery for many years to come following the Covid-19 crisis. Recognising that nature is at the heart of our economy and the way we do business will be key to our successful recovery.

Achieving this will include looking at economic tools that promote the protection and restoration of biodiversity, and how the impacts of economic activities on biodiversity can be reduced. Protecting and restoring nature will have direct benefits for our economic wellbeing and prosperity. Our international brand and domestic tourism, our resilience to climate change, the health of our fisheries, forests and productive soils – these are all dependent on the ecosystem services provided by healthy nature. There are also cultural, social and human health benefits that need to be recognised and considered as part of the value of nature.

Nature-based jobs present an opportunity to stimulate regional economies by providing labour-intensive, practical and meaningful work that will upskill people and deliver long-term economic benefits – including jobs, skills, mental and physical health, and training for future employment.

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<sup>21</sup> <https://ipbes.net/global-assessment>

Restoring indigenous biodiversity and habitat, including wetlands, planting on private and public conservation land and along waterways, stabilising riverbanks and providing for fish passage, and undertaking pest control and eradication are examples of what these new nature-based jobs will achieve. Ecosystem restoration can also simultaneously bring both mitigation and adaptation benefits, making it a powerful tool for mitigating or avoiding catastrophic climate change impacts.

## 6.1.2 Partnerships across Aotearoa New Zealand

Te Mana o te Taiao – ANZBS has been designed for all of us who live in Aotearoa New Zealand to own and implement. There is a place for everyone to be involved, no matter how big or small their contribution. By working together towards common goals, we can achieve much more than we would alone.

Upholding the principles of the Treaty of Waitangi is an essential part of Te Mana o te Taiao – ANZBS. Working together in partnership towards a shared vision for biodiversity will ensure that rangatira and kaitiaki obligations, as well as mātauranga Māori, are actively protected.

Regulatory and non-regulatory tools can help to achieve the outcomes and goals of Te Mana o te Taiao – ANZBS, but they alone will not solve the biodiversity crisis. Actions to address biodiversity loss need to involve everyone in the biodiversity system – whānau, hapū, iwi, Māori communities, organisations, environmental NGOs, central and local government, businesses, industry, and every individual. This means people will need to work alongside each other to actively manage threats to biodiversity and take proactive and positive measures to protect and restore biodiversity.

By using the He Awa Whiria approach, in which the braided river metaphor represents diverse perspectives and knowledge systems, including te ao Māori and multiple scientific disciplines, we can make sure that diverse players with differing interests and values in biodiversity can work together to implement the strategy.

## 6.1.3 Committing to action

There is growing awareness and concern in both society and the Government about the state of nature and our duty of care to ensure it is thriving. We're on the right path – we have recognised the impacts of plastics, pollution and climate change on the environment and the importance of sustainability in our everyday lives. We now have an opportunity to give the protection, restoration and sustainable use of biodiversity the same recognition and commitment to action.

## 6.1.4 Creating connections

Biodiversity is just one part of Te Mana o te Taiao – ANZBS, and the causes of biodiversity loss are multiple and complex. Biodiversity loss is a cross-cutting issue that impacts our environment, society, cultures and economy.

There are many related pieces of work in biosecurity, urban planning, primary production, climate change planning, energy and resources, education and many other sectors. Te Mana o te Taiao – ANZBS will enable connections and collaboration to occur across these. Some of the work that is already underway includes:

- Carrying out major reforms of the resource management system, including freshwater and biodiversity management
- Establishing a whole-of-government framework on climate change to support our transition to a low-emissions economy and help us to build resilience and adapt to the impacts of a changing climate
- Increasing our focus on the marine environment and the health of fresh water – for example, work to reform our approach to marine protection and to strengthen freshwater regulations
- Putting considerable effort into landscape-scale ecological restoration, community-driven projects and pest management initiatives such as Predator Free 2050

- Promoting wider recognition of the need to shift to more sustainable farming, forestry, aquaculture and fisheries practices
- Developing Te Pae Tawhiti, an all-of-government approach to address the issues raised by the WAI 262 claim and the Waitangi Tribunal report Ko Aotearoa Tēnei<sup>22</sup>
- Facilitating the transition to a low-emissions economy via renewable energy generation and providing access to the necessary resources to support this transition, as set out in the Minerals and Petroleum Resource Strategy.<sup>23</sup>

See Appendix 3 for related international, national, regional and local plans, strategies or agreements.

### 6.1.5 Heading for the same destination, but experiencing different journeys along the way

The causes of biodiversity loss vary from place to place, depending on the natural environment and how natural resources are managed and used. Therefore, different solutions are needed depending on the situation, location and context. Even though our collective actions as Aotearoa New Zealand are contributing to the same vision and goals, how this is achieved can look different across places and regions – and this will be one of the keys to our success.

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<sup>22</sup> Waitangi Tribunal 2011: Ko Aotearoa Tēnei: a report into claims concerning New Zealand law and policy affecting Māori culture and identity. Te Taumata Tuatahi (Waitangi Tribunal report). Waitangi Tribunal, Wellington. 268 p. [https://forms.justice.govt.nz/search/Documents/WT/wt\\_DOC\\_68356054/KoAotearoaTeneiTTIW.pdf](https://forms.justice.govt.nz/search/Documents/WT/wt_DOC_68356054/KoAotearoaTeneiTTIW.pdf)

<sup>23</sup> Ministry of Business, Innovation and Employment 2019: Responsibly delivering value. A Minerals and Petroleum Resource Strategy for Aotearoa New Zealand: 2019–2029. Ministry of Business, Innovation and Employment, Wellington. 47 p. [www.mbie.govt.nz/assets/nzpm-resource-strategy-multi-agency.pdf](http://www.mbie.govt.nz/assets/nzpm-resource-strategy-multi-agency.pdf)





Kahikatea forest in Arahaki Lagoon. This forest type once covered large areas of New Zealand's lowlands.  
*Photo: Craig Potton / Photo New Zealand*

# 7.1

## He pou tarāwaho mō te mahi Framework for action

*The strategic framework for Te Mana o te Taiao – ANZBS shows the steps we need to take to achieve the vision.*

*Three pillars or pou will weave together to make the transformational change needed to reach the strategy outcomes – Tūāpapa (getting the system right), Whakahau (empowering action) and Tiaki me te Whakahaumanu (protecting and restoring).*

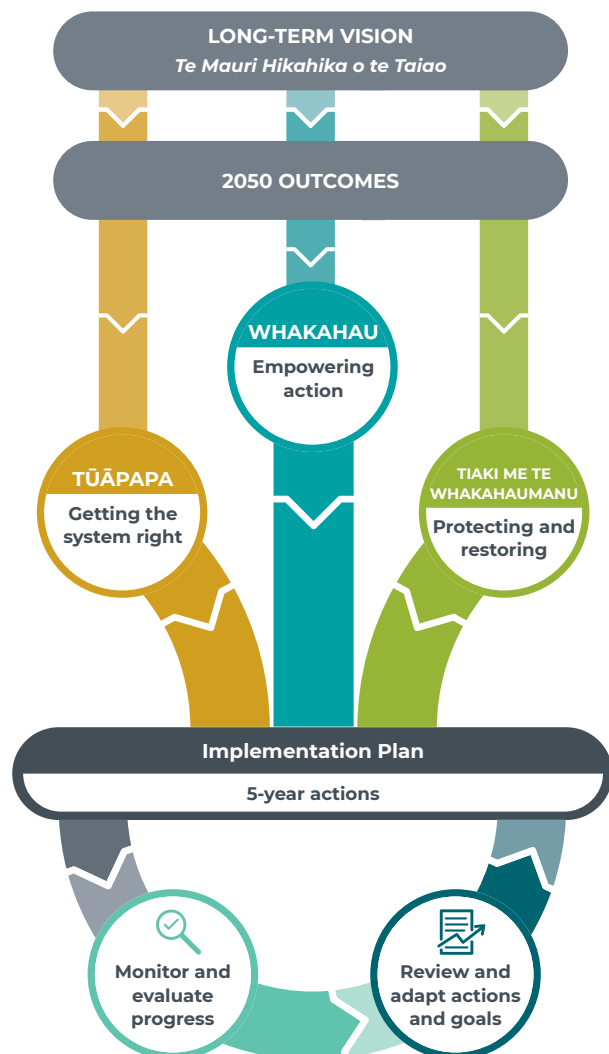
The strategic framework for Te Mana o te Taiao – ANZBS sets out how the different components of the strategy work together to achieve the long-term vision of *Te Mauri Hikahika o te Taiao*. See Fig. 4 for the strategy flowchart and Fig. 5 for the strategy framework on pg. 43.

There are five outcomes, which together describe what we are aiming to achieve by 2050.

Central to our work between now and 2050 are the pou (pillars) Tūāpapa, Whakahau and Tiaki me te whakahaumanu, each of which represents a step towards the 2050 outcomes. Pou were originally placed in the environment to guide people to key locations, and these pou will guide us towards transformational change.

What we need to do in order to succeed is set out in 13 objectives, and time-bound goals sit beneath these to provide milestones along the way. Implementation actions will focus on making progress towards these goals.

Developing and implementing an agreed set of national indicators is one of the goals within Tūāpapa (getting the system right). These national indicators will be used to measure and report on strategy outcomes, objectives and goals. Potential indicators are detailed in Appendix 4.



**Figure 4.**

Flowchart showing the pathway from the vision to the implementation plan.

# Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020

## The vision

### Te Mauri Hikahika o te Taiao

The mauri of nature is vibrant and vigorous

## Why this is important

People are part of nature and nature supports life and human activity. All aspects of our wellbeing, physical, cultural, social and economic, are dependent on nature and the services that it provides. Natural wellbeing underpins our lives, lifestyles and livelihoods. Nature is valuable for its own sake (intrinsic value) and is linked to our identity as New Zealanders. Our vision for a future with nature that has thriving, vibrant, vigorous mauri will result in thriving wellbeing for the people of Aotearoa New Zealand.

## The problem

We are in a biodiversity crisis - Papatūānuku, Ranginui and their offspring are in serious trouble, and we urgently need to do a better job at looking after them. Nature in Aotearoa New Zealand, and across the rest of the world, is declining, and directly under threat from pressures, including changes in land, freshwater and sea use, introduced species, exploitation for food and resources, pollution, and the increasing threat of climate change. Indirect pressures, such as not having the right 'systems' in place, people not having enough knowledge or resources to act, and a disconnect between people and nature, are causing and contributing to these direct pressures. Here in Aotearoa New Zealand, we are already successfully taking action to protect and restore nature, and this strategy sets out how we can expand and build on the strong foundation we have already built to allow our natural world, and the people in it, to thrive.

## What we are aiming to achieve by 2050

### Outcome 1

#### Ecosystems, from mountain tops to ocean depths, are thriving

- › The mauri of ecosystems is thriving
- › A full range of indigenous ecosystems are protected and secured for future generations
- › The health, integrity and connectivity of ecosystems have been maintained and/or restored, including in human-dominated areas

### Outcome 2

#### Indigenous species and their habitats across Aotearoa New Zealand and beyond are thriving

- › The mana of taonga species is restored
- › All indigenous species are protected and secure, and none are at risk of extinction due to human activities
- › Species' populations are healthy, genetically diverse and have increased resilience to future threats including climate change
- › Migratory species and their habitats are secured across international boundaries

### Outcome 3

#### People's lives are enriched through their connection with nature

- › Everyone in Aotearoa New Zealand is connected with nature, and supports and actively contributes to its protection and restoration
- › Connection with nature is improving people's physical, spiritual and mental health and quality of life
- › Future generations inherit restored, thriving nature

### Outcome 4

#### Treaty partners, whānau, hapū and iwi are exercising their full role as rangatira and kaitiaki

- › Resilient biodiversity enables cultural practices and mahinga kai, contributing to the regeneration of mātauranga Māori
- › Restored nature uplifts mana
- › Treaty partners, whānau, hapū, iwi and Māori organisations are central to the biodiversity system and recognised as leaders

### Outcome 5

#### Prosperity is intrinsically linked with a thriving biodiversity

- › Thriving biodiversity provides the services that underpin our prosperity
- › Biodiversity resources are managed sustainably to provide ongoing economic benefits
- › Economic activity has neutral or beneficial impacts on biodiversity
- › Thriving biodiversity plays a central role in our approach to mitigating climate change

Central to our work between now and 2050 are three pou (pillars) which provide direction and focus to guide us towards the transformational change needed to achieve the strategy outcomes. Objectives are identified within each pou.

## TŪĀPAPA Getting the system right

We need the right systems in place to tackle the biodiversity crisis. These cross-cutting objectives set out how we will ensure this.

### What our 2050 objectives are:

1. Governance, legislation and funding systems are in place and enable delivery of the strategy outcomes
2. Treaty partners, whānau, hapū, iwi and Māori organisations are rangatira and kaitiaki
3. Biodiversity protection is at the heart of economic activity
4. Improved systems for knowledge, science, data and innovation inform our work
5. Mātauranga Māori is an integral part of biodiversity research and management
6. Aotearoa New Zealand is making a meaningful contribution to biodiversity globally

## WHAKAHAU Empowering action

We need all New Zealanders to help to protect and restore our biodiversity. These cross-cutting objectives set out how we will ensure that everyone is empowered to act.

### What our 2050 objectives are:

7. All New Zealanders have the skills, knowledge and capability to be effective
8. Resourcing and support are enabling connected, active guardians of nature
9. Collaboration, co-design and partnership are delivering better outcomes

## TIAKI ME TE WHAKAHAUMANU Protecting and restoring

We need to address the direct pressures causing a decline in biodiversity, ensure the sustainable use of biodiversity, and restore biodiversity in areas where it has been lost. These objectives set out what we will do to ensure biodiversity is resilient and secure.

### What our 2050 objectives are:

10. Ecosystems and species are protected, restored, resilient and connected from mountain tops to ocean depths
11. Management ensures that Biological threats and pressures are reduced through management
12. Natural resources are managed sustainably
13. Biodiversity provides nature-based solutions to climate change and is resilient to its effects

## Implementation

Each of the objectives has measurable and time-bound goals. The goals are set at 2025 for Tūāpapa and Whakahau and at 2025, 2030 and 2050 for Tiaki me te whakahaumanu. The cross-cutting goals in these first two priority areas will enable us to achieve the longer-term goals detailed in Tiaki me te whakahaumanu. Implementation planning will set actions for achieving the goals for the shorter term. Progress on actions and goals will be evaluated, and the actions and goals will be reviewed and revised to ensure we are on track to achieving the outcomes.

## Measuring success:

Progress towards the strategy outcomes will be regularly assessed. Progress reporting will focus on both the delivery of implementation actions (output monitoring) and progress towards the outcomes (outcome monitoring). A progress review will take place every 5 years, and this will be followed by a review and update of the strategy and the development of the next 5-yearly implementation plan. A full set of indicators to measure progress will be developed as part of the initial phase of implementation. A table of potential indicators for the five outcomes is provided in Appendix 4.

## How we work together:

We all have roles to play in protecting and restoring the mauri of nature. The strategy has a set of underlying values and principles to guide how we work together to make decisions and deliver action. These will form the basis of implementation planning.

Figure 5.

The strategic framework for Te Mana o te Taiao – ANZBS sets out how the different components of the strategy work together to achieve the long-term vision of Te Mauri Hikahika o te Taiao.

## 7.2 Values to guide Te Mana o te Taiao

We all have roles to play in protecting and restoring the mauri of nature. If we think about and use the following values, we will be able to achieve Te Mana o te Taiao – ANZBS:

- *Kaitiakitanga* – We enable kaitiakitanga of our natural environment by Treaty partners, whānau, hapū, iwi and Māori organisations.
- *Mahi whaipaiinga* – We care about making a difference for nature in Aotearoa New Zealand.
- *Ngākaunui* – We are passionate and enthusiastic about the work ahead.
- *Mahi tahi* – We work together towards a common purpose, particularly at a regional level.
- *Whakapapa* – We recognise inter-connections and have an intergenerational view.
- *Tohungatanga* – We recognise expertise and pursue new knowledge and ideas.
- *Manaakitanga* – We build trust and inclusiveness through our actions with others.

## 7.3 Guiding principles

The following guiding principles have been established for those involved in implementing Te Mana o te Taiao – ANZBS.

### 7.3.1 Stewardship principles

- **Treaty partnership** – The relationship between the Crown and Māori as reflected in the Treaty of Waitangi and its principles are given effect to in the conservation and sustainable use of biodiversity, including kawanatanga, tino rangatiratanga, kaitiakitanga, customary use and mātauranga Māori.
- **WAI 262** – Te Mana o te Taiao – ANZBS recognises the important role that biodiversity management plays in meeting the aspirations of Treaty partners, whānau, hapū, iwi and Māori organisations in regard to WAI 262, as well as

in protecting taonga species, regulating bio-prospecting and ensuring the protection of Māori cultural and intellectual property.

- **Intergenerational equity** – Future generations of people living in Aotearoa New Zealand are part of a natural environment that has a healthy and thriving biodiversity in the same or an improved condition to the present status.
- **Creating change** – Everyone can be a change-maker, with the power to influence the future state of biodiversity in Aotearoa New Zealand and encourage the transformative shifts needed for success.
- **Intrinsic value** – Species and ecosystems are valuable in their own right and have their own right to exist and be healthy and thriving now and in the future, regardless of human use and appreciation.

### 7.3.2 Integrated implementation approaches

- **Ki uta ki tai** – A whole of land and seascape approach is taken, focusing on understanding and managing interconnected resources and ecosystems from the mountains to the sea. Everyone is connecting, sharing and aligning projects across systems.
- **Ecologically sustainable use** – The protection and restoration of indigenous biodiversity is a priority but does not preclude use or activities that would affect them where this is ecologically sustainable.

### 7.3.3 Decision making in biodiversity management

- **Indigenous biodiversity** – We recognise and prioritise the special responsibility we have towards indigenous species, while still recognising the recreational, economic and cultural benefits of valued non-indigenous species.
- **Involvement in decision making** – Roles and responsibilities are clear, transparent and effectively undertaken, and everyone has the support, knowledge and networks they need to help make informed decisions that protect and restore biodiversity.



Restoration projects are one way to increase biodiversity in an area. *Photo: DOC*

- **Knowledge** – Decisions are evidence-based, transparent and informed by the best available information, including mātauranga Māori and science.
- **Precautionary approach** – Action and innovation to improve indigenous biodiversity outcomes are encouraged and are not delayed due to a lack of complete information. A precautionary approach is taken where actions could cause significant or irreversible damage or where species are at risk of extinction.
- **Internalising environmental costs** – Where an activity imposes adverse effects on species, habitats or ecosystems, the costs of mitigating or remedying those impacts should be borne by those benefitting from the activity.

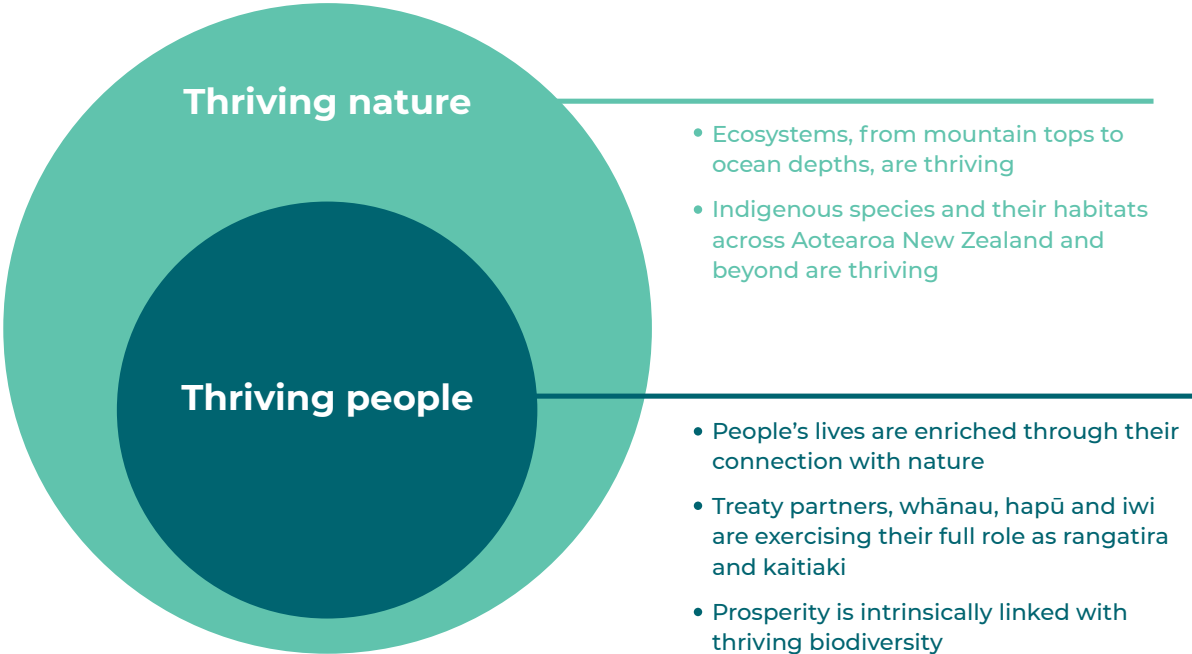
# 7.4 Thriving nature and thriving people: end-state outcomes

Te Mana o te Taiao – ANZBS sets out five outcomes for 2050. The first two are about restoring a healthy nature and embedded within these are three outcomes focused on thriving people. This reflects the fact that in order for people to thrive, nature needs to be thriving (see Fig. 6). A healthy biodiversity will ensure that our social, cultural and economic needs are met.

We will know we have been successful in achieving the vision when we have achieved these outcomes.

Each outcome has a number of parts that describe what achieving it will look like, with the understanding that fully achieving these outcomes may take 30 years or longer. Each outcome will have a set of indicators so that we can measure progress along the way.

Three pillars or pou have been identified to help achieve the outcomes, within each of which objectives for 2050 and goals for 2025 have been identified.



**Figure 6.**  
2050 outcomes: thriving nature and thriving people.



Close up of kauri bark. Photo: Rob Suisted

## 7.5 Tūāpapa / getting the system right

This strategic priority is about having the right systems, processes and enabling conditions in place to tackle the biodiversity crisis.

We will know we've made progress towards this strategic priority when:

- The foundation for action has been built.
- Systems that support the running of Aotearoa New Zealand, from the Treaty partnership to the economy, have been set up to protect and restore biodiversity.
- Everyone has the knowledge, science and data they need to manage biodiversity effectively, and innovation is continually delivering new tools.
- Equity in Treaty-based collaboration is recognised as the key to success, and biodiversity is at the heart of decision making at all levels of society.
- Through the growth and weaving of mātauranga Māori, science, data and other forms of knowledge, we have the information and tools we need to manage biodiversity well.

The goals for this strategic priority have been set to be achieved by 2025 to ensure that we have the systems in place to enable us to address pressures on biodiversity. The next set of goals for 2030 will be set at the first strategy review after 5 years.

## TŪĀPAPA / Getting the system right

### OBJECTIVES

1.

**Governance, legislation and funding systems are in place and enable delivery of the strategy outcomes**

2.

**Treaty partners, whānau, hapū, iwi and Māori organisations are rangatira and kaitiaki**

3.

**Biodiversity protection is at the heart of economic activity**

### 2025 GOALS

**1.1** Cross-stakeholder biodiversity system implementation group(s) are in place to develop, monitor and report on implementation plans

**1.2** Biodiversity system governance, in partnership with Treaty partners, whānau, hapū, iwi and Māori organisations and informed by multi-stakeholder involvement, is in place and providing leadership, accountability, and inclusive and transparent decision making

**1.3** Current natural resource legislation has been reviewed to ensure it is effective and comprehensive, recognises cumulative effects, and ensures ongoing biodiversity protection, including climate resilience

**1.4** The costs and value of restoring indigenous biodiversity have been quantified and are being actively used to inform decision making

**1.5** Sufficient ongoing resource and funding have been secured from multiple sources to implement the strategy

**2.1** Te ao Māori perspective is being embedded throughout the biodiversity system, including through the use of cultural practices and tools

**2.2** Innovative Treaty partnership approaches have been developed and are leading the delivery of many biodiversity restoration projects

**2.3** Treaty partners, whānau, hapū, iwi and Māori organisations are better able to practice their responsibilities as rangatira and kaitiaki, including leading and partnering with the Government in decision making about taonga species and the whenua, awa and moana with which they associate

**2.4** Māori cultural and intellectual property rights and data sovereignty regarding indigenous biodiversity are being upheld

**3.1** A nature-based brand is central to the economy of Aotearoa New Zealand and is increasing support for nature

**3.2** Economic tools are promoting the protection and restoration of biodiversity for its intrinsic value, as well as for the economic benefits it provides

**3.3** Economic activities that have the most significant adverse impacts on biodiversity have been identified, their impacts have been quantified and active measures are in place to reduce these impacts

**3.4** Nature-based jobs are providing significant employment and delivering benefits for biodiversity in all regions and on both public and private land



## OBJECTIVES

4.

**Improved systems for knowledge, science, data and innovation inform our work**

5.

**Mātauranga Māori is an integral part of biodiversity research and management**

6.

**Aotearoa New Zealand is making a meaningful contribution to biodiversity globally**

## 2025 GOALS

**4.1** A national, agreed set of indicators and an effective environmental monitoring and reporting system are informing biodiversity management and decision making

**4.2** National, agreed common data standards and open data agreements are ensuring that everyone has access to a federated repository of biodiversity information

**4.3** A framework for identifying and prioritising high biodiversity value areas has been developed and agreed on

**4.4** The research, science and innovation system is investing in and collaboratively delivering research and rangahau (research) in alignment with an agreed integrated set of biodiversity science priorities that cover ecological, biophysical, social, cultural, economic and other areas

**4.5** Innovative solutions to biodiversity issues, including the development of new tools and technologies, are being collaboratively developed and actively sought from a range of sources and deployed on the ground

**5.1** The use, development and restoration of mātauranga Māori is being invested in and supported and has equal mana to knowledge gained through other scientific disciplines and ways of seeing/understanding the world

**5.2** Traditional and customary practices, including mahinga kai, are increasing, and the intergenerational transfer of mātauranga is underpinning the work of rangatira and kaitiaki

**5.3** Treaty partners, whānau, hapū, iwi and Māori organisations are making decisions based on the best knowledge from multiple scientific disciplines and ways of seeing/understanding the world, including mātauranga Māori

**6.1** Aotearoa New Zealand is influencing international policy and meeting commitments to international biodiversity-related agreements and conventions, including the Convention on Biological Diversity

**6.2** Treaty partners, whānau, hapū, iwi and Māori organisations are making informed contributions to developing Aotearoa New Zealand positions for international conversations, and the Treaty partnership and collaboration is recognised globally

**6.3** Aotearoa New Zealand is recognised for providing leadership in international conservation knowledge and delivery through international collaboration and capacity building, especially in the Pacific region

## 7.6 Whakahau / empowering action

This strategic priority recognises that we need all of Aotearoa New Zealand to help to protect and restore our biodiversity. We will know we have made progress towards this strategic priority when:

- Restoring biodiversity is second nature and easy to do.
- People feel connected with nature and are inspired to protect its awe and wonder.
- Treaty partners, whānau, hapū, iwi and Māori organisations are leading the way as rangatira and kaitiaki and are ensuring the restoration of mātauranga Māori.

- Everyone has the support, knowledge and networks they need to take effective action and make informed decisions that protect and restore biodiversity.

All of the goals in this strategic priority are to be achieved by 2025 to ensure that collective action is taking place so we can address the pressures on biodiversity. The next set of goals for 2030 will be set at the first strategy review after 5 years.



Tree planting in Hokitika. Photo: Richard Rossiter

## WHAKAHAU / Empowering action

### OBJECTIVES

7.

**All New Zealanders have the skills, knowledge and capability to be effective**

8.

**Resourcing and support are enabling connected, active guardians of nature**

9.

**Collaboration, co-design and partnership are delivering better outcomes**

### 2025 GOALS

**7.1** Education and campaigns are ensuring that all New Zealanders are aware of the current biodiversity crisis and the importance of nature and are encouraging people to take action to protect and restore nature and ensure sustainable use

**7.2** An analysis of gaps and future needs, training, capacity-building and job creation are ensuring that enough people have the right skills to protect and manage biodiversity into the future

**7.3** Research is improving our understanding of societal values, norms and beliefs, as well as the motivators, barriers and enablers of action to support biodiversity management and decision making

**8.1** Treaty partners, whānau, hapū, iwi and Māori organisations as rangatira and kaitiaki are sufficiently supported and resourced to protect and manage biodiversity, particularly taonga species, in their place

**8.2** Nature is part of the everyday life and identity of New Zealanders, and individuals are motivated, supported and, where appropriate, incentivised to make decisions that ensure sustainable use, reduce negative impacts, and restore and protect indigenous biodiversity

**8.3** Community action groups are resourced, growing, connected and coordinated and also have access to knowledge, expertise and information to actively manage biodiversity and other natural resources and act as environmental stewards

**8.4** Landowners, businesses, resource users/owners and industry are supported and, where appropriate, incentivised to contribute to protecting and restoring indigenous biodiversity as standard practice

**9.1** The values of Treaty partners, whānau, hapū, iwi and Māori organisations are being actively used in collaboration and co-design approaches

**9.2** Collaboration and co-design processes that foster collective ownership and delivery through the consideration of multiple values in decision making are recognised as the key to success

**9.3** Well-connected networks of relevant people, including urban and rural communities, stakeholders, industry and central and local government, are effectively working together in partnership and enabling collective action and successful implementation of the strategy at national, regional and local scales

## 7.7 Tiaki me te Whakahaumanu / protecting and restoring

This strategic priority area is focused on addressing the direct pressures that are causing a decline in biodiversity, ensuring the sustainable use of biodiversity and restoring biodiversity in areas where it has been lost.

We will know we have made progress towards this strategic priority when:

- Biodiversity is increasingly protected, restored and resilient.
- Backyard trappers, kaitiaki rōpū and community groups are finding new ways to help because there are no predators or pests left to trap.
- We see a return of petrels to the mainland mountains and bats to town parks.
- We are taking no more than we need from the land, fresh water and seas, ensuring that resources are kept for future generations.

- Taonga species have recovered enough that mahinga kai can be practiced, enabling the endurance of cultural practices.

The goals for this strategic priority are set for 2025, 2030 and 2050, reflecting and recognising the larger amount of time that will be required to make significant progress ecologically and the fact that achievement/progress of many of the 2025 goals in the other strategic priority areas is needed to enable delivery of the Tiaki me te whakahaumanu goals. Many actions will need to be completed by 2025 and these will be set as part of implementation planning. Progress towards the Tiaki me te whakahaumanu goals will be measured at the first strategy review after 5 years, at which time the goals will be reviewed to ensure they are still aspirational and achievable.



Checking a stoat trap. Photo: Sabine Bernert

## TIAKI ME TE WHAKAHAUMANU / Protecting and restoring

OBJECTIVES	2025 GOALS	2030 GOALS	2050 GOALS
<p><b>10.</b> <b>Ecosystems and species are protected, restored, resilient and connected from mountain tops to ocean depths</b></p>	<p><b>10.1.1</b> Prioritised research is improving baseline information and knowledge of species and ecosystems</p>	<p><b>10.1.2</b> Improved baseline information, comprehensive mapping, and improved knowledge of species and ecosystems and causes of their decline are informing management</p>	<p><b>10.1.3</b> Comprehensive baseline information integrated with spatial information and knowledge about effective management is informing the adaptive management of species and ecosystems</p>
	<p><b>10.2.1</b> The cumulative effects of pressures on biodiversity are better understood</p>	<p><b>10.2.2</b> Management at different scales and across domains is reducing the cumulative effects of pressures on biodiversity</p>	<p><b>10.2.3</b> The cumulative effects of pressures on biodiversity have been reduced to a level that does not have significant detrimental effects on biodiversity</p>
		<p><b>10.3.2</b> There has been no loss of the extent or condition of indigenous land, wetland or freshwater ecosystems which have been identified as having high biodiversity value</p>	<p><b>10.3.3</b> An interconnected series of indigenous land, wetland and freshwater ecosystems have been restored to a 'healthy functioning' state and are connected to marine and coastal ecosystems</p>
	<p><b>10.4.1</b> Significant progress has been made in identifying, mapping and protecting coastal ecosystems and identifying and mapping marine ecosystems of high biodiversity value</p>	<p><b>10.4.2</b> No loss of the extent or condition marine and coastal habitats which have been identified, mapped and designated as having high biodiversity value</p>	<p><b>10.4.3</b> An interconnected series of marine and coastal ecosystems have been protected and restored to a 'healthy functioning' state and are connected to indigenous land, wetland and freshwater ecosystems</p>
	<p><b>10.5.1</b> A framework has been established to promote ecosystem-based management, protect and enhance the health of marine and coastal ecosystems, and manage them within clear environmental limits</p>	<p><b>10.5.2</b> Significant progress has been made in protecting marine habitats and ecosystems of high biodiversity value</p>	<p><b>10.5.3</b> (2035) Marine and coastal biodiversity is managed within environmental limits so that there is no net loss in the extent or condition of marine and coastal ecosystems</p>
	<p><b>10.6.1</b> A protection standard for coastal and marine ecosystems established and implementation underway</p>	<p><b>10.6.2</b> Significant progress made in establishing an effective network of marine protected areas and other protection tools</p>	<p><b>10.6.3</b> (2035) An effective network of marine protected areas and other tools, including marine and coastal ecosystems of high biodiversity value is established and is meeting the agreed protection standard</p>
	<p><b>10.7.1</b> There have been no known human-driven extinctions of indigenous species</p>	<p><b>10.7.2</b> Populations of all indigenous species known to be at risk of extinction are being managed to ensure their future stability or an improving state</p>	<p><b>10.7.3</b> Indigenous species have expanded in range, abundance and genetic diversity and are more resilient to pressures, including climate change</p>
	<p><b>10.8.1</b> The viability of current and future mahinga kai and cultural harvest of indigenous species has been assessed to guide future use</p>	<p><b>10.8.2</b> Mahinga kai and cultural harvest of a wider range of indigenous species is being practiced, with no adverse impacts on ecosystems and species</p>	<p><b>10.8.3</b> Resilient biodiversity ensures that Treaty partners, whānau, hapū, iwi and Māori organisations can practice mahinga kai and cultural harvest</p>
<p><b>11.</b> <b>Biological threats and pressures are reduced through management</b></p>	<p><b>11.1.1</b> The impacts of introduced browsers, including valued introduced species (pigs, deer, tahr and chamois), on indigenous biodiversity have been quantified, and plans for their active management have been developed with Treaty partners, whānau, hapū, iwi, Māori organisations and stakeholders</p>	<p><b>11.1.2</b> Introduced browsers, including valued introduced species, are actively managed to reduce pressures on indigenous biodiversity and maintain cultural and recreational values</p>	<p><b>11.1.3</b> Introduced browsers, including valued introduced species, have been removed from high priority biodiversity areas and threatened ecosystems and are under ongoing management elsewhere to maintain functioning ecosystems and cultural and recreational values</p>
	<p><b>11.2.1</b> Introduced predators (ferrets, weasels, stoats, possums and rats) have been suppressed across 1 million hectares of mainland and eradicated from all uninhabited offshore islands</p>	<p><b>11.2.2</b> Introduced predators (ferrets, weasels, stoats, possums and rats) have been eradicated from one inhabited island, one city or town, and 10 000 hectares of rural production land, and their eradication in 10 large mainland sites is underway</p>	<p><b>11.2.3</b> Aotearoa New Zealand is free from ferrets, weasels, stoats, possums and rats</p>
	<p><b>11.3.1</b> New and emerging biosecurity threats, including weeds, animal pests and diseases (e.g. introduced invasive plants, algae, mammals, fish, invertebrates and micro-organisms), in all domains are actively identified and managed early through improvements in decision making, Treaty partnership approaches, skills and technology</p>	<p><b>11.3.2</b> The highest priority biosecurity threats, including weeds, animal pests and diseases (e.g. introduced invasive plants, algae, mammals, fish, invertebrates and micro-organisms), in all domains have been identified and are being managed based on current and potential future impacts on indigenous biodiversity</p>	<p><b>11.3.3</b> Introduced biosecurity threats, including weeds, animal pests and diseases (e.g. introduced invasive plants, algae, mammals, fish, invertebrates and micro-organisms), in all domains have been eradicated or are being managed to reduce negative impacts in areas of high biodiversity value</p>

## TIAKI ME TE WHAKAHAUMANU / protecting and restoring

OBJECTIVES	2025 GOALS	2030 GOALS	2050 GOALS
<p><b>12.</b></p> <p><b>Natural resources are managed sustainably</b></p>	<p><b>12.1.1</b> Environmental limits for the sustainable use of resources from marine ecosystems have been agreed on and are being implemented</p>	<p><b>12.1.2</b> Marine fisheries are being managed within sustainable limits using an ecosystem-based approach</p>	<p><b>12.1.3</b> Marine fisheries resources are abundant, resilient and managed sustainably to preserve ecosystem integrity</p>
	<p><b>12.2.1</b> The number of fishing-related deaths of protected marine species is decreasing towards zero for all species</p>	<p><b>12.2.2</b> The direct effects of fishing do not threaten protected marine species populations or their recovery</p>	<p><b>12.2.3</b> The mortality of non-target species from marine fisheries has been reduced to zero</p>
	<p><b>12.3.1</b> Environmental limits for the sustainable use of resources from freshwater ecosystems have been agreed on, and plans for the active management of fisheries have been developed with Treaty partners, whānau, hapū, iwi, Māori organisations and stakeholders</p>	<p><b>12.3.2</b> Freshwater fisheries are being managed sustainably to ensure the health and integrity of freshwater species and ecosystems while retaining cultural and recreational values, including for valued introduced species</p>	<p><b>12.3.3</b> Freshwater fisheries are not negatively affecting high-priority biodiversity areas and threatened ecosystems and are under ongoing management in other places to maintain functioning ecosystems and cultural and recreational values, including for valued introduced species</p>
	<p><b>12.4.1</b> The potential for different sectors to contribute to improved indigenous biodiversity is understood, and sustainable use practices that include benefits for indigenous biodiversity are becoming more widespread</p>	<p><b>12.4.2</b> Sustainable use practices that include benefits for indigenous biodiversity are standard practice for biodiversity resource users (including tourism and recreation) and primary industry (including agriculture, forestry, fisheries, aquaculture and horticulture)</p>	<p><b>12.4.3</b> Sustainable use practices are providing benefits for indigenous biodiversity and maintaining ongoing economic and wellbeing benefits for people</p>
	<p><b>12.5.1</b> The most appropriate places for the protection and restoration of indigenous biodiversity and areas that are suitable for other uses have been identified</p>	<p><b>12.5.2</b> Implementation of an integrated spatial plan for land, freshwater and marine use has ensured no net loss of areas of high biodiversity value</p>	<p><b>12.5.3</b> The connectivity of indigenous ecosystems has been improved through targeted restoration from mountain tops to ocean depths (ki uta ki tai)</p>
	<p><b>12.6.1</b> Indigenous vegetation planting is standard practice in urban areas, riparian zones, agricultural buffers, transport corridors and other areas</p>	<p><b>12.6.2</b> Infrastructure and urban planning include indigenous biodiversity as standard practice, including through green infrastructure, green spaces, ecological corridors and environmentally friendly design elements, and nature-based solutions for issues, such as improving water quality and natural hazard protection (e.g. flooding, landslips)</p>	<p><b>12.6.3</b> Infrastructure and urban design are delivering increasing benefits for indigenous biodiversity</p>
	<p><b>12.7.1</b> The most ecologically damaging pollutants (e.g. excess nutrients, sediment, biocides, plastics, light and sound) and pollutant sources have been identified, and an integrated plan for their management is in place</p>	<p><b>12.7.2</b> The amount of pollution entering the environment has significantly decreased</p>	<p><b>12.7.3</b> Pollution has been reduced to a level that does not have significant detrimental impacts on biodiversity</p>
<p><b>13.</b></p> <p><b>Biodiversity provides nature-based solutions to climate change and is resilient to its effects</b></p>	<p><b>13.1.1</b> The potential for carbon storage from the restoration of indigenous ecosystems, including wetlands, forests, and coastal and marine ecosystems (blue carbon), to contribute to our net emissions targets is understood</p>	<p><b>13.1.2</b> Carbon storage from the restoration of indigenous ecosystems, including wetlands, forests, and coastal and marine ecosystems (blue carbon), contributes to our net emissions targets</p>	<p><b>13.1.3</b> Carbon storage from the restoration of indigenous ecosystems, including wetlands, forests, and coastal and marine ecosystems (blue carbon), is a key contributor to achieving net-zero emissions for Aotearoa New Zealand</p>
	<p><b>13.2.1</b> The potential for indigenous nature-based solutions is understood and being incorporated into planning</p>	<p><b>13.2.2</b> The restoration of indigenous ecosystems is increasingly being used to improve our resilience to the effects of climate change, including coastal protection against rising sea levels</p>	<p><b>13.2.3</b> The restoration of indigenous ecosystems is mitigating the effects of climate change and natural hazards (e.g. flooding)</p>
	<p><b>13.3.1</b> Potential impacts from climate change have been integrated into ecosystem and species management plans and strategies, and a research and rangahau strategy has been developed to increase knowledge and understanding of climate change effects</p>	<p><b>13.3.2</b> Risks to biodiversity from climate change, including cascading effects (e.g. increases in introduced invasive species, water abstraction, fire risk, sedimentation) have been identified and assessed, and indigenous ecosystems, habitats and species are being managed to build resilience where possible</p>	<p><b>13.3.3</b> Adaptive management is addressing the impact of climate change on biodiversity, including cascading effects, and is building resilience to future risks</p>

## 7.8 How Te Mana o te Taiao – ANZBS will be implemented

A strategy is only as good as the action it delivers. Te Mana o te Taiao – ANZBS provides the vision and strategic direction of where we want to get to, but we also need a plan for how we will get there.

The goals are ambitious and can only be met by working collectively. Many people and organisations will need to be involved in implementing Te Mana o te Taiao for it to be successful, and we will also need to learn and adapt as we go. Our thinking needs to be innovative, inclusive and responsive to new knowledge.

Because of this, the process for implementation has been designed to be collaborative, adaptive and responsive.

### 7.8.1 Collaboration and partnership will be at the heart of implementation

Partnerships at all levels will be a core approach for delivering this strategy.

We all need to work together to make the strategy's vision a reality. A broad range of perspectives and expertise is needed to plan and implement the next steps, including from iwi, hapū and whānau, central and local government, industry, science, NGOs, and communities.

A core implementation group will be convened that includes Treaty partners, regional councils and the Crown to co-develop the national implementation plans for delivering this strategy.

### 7.8.2 Treaty partners, whānau, hapū and iwi will be partners in implementation

During consultation on this strategy, Treaty partners, whānau, hapū, iwi and Māori organisations have stated that partnering to deliver the strategy should include the ability to manage,

co-manage or co-govern the whenua in their rohe, which will require adequate resourcing to allow for local-level Māori and iwi leadership on what is important.

WAI 262 and settlement deeds present a range of direction or obligations for government agencies and regulators with regard to biodiversity management. These will need to be considered at all levels of implementation of the strategy and will also need to be adequately resourced.

The He Awa Whiria model will inform the approach to implementation. The weaving together of mātauranga Māori and scientific disciplines in the delivery of the strategy will be crucial in achieving the goals.

### 7.8.3 Implementation will occur at multiple scales

The strategy will need to be implemented at national, regional and local levels. Those actions that need to be implemented nationally will often be led by agencies or national organisations. Regional biodiversity strategies, which have already been produced for some regions, will be a key part of regional and local implementation, as these have been collaboratively designed and implemented by those who know their region best – the councils, iwi/hapū, landowners and users, communities, and local people on the ground. Thus, they will be an important tool for creating linkages between ecosystems and the people involved.

The national strategy is also intended to provide strategic direction for sectors and groups to implement independently. For example, an industry body could align its environmental or biodiversity strategy to Te Mana o te Taiao – ANZBS, and community organisations could use both Te Mana o te Taiao and their regional strategies to guide their activities. This will ensure that we are all pulling in the same direction and optimising outcomes for biodiversity.

## 7.8.4 An adaptive approach to implementation will be needed

The strategy's implementation is intended to be dynamic, adapting to new information, tools and methods as they arise. The long-term outcomes and objectives of the strategy are not likely to change, but our understanding of the most appropriate goals and the best methods and approaches to get there will change over time as new knowledge and tools become available.

For this reason, implementation planning will focus on 5-year time frames, with a review of progress over the previous 5 years informing the development of a new implementation plan every 5 years.

The initial implementation planning process will differ slightly, in that a 2-year initial implementation plan will be developed that focuses on setting in place the systems needed to deliver the strategy, followed by a plan for a further 3 years. The 5-year cycle of planning will then commence after the first 5-yearly review in 2025.

This approach allows us to keep the strategy live and to respond to changes and new knowledge and approaches.

## 7.8.5 Transparent monitoring of progress will keep us accountable and moving forward

We heard during strategy development that it will be important for monitoring and progress reporting to be independent and transparent.

Progress against the strategy and implementation plan will be regularly assessed and publicly reported on. Regular reviews will ensure that the strategy remains fresh, relevant and influential and that we are measuring and accounting for our progress.

Monitoring Reporting will occur at the end of each 5-year implementation cycle to allow that

monitoring to inform the development of the next 5-year implementation plan. At the same time, the strategy will be reviewed to ensure that it is still fit for purpose and will be updated if required. Other reviews may be needed when appropriate – for example, to ensure alignment with the Convention on Biological Diversity Post-2020 Global Biodiversity Framework.<sup>24</sup>

## 7.8.6 Implementation plans will include goals, actions, accountabilities and indicators

Each implementation plan will include:

- **Goals** – Additional goals that build on the 2025 and 2030 goals included in Te Mana o te Taiao – ANZBS will be developed as needed, including goals for 2035, 2040 and 2045. This will ensure that there are always milestones to track progress and that goals can be iteratively developed, building on new knowledge, approaches and progress to date.
- **Actions to progress towards the goals** – Actions to deliver on each of the goals will be identified, with multiple actions potentially being required in some cases.
- **Responsibility for the delivery of the goals** – Responsibility will also be assigned, a key part of which will be an assessment of the resourcing required for delivery.
- **Indicators to measure progress** – A full suite of indicators and measures will be developed to enable progress towards the strategy's outcomes and goals to be tracked. Measuring these indicators will be a key part of the 5-yearly progress reviews. As new goals are developed over the course of the strategy's life, new indicators may also need to be developed.

As part of implementation, a process will be undertaken to identify an integrated set of biodiversity science priorities that cover biophysical, social, cultural, economic and other needs.

<sup>24</sup> [www.cbd.int/conferences/post2020](http://www.cbd.int/conferences/post2020)



### 7.8.7 The first implementation plan

Following release of this strategy, a collaborative implementation planning process will begin. The initial implementation plan that is developed through this process will cover a period of 2 years (2021–2022). This initial plan will focus on establishing the systems and processes needed to support the effective delivery of this strategy, as well as making progress on those actions that can begin immediately. This will include aligning work that has already begun or is ready to begin with the strategy direction. This initial plan will be developed in late 2020 and is intended to be completed by early 2021 so that work can start immediately.

A small review of progress will take place prior to development of the next plan, which will cover the subsequent 3 years (2023–2025). The regular cycle of 5-yearly reviews and implementation planning will then begin with the 2025 implementation plan (see Fig. 7).

A wealth of knowledge and ideas for implementation have been captured during the development of this strategy that will be drawn from to help inform this process.



**Figure 7.** Implementation cycles.

# Kuputaka Glossary

## Glossary of te reo terms

<b>atua</b>	God, supernatural being, deity.
<b>awa</b>	River, stream, creek.
<b>hākari</b>	Meal, feast, celebration.
<b>hapū</b>	Kinship group, clan, tribe, subtribe.
<b>he awa whiria</b>	Braided rivers.
<b>hui</b>	Gathering, meeting.
<b>ihi</b>	Essential force, thrill, personal magnetism.
<b>iwi</b>	Extended kinship group, tribe, nation.
<b>kaimoana</b>	Seafood, shellfish.
<b>kaitiaki</b>	Guardian, trustee, minder.
<b>kaitiaki rōpū</b>	Conservation guardianship groups.
<b>kaitiakitanga</b>	The obligation to nurture and care for the mauri of a taonga; ethic of guardianship, protection.
<b>kaumātua</b>	Elderly person, a person of status within the whānau.
<b>kaupapa</b>	Topic, policy, initiative.
<b>ki uta ki tai</b>	From mountain tops to ocean depths.
<b>mahi tahi</b>	To work together, collaborate, cooperate.
<b>mahi whaipanga</b>	Beneficial work.
<b>mahinga kai</b>	Garden, cultivation, food-gathering place.
<b>mana</b>	Prestige, authority, control, personal charisma.
<b>mana whenua</b>	Territorial rights, authority over land or territory.
<b>manaakitanga</b>	Hospitality, kindness, generosity, support.
<b>manu</b>	Bird, winged creature.
<b>mātauranga Māori</b>	Māori knowledge; the body of knowledge originating from Māori ancestors, including the Māori world view and perspectives, Māori creativity, and cultural practices.
<b>mauri</b>	Life principle, life force, vital essence.
<b>moana</b>	Sea, ocean.
<b>ngā hua</b>	The benefits.
<b>ngākaunui</b>	Eager, enthusiastic, kindly disposed towards.
<b>pakiwaitara</b>	Legend, story, fiction, narrative.

<b>Papatūānuku</b>	Earth, Earth mother.
<b>pepeha</b>	Tribal saying, tribal motto, proverb.
<b>pou</b>	Post, upright, support, sustenance.
<b>rāhui</b>	To put in place a temporary ritual prohibition, closed season, ban, reserve.
<b>rangahau</b>	Research, survey.
<b>rangatira</b>	Chief, supervisor, employer.
<b>rangatiratanga</b>	Chieftainship, right to exercise authority, sovereignty, self-determination.
<b>Ranginui</b>	Atua of the sky, sky father.
<b>rohe</b>	Boundary, district, region, territory, area.
<b>rongoā</b>	Remedy, medicine, treatment, solution (to a problem).
<b>taiohi</b>	Youth, adolescent, young person.
<b>taonga</b>	Treasure, anything prized; applied to anything considered to be of value, including socially or culturally valuable objects, resources, phenomena, ideas and techniques.
<b>taonga kai</b>	Prized food.
<b>te ao Māori</b>	The Māori world; a Māori perspective / world view.
<b>te pae tawhiti</b>	The distant horizon.
<b>te reo [Māori]</b>	The [Māori] language.
<b>te taiao</b>	Natural world, environment, nature.
<b>te Tiritiri o Waitangi</b>	The Treaty of Waitangi.
<b>Te Waipounamu</b>	The South Island of New Zealand.
<b>tiaki</b>	Protect, conserve, look after.
<b>tikanga</b>	Custom, practice, correct protocol; the customary system of values and practices that have developed over time and are deeply embedded in the social context.
<b>tino rangatiratanga</b>	Self-determination, sovereignty, autonomy, self-government.
<b>tohungatanga</b>	Expertise, proficiency, competency.
<b>waiata</b>	Song, chant.
<b>wānanga</b>	To meet and discuss, deliberate, consider.
<b>wero</b>	Challenge.
<b>whaikōrero</b>	To make a formal speech, formal speech making.
<b>whakaara</b>	To raise, initiate, instigate.
<b>whakahau</b>	To encourage, urge, direct.
<b>whakapapa</b>	Genealogy, genealogical table, lineage, descent.
<b>whānau</b>	Extended family, family group.
<b>whenua</b>	Land.

# Glossary of technical terms

Note: The definitions provided here are intended to guide interpretation of the goals and narrative of this strategy. They do not replace the definitions of terms as set out in legislation.

<b>At Risk species</b>	Species assessed according to the New Zealand Threat Classification System as being likely to become 'Threatened' should pressures on their populations worsen. Includes four subcategories: 'Declining', 'Recovering', 'Relict' and 'Naturally Uncommon'.
<b>biodiversity</b>	Biological diversity or the variability among living organisms from all sources, including land, marine and freshwater ecosystems and the ecological complexes of which they are a part; this includes diversity within species (including genetic diversity), between species and of ecosystems (based on the definition of the Convention on Biological Diversity).
<b>bio-prospecting</b>	Searching for plant and animal species from which medicinal drugs and other commercially valuable compounds can be obtained.
<b>biosecurity</b>	The exclusion, eradication or management of pests and diseases that pose a risk to the economy, environment, or cultural or social values, including human health.
<b>blue carbon</b>	Carbon dioxide removed from the atmosphere by the world's coastal ocean ecosystems.
<b>browsers</b>	Herbivorous animals that generally feed on high-growing plants rather than grasses.
<b>bycatch</b>	Species not targeted by a fishery but caught incidentally during fishing operations.  Once caught, they can be landed, discarded or released.
<b>catchment</b>	Area of land in which rainfall drains towards a common watercourse, stream, river, lake or estuary.
<b>climate change</b>	Changes in global or regional climate patterns that are evident over an extended period (typically decades or longer). May be due to natural factors or human activities.
<b>conservation</b>	'The preservation and protection of natural and historic resources for the purpose of maintaining their intrinsic values, providing for their appreciation and recreational enjoyment by the public, and safeguarding the options of future generations' (Conservation Act 1987).
<b>cumulative effects</b>	Changes to the environment caused by the combined impacts of past, present and future human activities and natural processes.
<b>customary or cultural harvest/use</b>	The traditional practice of taking natural resources. These are mostly indigenous birds, fishes and plants, but also include other traditional materials, such as bone and stone.
<b>Data Deficient species</b>	Species for which there is so little information available that an assessment through the New Zealand Threat Classification System is not possible.

<b>domain (ecological)</b>	<p>The freshwater domain comprises fresh water in all its physical forms. This includes fresh water in rivers, lakes, streams, wetlands and aquifers.</p> <p>The land domain comprises the soil, the underlying rock and what is on the land surface, such as vegetation and human-made structures.</p> <p>The marine domain extends from the seashore to the outer limits of Aotearoa New Zealand's exclusive economic zone and includes the continental shelf.</p>
<b>ecological corridor</b>	An area of habitat connecting wildlife populations that have been separated by human activities or structures.
<b>ecological integrity</b>	The full potential of indigenous biotic and abiotic features and natural processes, functioning in sustainable communities, habitats, and landscapes.
<b>ecosystem health</b>	Ecosystem health describes the fundamental physical and biological state of an ecosystem in relation to its ability to support services. A healthy ecosystem is stable and sustainable, maintaining its organisation and autonomy over time and its resilience to stress. Ecosystem health can be assessed using measures of resilience, vigour and organisation.
<b>ecosystem</b>	A community of plants, animals and microorganisms in a particular place or area interacting with the non-living components of their environment (e.g. air, water and mineral soil).
<b>ecosystem services</b>	<p>The benefits obtained from ecosystems. Examples include:</p> <ul style="list-style-type: none"> <li><b>a)</b> Supporting services (e.g. nutrient cycling, soil formation, habitat creation)</li> <li><b>b)</b> Provisioning services (e.g. food, fresh water, wood, fibre, fuel)</li> <li><b>c)</b> Regulating services (e.g. water purification, climate regulation, flood regulation, disease regulation)</li> <li><b>d)</b> Cultural services (e.g. aesthetic, spiritual, educational, recreational)</li> </ul>
<b>endemic species</b>	Indigenous species that breed only within a specified region or locality and are unique to that area. Aotearoa New Zealand's endemic species include birds that breed only in this country but may disperse to other countries in the non-breeding season or as sub-adults.
<b>erosion</b>	The wearing away of land by the actions of water, wind or ice.
<b>eutrophication</b>	The excessive build-up of nutrients in a body of water, frequently due to run-off from land, which causes the dense growth of periphyton.
<b>extinction (species)</b>	The loss of a species. The moment of extinction is generally considered to be marked by the death of the last individual of that species.
<b>full range (ecosystems)</b>	A comprehensive and representative range of natural habitats and ecosystems that reflects the known diversity of habitats and ecological communities remaining in Aotearoa New Zealand.
<b>green prescription</b>	A health professional's written advice for a patient to be physically active as part of that patient's health management.
<b>habitat</b>	A combination of environmental factors that provide the food, water, cover and space that a living thing needs to survive and reproduce.
<b>indigenous biodiversity</b>	The diversity (or range) of indigenous species. This includes diversity within and between species.

<b>indigenous species</b>	Species that occur naturally in Aotearoa New Zealand.
<b>intensification (agriculture)</b>	An increase in the stocking rate of animals, or an increase in the level of production from a given area of land.
<b>intrinsic value</b>	The value placed on something for what it is rather than what it can provide.
<b>introduced species</b>	Plant or animal species that have been brought to Aotearoa New Zealand by humans, either by accident or design. A synonym is 'exotic species'.
<b>invasive introduced species</b>	Non-indigenous species whose introduction or spread threatens biodiversity, food security, and/or human health and wellbeing.
<b>maintain (species/habitat/ecosystem)</b>	<p>Prevent a reduction in the:</p> <ul style="list-style-type: none"> <li>a) Size of populations of indigenous species</li> <li>b) Occupancy of indigenous species across their natural range</li> <li>c) Properties and functions of ecosystems and habitats</li> <li>d) Full range and extent of ecosystems and habitats</li> <li>e) Connectivity between and buffering around ecosystems</li> <li>f) Resilience and adaptability of ecosystems</li> </ul> <p>The maintenance of indigenous biodiversity may also require the restoration or enhancement of ecosystems and habitats.</p>
<b>migratory species</b>	A species that moves from one habitat to another to complete its life cycle.
<b>nature</b>	A holistic term that encompasses the living environment (te taiao) – i.e. all living organisms and the ecological processes that sustain them. By this definition, people are a key part of nature. This strategy uses the term 'biodiversity' to refer to biological diversity and 'nature' when considering the wider processes, functions and connections of the natural environment, of which biodiversity is a part.
<b>nature-based solutions</b>	Solutions that are inspired and supported by nature, cost-effective, and simultaneously provide environmental, social and economic benefits and help build resilience.
<b>New Zealand Threat Classification System</b>	The system used to assess the conservation status of Aotearoa New Zealand's native species. Categories include At Risk, Data Deficient, Not Threatened and Threatened (also defined in this glossary).
<b>non-indigenous biodiversity/species</b>	Species that have been brought to Aotearoa New Zealand by humans, whether intentionally or unintentionally. A synonym is 'introduced species'.
<b>Not Threatened species</b>	Species that have been assessed under the New Zealand Threat Classification System and do not fit any of the other categories.
<b>pathogen</b>	A bacterium, virus or other microorganism that can cause disease.
<b>predator</b>	An organism that feeds on another living organism (its prey).
<b>primary production</b>	The production of goods and services from the primary sector, such as agriculture, horticulture and forestry.
<b>private land</b>	Land in private ownership – that is, land not managed by the Department of Conservation or any other public body.

<b>protected area</b>	A geographically defined area that is protected primarily for nature conservation purposes or to maintain biodiversity values, using any of a range of legal mechanisms that provide long-term security of either tenure or land use purpose. It may be publicly or privately owned.
<b>protection</b>	Looking after biodiversity in the long term. This involves managing all threats to secure species from extinction and ensuring that their populations are buffered from the impacts of the loss of genetic diversity and longer term environmental events such as climate change. This includes, but is not restricted to, legal protection.
<b>resilience</b>	Species definition: The ability of a species, or variety or breed of species, to respond and adapt to external environmental stresses.  Ecosystem definition: The ability of an ecosystem to recover from and absorb disturbances, and its capacity to reorganise into similar ecosystems.
<b>restore (ecology)</b>	The active intervention and management of modified or degraded habitats, ecosystems, landforms and landscapes in order to reinstate indigenous natural character, ecological and physical processes, and cultural and visual qualities.
<b>sediment</b>	Particles or clumps of particles of sand, clay, silt, or plant or animal matter carried in water.
<b>sedimentation</b>	The process of settling or being deposited as a sediment.
<b>species</b>	A group of living organisms consisting of similar individuals that are capable of freely exchanging genes or breeding. In this strategy, we use the term to include subspecies and varieties.
<b>sustainability / sustainable use</b>	'The use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations' (Convention on Biological Diversity).
<b>Threatened species</b>	Species assessed according to the New Zealand Threat Classification System as facing imminent extinction (or a reduction to just a few small, safe refuges, which makes them highly susceptible to stochastic events) because of their small total population size and/or rapid rate of population decline. This includes three sub-categories: 'Nationally Critical', 'Nationally Endangered' and 'Nationally Vulnerable'.
<b>valued introduced species</b>	Introduced species, including sports fish, game birds and animals and species introduced for biocontrol, which provide recreational, economic, environmental or cultural benefits to society.
<b>WAI 262</b>	A Waitangi Tribunal claim that considered who is entitled to make or participate in decisions affecting indigenous flora and fauna, the environment, Māori culture, and the products of Māori culture. The accompanying Ko Aotearoa Tēnei report discusses many of these kaupapa (topics) and lays down a wero (challenge) for the Crown and Māori to advance their relationship as Treaty partners in a positive and future-focused way.
<b>weed</b>	A plant that is considered to be unwanted or a nuisance. The term is often used to describe native or non-native plants that grow and reproduce aggressively.
<b>wellbeing</b>	The health, happiness and prosperity of an individual or group. In this strategy, wellbeing is discussed in terms of material wellbeing (income and wealth, jobs and earnings, and housing), health (health status and work-life balance), security (personal security and environmental quality), social relations (social connection, subjective wellbeing, cultural identity and education), and freedom of choice and action (civic engagement and governance).

# Āpitihanga 1

## Appendix 1

### People, organisations and agencies involved in the biodiversity system

The table below outlines some of the key people, organisations and agencies that are involved in the biodiversity system. It should be noted that many others also have roles in biodiversity management or responsibilities for managing activities that have the potential to impact on biodiversity.

SOCIETY	
<b>Individuals</b>	Many people are interested in conservation and contribute towards it in a variety of ways – e.g. backyard trapping or weeding, educating others, donating money or time.
<b>Community conservation groups</b>	Hundreds of conservation groups around the country are working independently or with others on a range of projects – from restoring forests, coasts and wildlife to managing huts, tracks and historic places. Many of these groups have large-scale restoration and biodiversity recovery as their aims, while others are focusing on a particular endangered species.
<b>Rōpū kaitiaki</b>	Several conservation guardianship groups have been formed by Māori communities.
<b>Landowners</b>	Many landowners have indigenous habitats on their land and wish to maintain or restore biodiversity.
<b>Environmental organisations</b>	There are several independent organisations that advocate for conservation – e.g. Forest and Bird, the Environmental Defence Society, the New Zealand Conservation Authority.
INDUSTRY	
<b>Productive land/sea users</b>	These include members of the agriculture, horticulture, forestry, commercial fishing and aquaculture industries, many of which are supported by advocacy organisations.
<b>Tourism</b>	In Aotearoa New Zealand, tourism relies heavily on the draw of our natural environments.
<b>Electricity generators and mining</b>	Some power schemes and mines are located in conservation areas and other locations with high biodiversity value.



## GOVERNMENT AND STATUTORY BODIES

<b>Department of Conservation</b>	Responsible for conserving the natural and historic heritage of Aotearoa New Zealand on behalf of and for the benefit of present and future New Zealanders.
<b>Ministry for the Environment</b>	Responsible for advising the Government on policies and issues affecting the environment and for developing and providing a national environmental management system, including laws, regulations, national policy statements and national environmental standards.
<b>Ministry of Foreign Affairs and Trade</b>	Responsibilities include representing Aotearoa New Zealand in global talks on the conservation and sustainable use of biodiversity, including the preservation of threatened species and habitats. Plays an active role in negotiations to improve the conservation and sustainable use of the world's oceans and fisheries.
<b>Ministry for Primary Industries</b>	<p>Responsible for growing and protecting Aotearoa New Zealand by maximising export opportunities for the primary industries, improving sector productivity, increasing sustainable resource use and protecting the country from biological risk.</p> <p>Te Uru Rākau (Forestry New Zealand) supports the planting of exotic and indigenous forests, sustainable forest management, programmes such as the Emissions Trading Scheme, and forestry grants.</p> <p>Fisheries New Zealand works to ensure that fisheries resources are managed to provide the greatest overall benefits to New Zealanders.</p> <p>Biosecurity New Zealand leads the biosecurity system, which includes our efforts to prevent pests and diseases from arriving and eradicating or managing those that do arrive or have been here for some time.</p>
<b>Land Information New Zealand</b>	Responsible for land titles, topographical information, managing Crown property and a variety of other functions.
<b>Regional councils</b>	<p>Have a general function to maintain biodiversity under the Resource Management Act (RMA) and accompanying powers to regulate land use, the discharge of contaminants to land and water, the damming, diversion and abstraction of water, and discharges to and occupation of the coastal marine area.</p> <p>They also have powers under the Biosecurity Act (BSA) to regulate and/or carry out operations (pest management) to achieve biodiversity outcomes through plans prepared under that Act.</p> <p>They can secure a mandate through the Local Government Act (LGA) to expend financial resources to carry out pest management operations or other non-regulatory methods (regardless of whether a pest or project is provided for in a plan prepared under the BSA).</p>
<b>Territorial authorities</b>	Under the RMA, territorial authorities have the role of controlling the effects of the use, development and protection of land, including for the purpose of the maintenance of indigenous biological diversity.
<b>New Zealand Fish and Game Council</b>	Manages, maintains and enhances sports fishes and game birds in the recreational interests of anglers and hunters. Manages the sports fishery to ensure that Aotearoa New Zealand's freshwater resource is healthy and that all species that live within it are flourishing.
<b>Game Animal Council</b>	Represents the interests of the hunting sector, and aims to improve the management of hunting resources while contributing to positive conservation outcomes.

# Āpitihanga 2

## Appendix 2

### Key legislation relating to biodiversity

#### Biosecurity Act 1993

The Biosecurity Act provides regulation relating to the exclusion, eradication and effective management of pests and unwanted organisms. It includes provisions relating to the import of risk goods, surveillance for and response to pest incursions (including establishing government/industry agreement for readiness or response), enforcement and penalties, and pest management – including pest management plans and pathway management plans.

#### Conservation Act 1987

The Conservation Act underpins the governance, administration and management of Aotearoa New Zealand's public conservation land and sports fish and game resources. It establishes the Department of Conservation, the New Zealand Conservation Authority and conservation boards, the New Zealand Fish and Game Council, and regional fish and game councils. It governs the administration of other conservation legislation and provides for the management of the majority of public conservation land, including stewardship land.

#### Fisheries Act 1996

The Fisheries Act provides for the utilisation of marine and freshwater fisheries resources, while ensuring sustainability (including maintaining the potential of fisheries resources) and avoiding, remedying or mitigating any adverse effects of fishing on the aquatic environment.

#### Forests Act 1949

The Forests Act includes provisions that promote the sustainable forest management of indigenous forest land.

#### Marine Mammals Protection Act 1978

The Marine Mammals Protection Act regulates the protection and management of marine mammals in Aotearoa New Zealand and its fisheries waters, including the exclusive economic zone.

#### Marine Reserves Act 1971

The Marine Reserves Act preserves areas containing underwater scenery, natural features or marine life of such distinctive quality, or so typical, beautiful or unique, that their preservation for scientific study is in the national interest.

#### National Parks Act 1980

The National Parks Act preserves in perpetuity areas that are so beautiful, unique or special that their preservation is in the national interest. These areas are preserved for their intrinsic worth and for the benefit, use and enjoyment of the public.

#### Native Plants Protection Act 1934

Under the Native Plants Protection Act, native plant species can be declared protected, which prohibits them from being taken from Crown or public land.

#### Queen Elizabeth II National Trust Act 1977

The Queen Elizabeth II National Trust Act establishes a national trust to encourage and promote the provision, protection and enhancement of open space. A key role of the Trust is to partner with private landowners to protect natural and cultural heritage sites on their land with covenants.

## Reserves Act 1977

The Reserves Act governs the administration and management of local authority and other reserves, as well as those managed by the Department of Conservation. Its overall purpose is to protect areas of special value, including for recreation and for access to and along waterways and the coast.

## Resource Management Act 1991

The Resource Management Act (RMA) is New Zealand's primary legislation outlining how to manage the environment. The purpose of this Act is 'to promote the sustainable management of natural and physical resources'. Under the Act, local authorities have responsibility for managing activities on land, on water, in the air and in the coastal marine area, many of which have an effect on biodiversity.

The RMA provides several mechanisms, including policy statements, environmental standards and planning standards, that are developed at a national level to provide direction to local authorities on how to achieve the purpose of the Act (including the protection of biodiversity). Other mechanisms also include regional policy statements, regional plans and district plans.

Some of the key instruments currently in place that specifically provide for the protection of biodiversity include the:

- New Zealand Coastal Policy Statement 2010 (NZCPS), which includes direction on national priorities for biodiversity in the coastal environment
- National Policy Statement for Freshwater Management 2014 (NPSFM), which directs regional councils to safeguard the life-supporting capacity of freshwater and associated aquatic ecosystems
- National Environmental Standard for Plantation Forestry 2017 (NESPF), which includes requirements around the protection of specific indigenous biodiversity and habitats within or close to plantation forestry activity

Work is currently underway on a proposed National Policy Statement on Indigenous Biodiversity. This will include objectives and policies to help guide the way in which local authorities work with landowners and communities to protect indigenous biodiversity.

## Trade in Endangered Species Act 1989

The Trade in Endangered Species Act implements the International Convention on the Trade in Endangered Species of Wild Flora and Fauna (CITES). It controls New Zealand's import and export of species listed in schedules 1–3 of the Convention.

## Wild Animal Control Act 1977

The Wild Animal Control Act provides for the control of animals listed in the Sixth Schedule of the Wildlife Act to manage their effects on vegetation, soils, waters and wildlife. This Act covers wild animal control plans, concessions for wild animal recovery operations and the granting of permits for hunting on public conservation land.

## Wildlife Act 1953

The Wildlife Act regulates the keeping and killing of wild birds and other animals, including some fishes and invertebrates but excluding marine mammals. All species are protected unless scheduled as game, unprotected or subject to the Wild Animal Control Act. The Act's jurisdiction covers all of Aotearoa New Zealand's fisheries waters, including the exclusive economic zone.

## Other Acts

Other relevant Acts include the:

- Crown Minerals Act 1991
- Crown Pastoral Land Act 1998
- Environmental Reporting Act 2015
- Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012
- Game Animal Council Act 2013
- Hazardous Substances and New Organisms Act 1996
- Hauraki Gulf Marine Park Act 2000
- Kaikoura (Te Tai o Marokura) Marine Management Act 2014
- Local Government Act 2002
- Marine and Coastal Area (Takutai Moana) Act 2011
- Māori Fisheries Act 2004
- Treaty Settlement Legislation (various)

# Āpitihanga 3

## Appendix 3

### Related strategies and policies

#### Local policy

- Iwi environmental management plans
- Farm plans
- District plans
- Fisheries plans

#### Regional policy

- Regional biodiversity strategies
- Regional policy statements and plans
- Conservation management strategies
- Pest management strategies
- Sports fish and game management plans

#### National policy

- New Zealand Biodiversity Strategy
- Deeds of settlement
- National policy statements, such as the proposed National Policy Statement on Indigenous Biodiversity and the National Policy Statement on Freshwater Management
- Predator Free 2050 Strategy
- Biosecurity 2025

#### International policy

- Aotearoa New Zealand is a party to the international Convention on Biological Diversity and several other international agreements relating to the protection of biodiversity (see below for a list of some key international agreements).

Some of the key international agreements and intergovernmental bodies relating to biodiversity include:

- Agreement on the Conservation of Albatrosses and Petrels (ACAP)
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- Convention on the Conservation of Migratory Species (CMS)
- International Union for Conservation of Nature (IUCN)
- International Whaling Commission (IWC)
- Secretariat of the Pacific Regional Environment Programme (SPREP)
- Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat
- Regional fisheries management organisations (RFMOs)
- United Nations Convention on Biological Diversity (CBD)
- United Nations Convention to Combat Desertification (UNCCD)
- United Nations Convention on the Law of the Sea (UNCLOS)
- United Nations Framework Convention on Climate Change (UNFCCC)
- World Heritage Convention

# ĀpitiHanga 4

## Appendix 4

### Potential indicators for measuring progress towards the strategy outcomes

Monitoring the state and trends of biodiversity and measuring progress against the outcomes and goals of this strategy will be a crucial part of the implementation process. The first step will be developing and implementing an agreed set of national indicators to measure and report on the strategy outcomes. This work will be a priority as part of the initial implementation planning.

The table below shows some potential indicators that could be used, including relevant indicators that are currently used for environmental reporting by Statistics New Zealand and the Ministry for the Environment. This is not a comprehensive list, so further work will be needed to develop and agree on a full set of indicators.

OUTCOMES	POTENTIAL INDICATORS
<p><i>Outcome 1</i>  <b>Ecosystems, from mountain tops to ocean depths, are thriving</b></p>	
<p><b>The mauri of ecosystems is thriving</b></p>	<ul style="list-style-type: none"> <li>• 'Mauri meter' and Kaupapa Māori Environmental Assessment tools</li> </ul>
<p><b>A full range of indigenous ecosystems are protected and secured for future generations</b></p>	<ul style="list-style-type: none"> <li>• Wetland extent</li> <li>• Protection in the marine environment</li> <li>• Indigenous cover and protection in land environments</li> </ul>
<p><b>The health, integrity and connectivity of ecosystems has been maintained and/or restored, including in human-dominated areas</b></p>	<ul style="list-style-type: none"> <li>• Ecosystem health and function measures, including:               <ul style="list-style-type: none"> <li>• Representation of plant functional types</li> <li>• Demography of widespread animal species</li> <li>• Pressure index</li> </ul> </li> <li>• Land pests</li> <li>• Freshwater pests</li> <li>• Extent of potential range occupied by focal taxa</li> <li>• Land cover</li> <li>• Proportion of vegetation (indigenous and all types) in urban areas</li> <li>• Freshwater health indicators, e.g. cultural health index, macroinvertebrate community index (MCI)</li> <li>• Marine primary productivity</li> <li>• State of fish stocks</li> <li>• Commercial catch, seabed and coastal seabed dredging and trawling</li> <li>• Marine trophic index</li> <li>• Marine non-indigenous species</li> </ul>

OUTCOMES	POTENTIAL INDICATORS
<p><i>Outcome 2</i>  <b>Indigenous species and their habitats across Aotearoa New Zealand and beyond are thriving</b></p>	
<p><b>The mana of taonga species is restored</b></p>	<ul style="list-style-type: none"> <li>• Reports on progress in taonga species management by Treaty partners</li> </ul>
<p><b>All indigenous species are protected and secure, and none are at risk of extinction due to human activity</b></p>	<ul style="list-style-type: none"> <li>• Changes in the conservation status of indigenous species</li> <li>• Bird species on public conservation land</li> <li>• Pest impacts on indigenous trees</li> <li>• Bycatch of protected species</li> </ul>
<p><b>Species' populations are healthy, genetically diverse and have increased resilience to future threats, including climate change</b></p>	<ul style="list-style-type: none"> <li>• Changes in the conservation status of indigenous species</li> <li>• Human-caused threats to marine environments</li> <li>• Freshwater fish communities</li> </ul>
<p><b>Migratory species and their habitats are secured across international boundaries</b></p>	<ul style="list-style-type: none"> <li>• Changes in the conservation status of indigenous species</li> <li>• Percentage of migratory species' habitats under legal protection</li> </ul>

OUTCOMES	POTENTIAL INDICATORS
<p><i>Outcome 3</i>  <b>People's lives are enriched through their connection with nature</b></p>	
<p><b>Everyone in Aotearoa New Zealand is connected with nature and supports and actively contributes to its protection and restoration</b></p>	<ul style="list-style-type: none"> <li>• Indigenous species in urban and developed spaces</li> <li>• Number of people involved in conservation and kaitiaki activities that deliver conservation outcomes</li> <li>• Participation of Treaty partners, whānau, hapū, iwi and Māori organisations in revitalising mātauranga, te reo and tikanga</li> <li>• Number, activities and impacts of community groups</li> <li>• Number of volunteers participating, including in citizen science</li> </ul>
<p><b>Connection with nature is improving people's physical, spiritual and mental health and quality of life</b></p>	<ul style="list-style-type: none"> <li>• Connection with nature in children and adults</li> <li>• Access to indigenous green spaces and blue (freshwater, coastal and marine) spaces</li> <li>• Frequency/time spent in nature</li> <li>• Green prescriptions</li> <li>• Number of people spending time in nature</li> </ul>
<p><b>Future generations inherit a restored and thriving nature</b></p>	<ul style="list-style-type: none"> <li>• Baseline status of ecosystems and species</li> <li>• Education system delivering environmental education</li> </ul>

OUTCOMES	POTENTIAL INDICATORS
<p><i>Outcome 4</i>  <b>Māori are exercising their full role as rangatira and kaitiaki</b></p>	
<p><b>Resilient biodiversity enables cultural practices and mahinga kai, contributing to the regeneration of mātauranga Māori</b></p>	<ul style="list-style-type: none"> <li>• Customary use of biodiversity</li> <li>• Increase in taonga kai (prized food) at hui (meetings) and hākari (celebrations)</li> <li>• Māori cultural and intellectual property agreements in relation to biodiversity</li> </ul>
<p><b>Restored biodiversity uplifts mana</b></p>	<ul style="list-style-type: none"> <li>• Intergenerational transmission of te reo (the Māori language) in households / Māori communities</li> <li>• Rangatira (leadership) and kaitiaki (guardianship) participation in biodiversity activities</li> </ul>
<p><b>Treaty partners, whānau, hapū, iwi and Māori organisations are central to, and recognised as leaders in, the biodiversity system</b></p>	<ul style="list-style-type: none"> <li>• Role of mātauranga Māori (Māori knowledge) in management decisions</li> </ul>

OUTCOMES	POTENTIAL INDICATORS
<p><i>Outcome 5</i>  <b>Prosperity is intrinsically linked with a thriving biodiversity</b></p>	
<p><b>A thriving biodiversity provides the services that underpin our prosperity</b></p>	<ul style="list-style-type: none"> <li>• Measures of key services, e.g. soil carbon, pollination, natural pest control, carbon sequestration</li> <li>• Performance of sectors most linked to indigenous biodiversity</li> </ul>
<p><b>Biodiversity resources are managed sustainably to provide ongoing economic benefits</b></p>	<ul style="list-style-type: none"> <li>• Environmental economic accounts, including the health of fish stocks</li> </ul>
<p><b>Economic activity has neutral or beneficial impacts on biodiversity</b></p>	<ul style="list-style-type: none"> <li>• International brand identity and perception</li> <li>• Primary industry value per product</li> <li>• Investment in environmental services</li> </ul>
<p><b>A thriving biodiversity plays a central role in our approach to mitigating climate change</b></p>	<ul style="list-style-type: none"> <li>• Carbon sequestration from native forests</li> </ul>



