



# Cabinet paper material

## Proactive release

**Hon. Eugenie Sage, Minister of Conservation**

**Title:** New Zealand Biodiversity Strategy – approval to release the discussion document

**Date:** 30 August 2019

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These documents have been proactively released:

**Cabinet paper – New Zealand Biodiversity Strategy – approval to release the discussion document**

Date: 1 July 2019

Author: Office of the Minister of Conservation

**Attachment 1 – New Zealand Biodiversity Strategy – Discussion Document**

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**Attachment 2 – New Zealand Biodiversity Strategy – Draft Te Ao Māori Framework**

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Author: Office of the Minister of Conservation

**Cabinet Environment, Energy and Climate Committee minute – [ENV-19-MIN-0038]**

Date: 27 June 2019

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**Material redacted**

No material has been withheld from these documents.

# Te Koiroa o te Koiroa

Our shared vision for living with nature

A discussion document on proposals for a  
Biodiversity Strategy for Aotearoa New Zealand

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[date]

[inside front cover]

### **What's in a name?**

Te Koiroa refers to the human aspect. The word 'koi' means both sharp or point referring specifically to the pinnacle, the peak of cognitive thinking. 'Roa' means long time, or journey, and captures the sense of endurance – to sustain something at the peak of performance. It takes maturity in thinking to lead for “without a vision, the people including our biodiversity perish”. **Thus, “Te Koiroa” captures the vision, and the long journey we must collectively make to get there.**

Te Koiroa is life or life-force - the vitality, integrity, and intricacy of life. It encapsulates the notion that biological function is essential, and the life sustaining whakapapa of individual organisms, and ecosystem integrity, are vital. It reflects the interconnectedness and interdependence of people and nature, and our subservant relationship to nature, nature as mother/elder and people as part of nature. **Te Koiroa is the life and life sustaining capacity of individual organisms, species and ecosystems.**

In its entirety, “Te koiroa o te koiroa” refers to a journey, a vision for life and can be translated as ‘Our vision for nature.’

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## Minister's Foreword

### May Include:

- Why this work is important - biodiversity crisis
- Why have a strategy – CBD, collective vision, NZ global leader
- Importance of partnership between crown and treaty partners
- Importance of acknowledging our reciprocal relationship with Te Taiao - that we have a responsibility to look after and nurture our indigenous biodiversity as well as gaining benefits from it
- Signal other work underway – particularly the National Policy Statement on Indigenous Biodiversity and how it relates to the biodiversity strategy
- That the strategy is for all of New Zealand, and about how we all work together – therefore important that you all have your say
- Need an 'all of New Zealand' response, everyone has an essential role to play, need to shift our mindsets
- Signal timeframes for final strategy

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[placeholder for a whakatauki]

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## How to use this discussion document

The development of a new biodiversity strategy for Aotearoa New Zealand is being led by the Department of Conservation (DOC) on behalf of all New Zealanders<sup>1</sup>. The new strategy will replace *Our Chance to Turn The Tide*, the current biodiversity strategy that has been in place since 2000<sup>2</sup>.

This discussion document outlines draft proposals for inclusion in a new biodiversity strategy. The ideas presented here reflect a range of conversations about nature that DOC held with people across the country, including regional hui with iwi/hapū/whānau and stakeholder workshops held between November 2018 and April 2019, responses to questions on DOC's webpage and other submissions received. You are invited to provide your thoughts on the ideas set out in this document, and what you think should be included in the new biodiversity strategy.

The document is in four parts:

**Part One** (page X) outlines why nature is essential and the key problems and opportunities that a new biodiversity strategy for Aotearoa New Zealand must address.

**Part Two** (page X) sets out draft proposals for inclusion in a new biodiversity strategy, including:

- A Vision – to ensure we are all working towards a common goal
- Values and Principles – values for how we work together and principles to guide our actions
- Long term outcomes – to describe the end-state we are aiming for
- Implementation – to set out a process for implementation by us all
- System shifts – areas to focus effort across the system
- Goals – to set out how we will track our progress

**Part Three** (page X) provides international context and invites you to comment on what the new post-2020 global biodiversity targets under the Convention on Biological Diversity could be.

**Part Four** (page X) provides information about next steps in developing the new biodiversity strategy for Aotearoa New Zealand including details of upcoming consultation, and how you can provide feedback.

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<sup>1</sup> The Terms of Reference, which set out the scope for the new biodiversity strategy, can be found at <https://www.doc.govt.nz/contentassets/d76a35b2fcd24da59db7a678a29ffa78/nzbs-development-terms-of-reference.pdf>

<sup>2</sup> You can read the current New Zealand Biodiversity Strategy and 2016 Action Plan here <https://www.doc.govt.nz/nature/biodiversity/nz-biodiversity-strategy-and-action-plan/>



## Part 1: Aotearoa New Zealand needs a renewed strategy for nature

### Nature is essential

#### **Nature is intrinsically valuable - and humans have a responsibility to safeguard and protect it**

The health of the natural world is crucial for supporting all life on Earth. An enormous variety of species of plants, animals, fungi and microbes make up the biosphere, that in turn provide air, food and water to enable humans and all other life to survive.

Nature, including species and ecosystems, is important for its own sake, and has a right to exist regardless of any benefits we may get from it. Humans are custodians of nature and have a duty of care to ensure it endures into the future.

#### **New Zealand's connection with nature**

New Zealand has a diverse and increasingly multicultural society. As New Zealanders, we hold a wide range of views and values about nature. We are connected to the natural world around us through our culture, the places where we live and spend our time, our primary industry and tourism-based economy, and how we identify as New Zealanders. At its heart, New Zealand's biodiversity is about our relationship with Aotearoa; where our moana (seas) and whenua (land) have life forms unlike anywhere else in the world.

#### **The Te Ao Māori world**

The arrival of the first ancestral waka to Aotearoa, was to an environment previously undisturbed by humans, magnificent land, water and natural ecosystems rich in biodiversity and bountiful food resources. Following human contact and introduction of new species such as the kiore rat, change to the environment was inevitable. Māori adapted their Polynesian knowledge system to apply to this new land and the sustainability of natural resources. A spiritual connection to the land and seas was formed, underpinned by the ethos of kinship, reciprocity and interconnectedness.

The Te Ao Māori world arises from the time of nothingness, a time of darkness through to the dawn of light, on to emergence of great oceans, lands and life forms, where all things are interconnected and imbued with a life force. An interlinking whakapapa (genealogy) defined a kinship between people and all domains of the natural world, air, land, sea, forest and living things. Rituals were an important facet of daily life, to take and use resources from the natural world invoked a reciprocal duty to acknowledge the gods of sea, land, fish, birds and all resources. Such interaction conformed to a lore, couched in wisdom, experience, observation, resource use and protection, the basis of mātauranga Māori - knowledge and action that is profound, intergenerational, local and owned by iwi/hapū/whānau at place and is recognised as being equal with science.

**Our nature, our biodiversity** – Nature includes all living things, including species, habitats and ecosystems – in the sea, freshwater and on land - their diversity and interactions, the ecological

complexes they form, and the ecological processes and functions that are crucial to their, and our, survival.

Biological diversity, or 'biodiversity' for short, describes the variety of all biological life – plants, animals, fungi and microorganisms – the genes they contain and the ecosystems on land or in water where they live. It is the diversity of life on earth.

This discussion document often refers to nature. This signifies a more holistic way of looking at the living environment – beyond 'biological diversity' to a focus on re-establishing ecological processes, strengthening resilience and restoring connections between species, including humans, ecosystems and the environment. By this definition, people are a key part of nature.

### **Nature in Aotearoa is unique**

Most of our plants and animals are found nowhere else in the world. Many of our species have evolved in isolation for up to 80 million years. When today's oldest tōtara trees were saplings, indigenous birds were abundant and the only land mammals present were indigenous bats. New Zealand was the last major land mass in the world (apart from Antarctica) to be settled by humans. This long period of separation from the rest of the world means that many of our indigenous species are not well equipped to defend themselves against new threats, including a changing climate and recent arrivals such as weeds, browsers and predators<sup>3</sup>.

New Zealand is also part of a global ecosystem. Our indigenous species make a significant contribution towards global biodiversity - we are internationally recognised as a biodiversity 'hotspot'<sup>4</sup>. There is growing concern about the rates at which nature is declining worldwide and the impact this will have on people and the environment.<sup>5</sup>

### **Nature nurtures us in so many ways. But this is not a one-way relationship**

We – all New Zealanders - have a responsibility to care for our natural places that surround us by ensuring sustainable management practices and protecting nature.

The state of our biodiversity is a legacy that we leave for future generations. We don't want to be the last generation to look up at rātā or spot Maui dolphins in our seas. All New Zealanders want our mokopuna (grandchildren) to be part of a healthy natural environment.

Kaitiakitanga is a spiritual and environmental ethos that governs tangata whenua responsibilities for the care and protection of mauri, the dynamic life principle that underpins all heritage. Kaitiakitanga includes components of protection, guardianship, stewardship and customary use. It is exercised by tangata whenua in relation to ancestral lands, water, sites, resources and other taonga.

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<sup>3</sup> See here for a list of some animal pests in New Zealand <https://www.doc.govt.nz/nature/pests-and-threats/animal-pests/>

<sup>4</sup> See Myers N, Mittermeier R, Mittermeier C, da Fonseca G and Kent J, 2000. Biodiversity hotspots for conservation priorities. *Nature*, 403.

<sup>5</sup> Further reading: IPBES Global Assessment Report Summary 2019, WWF Living Planet Report 2018

**Mauri** is the life principle or living essence contained in all things, animate and inanimate.

*Te mana atua kei roto i te tangata ki te tiaki i a ia, he tapu.*

The concept of Mauri reflects ideas of interconnectedness, resilience and wellbeing of nature. Mauri reflects the intrinsic value of nature, but also our obligation to be stewards of its health.

**Kaitiakitanga** can be described as the obligation to nurture and care for the mauri of a taonga; the ethic of guardianship, protection of that which is sacred.

### **Nature is central to our wellbeing and at the heart of our success**

Nature underpins our identity and wellbeing. The way we define ourselves as New Zealanders is often closely tied to our natural world – from calling ourselves kiwis, to the silver fern, to our pride in our unique landscapes and seascapes, and the whakapapa/kinship relationship we have with nature.

For Māori, the relationship with Te Taiao, our environment, is personal and long standing. The essential connection between people and the environment is a core part of cultural health – restoring the environment in turn restores people and their cultural connections with the environment.

As a nation, New Zealanders enjoy being in nature. We take advantage of the huge range of recreational activities available in our great outdoors, from sightseeing, boating, tramping and fishing, to mountain biking and bungee jumping. We also experience nature through hearing birdsong in the cities we live in, being involved in community projects to restore streams or bush, visiting the beach, catching fish and a myriad of other ways. For a lot of us, the time we spent in nature as children has shaped our memories.

There is growing recognition that access to the natural world is vital for our mental and social wellbeing. Spending time in nature can positively affect our health and wellbeing through physical activity, the social bonds we create by sharing the space with others, and by improving our mental health through relaxation and restoration.

The Millennium Ecosystem Assessment (involving the work of more than 1,360 experts worldwide to assess the consequences of ecosystem changes) identified biodiversity and the services that it provides us as a key factor in determining human well-being. Biodiversity loss has been found to contribute to worsening health, higher food insecurity, lower material wealth, worsening social relations, and less freedom for choice and action.

Our future economic success relies on our natural environment – it gives us a competitive advantage that underpins New Zealand's top two export earners (primary production and tourism).

Farming, forestry and horticulture rely on non-indigenous species, but indigenous biodiversity contributes to their success through ecosystem services such as clean water, nutrient cycling, pollination and pest management. Marine species form the basis of our fisheries industries, whether taken from wild stocks or aquaculture.

Tourists are drawn to New Zealand to explore our unique nature – seascapes, marine life, landforms, mountainscapes, forests and birds. Half of all international visitors to New Zealand visited a national park in 2016.<sup>6</sup>

Primary production and tourism provide income and business for many regional communities. In 2016, land-based primary production (agriculture, horticulture, and forestry) earned \$35.4 billion (half of the country's total export earnings), while international tourism expenditure in New Zealand was \$14.7 billion.<sup>7</sup> Export earnings for aquaculture and wild capture fish products are forecast to reach \$430 million and \$1.4 billion respectively in 2019.<sup>8</sup>

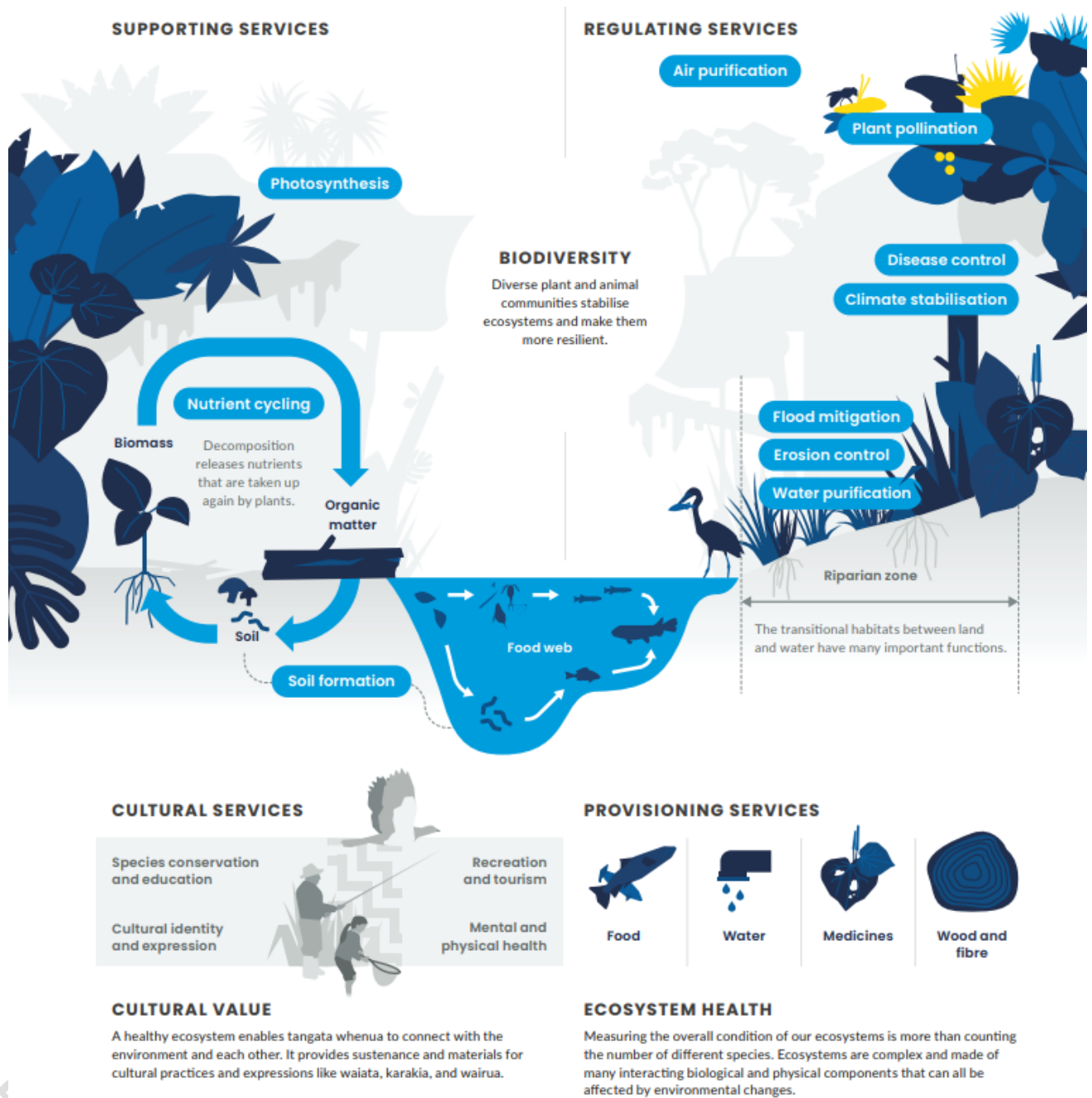
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<sup>6</sup> DOC Annual Report 2016-2017.

<sup>7</sup> As stated in Our Land 2018.

<sup>8</sup> Ministry for Primary Industries' Situation and Outlook report for June 2018.

Figure 1. Nature provides us with services that are crucial to our survival. *From Environment Aotearoa 2019.*



### The role of valued non-indigenous species in Aotearoa New Zealand

New Zealand’s biodiversity is a melting pot – some species have evolved here in isolation for many millions of years, whereas others are much more recent arrivals.

Many species have been introduced to New Zealand over the last 800 years – whether through natural, intentional or unintentional means. These non-indigenous species have become the basis of our economy through agriculture and forestry, others are valued for their contributions to social and

cultural wellbeing, such as recreation and amenity. Non-indigenous species can sometimes play a positive role in creating ecosystems that support indigenous species – for example, kiwi and kārearea (falcon) are thriving in some radiata pine habitats<sup>9</sup>.

Other non-indigenous species are considered pests; they threaten indigenous species and ecosystems, through predation, browsing, disease and competition, and cause nuisance to people.

Non-indigenous biodiversity is neither ‘all good’ nor ‘all bad’; threats or benefits of individual non-indigenous species often depend on the situation in which they arise, and on the way we value species – which often differs from person to person.

Sometimes there is conflict between differing values, for example the recreational value of hunting and fishing and the impacts that game and sports fish species can have on indigenous ecosystems.

New Zealand’s ecosystems can’t return to the state they were in 800 years ago, but we can plan ahead to ensure that our environment supports thriving biodiversity. We need to reach a balance that accepts the place of those non-indigenous species which we value and which sustain our livelihoods. This will involve developing approaches that provide for the multiple values people hold for species, both indigenous and non-indigenous.

It is proposed that the new biodiversity strategy will recognise and prioritise the special responsibility we have towards our indigenous biodiversity. It is important to consider this when making decisions on how to manage non-indigenous species and their benefits to people.

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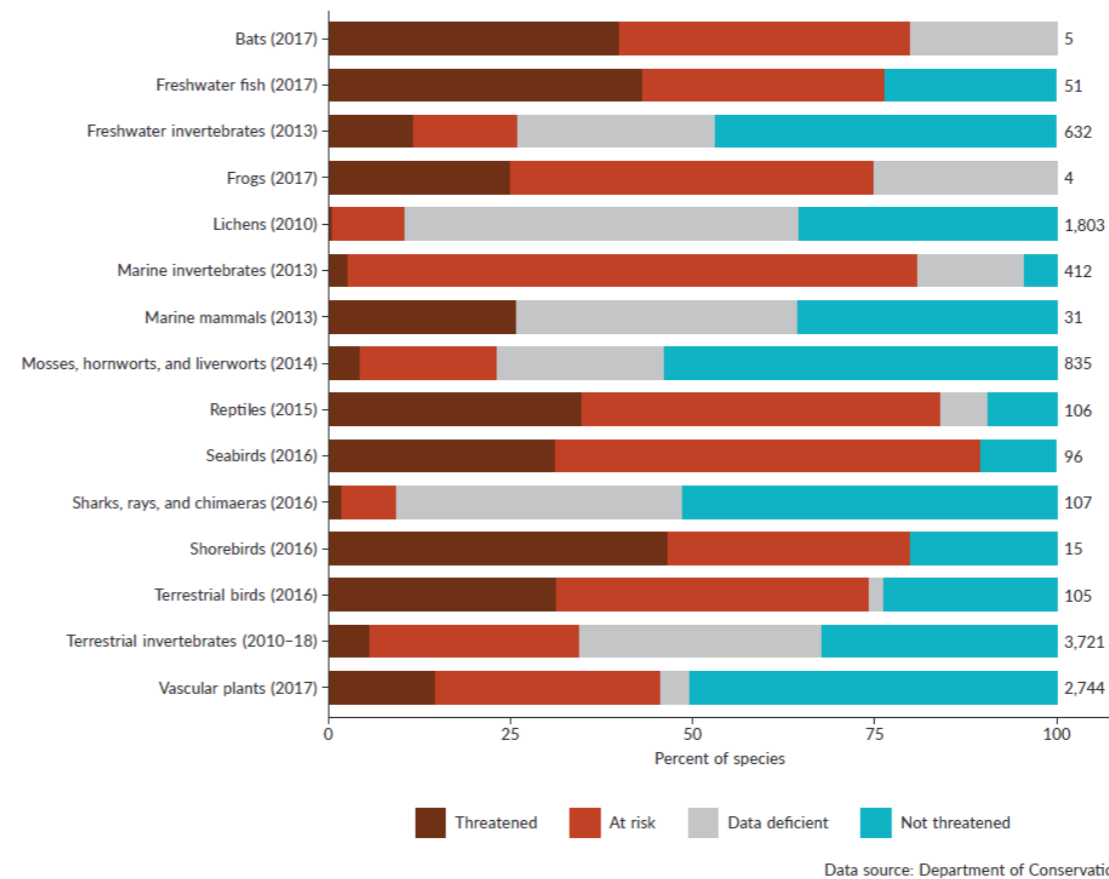
<sup>9</sup> See the 2017 report ‘Taonga of our Nation’ by the Parliamentary Commissioner for the Environment (Chapter 8.1: Habitat that birds need).

The current state of nature in Aotearoa New Zealand

<p>Statistics have been sourced from <b>Our Marine environment 2016, Our Freshwater 2017, Our Land 2018, and Environment Aotearoa 2019.</b></p>	
<p><b>Forests</b></p> <p>Indigenous forests are reduced to about one-third of their pre-human extent.</p> <p>A further 10,000 ha of indigenous forest was lost between 1996 and 2012.</p>	<p><b>Freshwater</b></p> <p>The macroinvertebrate community index, a key indicator of ecosystem health - shows good or excellent scores for three-quarters of New Zealand's total river length. However, more river monitoring sites have worsening trends than improving trends. Effects of land use, such as nutrient run off and sedimentation, and freshwater pests, impact on freshwater habitats.</p> <p>76% of freshwater fish are threatened or at risk of extinction.</p>
<p><b>Wetlands</b></p> <p>90 percent of coastal and freshwater wetlands have been degraded due to changes to their hydrology, e.g. being drained or cut off from water supply, since human settlement.</p> <p>13% of those remaining in 2001 - 30,000 hectares - have since been destroyed.</p>	<p><b>Marine</b></p> <p>Key threats in the marine environment include ocean acidification, excess sedimentation and nutrients, pest species, plastics, and loss of soft sediment habitats through recurrent disturbance of the sea-floor as a result of seabed trawling and dredging for fish and shellfish.</p> <p>The number of non-indigenous marine species in New Zealand's coastal waters rose 10% between 2010 and 2015.</p> <p>90% of seabirds, 80% of shore birds and 26% of marine mammals are threatened or at risk of extinction.</p> <p>9% of sharks, rays and chimaeras (ghost sharks) are threatened or at risk of extinction.</p>
<p><b>Active sand dunes</b></p> <p>Between the 1950s and 2008, 80% of active sand dune area was lost.</p>	<p><b>Estuaries</b></p> <p>Estuaries are often included under the umbrella of marine ecosystems but they have special circumstances that make them important for biodiversity conservation. They are hotspots for biodiversity and rare and naturally uncommon ecosystems. They are under a multitude of threats as they include all of those impacting the wider marine environment (and also sea-level rise) and those originating from the land (sedimentation and eutrophication).</p>
<p><b>Tussock grasslands</b></p> <p>Between 1996 and 2012 there was a 1.3% loss of tussock grasslands (reduced by 31,000 ha).</p>	<p><b>Rare and naturally uncommon ecosystems</b></p> <p>Almost two-thirds (45) of New Zealand's 71 identified rare and naturally uncommon ecosystems are threatened.</p>

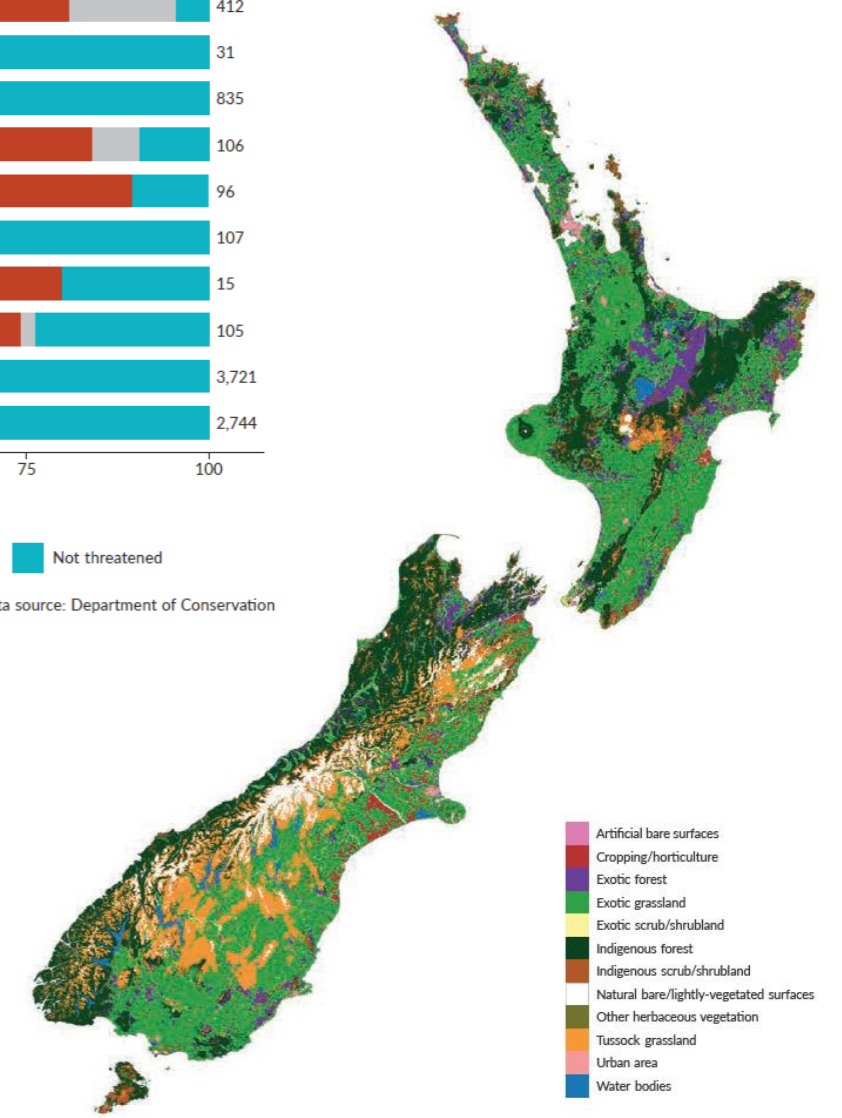
- This section will be presented in the form of an infographic covering three domains (land, freshwater and sea)
- Possibly – mountains to the sea type landscape – including river, coastal area, wetland, ocean, including some human dominated elements too - city, farm, fishing boats, with relevant stats/quotes as they relate to the different parts of the landscape.
- If possible integrate/include a couple of maps/graphs directly taken from the Environment Aotearoa 2019 report (examples below).
- It will include a link to further information in the Environment Aotearoa report and PCE report on the state of birds.

Figure 1: Conservation status of native species by species group



Note: Only known, native, resident, living species are included. Total species are listed to the right of bars.

Figure 4: Land cover, 2012



## Key pressures on biodiversity

Some of the key pressures on biodiversity in Aotearoa New Zealand (and globally) are listed below.<sup>10</sup> The impacts of many of these pressures can often combine to add up to increasing threatened land, freshwater, coastal, estuarine and marine environments.

**Land use** – Many terrestrial habitats have been lost or fragmented through clearance for human land uses. The way we use our land contributes to soil and water degradation and reduces the health and diversity of plants and animals who live on land and in water. For example, increased sediment entering waterways has significant impact on freshwater and marine habitats.

**Pollution** – run-off from intensive agricultural and urban practices can degrade fresh water, estuarine and marine habitats, leading to declines in the fish, insects, mammals and other species that depend on these ecosystems.

**Pests, weeds and diseases** – huge efforts are made to control or eradicate invasive species that threaten our indigenous flora and fauna through browsing, predation, competition and habitat modification. Pathogens which cause disease are also a key threat (for example Kauri dieback). Invasive species are considered one of the greatest threats to marine, freshwater and terrestrial ecosystems in New Zealand. New incursions of pests are a continual threat to biodiversity and to our economy.

**Impacts of fishing** – the full ecological impact of commercial, recreational, and customary fishing on estuaries, coastal, open ocean and freshwater ecosystems is not clear. Commercial and recreational fishing can impact biodiversity when populations are reduced beyond a sustainable level, when by-catch occurs (when unintended species such as other fish, marine mammals or sea birds are caught), and through loss of habitats.

**Climate change** – climate change poses a significant risk in terms of ongoing chronic pressure and also calamitous loss events for biodiversity worldwide. Predicted climate changes in New Zealand include warmer air and water temperatures, sea-level rise, changes in rainfall patterns, and more extreme weather events including increased frequency and intensity of events like storms and droughts. We don't know how indigenous species will respond, or the extent of risks such as further habitat loss and the invasion of new pest species. Ocean acidification (caused by increased global carbon dioxide emissions) may cause widespread harm to New Zealand's marine ecosystems, particularly to marine organisms with carbonate shells like pāua, mussels, and oysters. Diatoms – tiny algae at the very base of the marine food chain – could also be affected. Ocean acidification and warming is predicted to continue for generations.

Biodiversity is not just the plants and animals that we are familiar with, but also species and ecosystems that we have little or no knowledge about. There are risks of losing biodiversity because of the effects of environmental change on that which we know little about. For example, soil is one of the most diverse habitats on Earth, containing up to a quarter of global biodiversity – yet we know very little about important soil microorganisms.

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<sup>10</sup> The internationally recognised five key pressures of global biodiversity loss are land use change, climate change, pollution, natural resource use and exploitation (e.g. overfishing, take of species for medicine or trade), and invasive species. <https://www.ipbes.net/models-drivers-biodiversity-ecosystem-change>



## Addressing the drivers of biodiversity loss

Many of us are familiar with the range of threats that our species face (see the previous page on pressures). Conservation efforts are often focused on these threats. However, in many cases tackling the threats themselves means that we aren't tackling the fundamental drivers of the threats. Our current way of working is often an 'ambulance at the bottom of the cliff' approach.

### **Our decision making and economic systems often fail to account for the value of nature**

Biodiversity loss can be viewed as resulting from its full value not being recognized or not being reflected in decisions about land, fresh water and marine resource use. This can be for a range of reasons, such as lack of knowledge or awareness, and the difficulty of individual decision-makers factoring in collective benefits and cumulative impacts of small actions into decisions.<sup>11</sup>

Our decision-making frameworks are structured to value economic outcomes, and are often not sophisticated enough to account for the value of biodiversity and the impacts of loss. It is difficult to monetise or quantify the value of biodiversity or the 'service' that it provides. The impact of individual decisions may be small but cumulatively very significant. This creates a market failure where economic activity can benefit individual people, while associated costs of biodiversity loss are unknown and are spread across society. Approaches, such as incentives and market mechanisms, could be used to shift decision-making towards conserving and restoring biodiversity.

### **Legal and regulatory frameworks are not achieving enough**

Legal protection, for example public conservation land and marine reserves, is an important tool for managing threats to biodiversity, however it is not sufficient to manage all the threats within these areas. For example, pests, such as browsers and predators, 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.

Beyond protected areas, such as on private land and on most of our marine environment, there are even fewer tools and frameworks available to ensure that biodiversity is protected.

The current policy and regulatory frameworks for protecting our biodiversity in New Zealand have been criticised for being inconsistent, disjointed, under-resourced and poorly enforced, resulting in the failure to achieve many biodiversity outcomes. There is no clear and universal mandate to protect species or ecosystems across all environments, and there are inconsistencies in how species are managed under different Acts<sup>12</sup>.

We have not had, for example, a National Policy Statement that would provide direction to councils on how to maintain indigenous biodiversity in a consistent way across all types of land (including private land, Māori land and land owned by local authorities/central government). However, the process to finalise one is currently underway.

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<sup>11</sup> For further reading about this, see Brown et. Al 'Vanishing Nature'

<sup>12</sup> For further reading about this, see Brown et. Al 'Vanishing Nature'

A National Policy Statement for Indigenous Biodiversity (NPSIB) was recently drafted by a stakeholder-led Biodiversity Collaborative Group (the BCG). This group spent 18 months, from March 2017 until October 2018, developing the draft along with recommendations for complementary and supporting measures<sup>13</sup>. Complementary and supporting measures are recommendations for system improvements and non-regulatory measures that the BCG identified as essential to consider in addressing the issue of biodiversity decline. Some of these complementary measures have been incorporated into the suggested actions outlined in Part Two of this document, others will be addressed during the implementation planning phase or through other government work programmes. Work is currently underway to consult on and finalise the NPSIB.

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<sup>13</sup> You can read the Biodiversity Collaborative Group's full draft NPSIB and report here. <https://www.biodiversitynz.org/>

The future will bring many challenges and opportunities

This section will be presented as an infographic covering key global and national trends – both challenges and opportunities, and their potential impact on biodiversity and its management.

Socio-economic issues including income inequality	Changing patterns of consumption and world trade	Increasing global awareness of environmental issues and demand for change (e.g.the new set of global biodiversity targets to be decided in 2020)
Climate change (including temperature rise, changes in weather patterns, sea rise, ocean acidification, warming oceans, storm events, pest impacts etc)	Urbanisation	Changes to our economy and ways of working – movement away from traditional economic models as we move to greater sustainability, lower emissions, and an increased appreciation of the importance of wellbeing
Growing environmental footprint – consumer demand and consumption	Tourism growth - International visitor arrivals are forecast to increase to 4.9 million in 2023 with an average growth rate of 4.8% per year. The international spend in New Zealand is forecast to rise 52.1% over the same period to reach \$15.3 billion. <sup>15</sup>	Growing awareness and inclusion of indigenous worldviews, recognition of the value of mātauranga. Legal tools e.g personhood, moving towards post-treaty settlement world
Biosecurity risks	A much more connected society through the internet and social media	Increased scientific knowledge and understanding of ability to manage threats and reconstruct landscapes and seascapes
Human population growth - New Zealand’s total population is projected to reach 5.8 million in 2038 <sup>14</sup>		Community ownership, collectivism, localism
		Re-indigenisation of stewardship concepts
		New technology and innovation
		Integrated management practices
		Leadership, youth involvement
		<b><i>These trends present an opportunity to reset our relationship with biodiversity</i></b>

**The role of biodiversity in addressing climate change**

Biodiversity conservation can contribute to climate change mitigation and adaptation. Conserving natural terrestrial, freshwater and marine ecosystems, and restoring degraded ecosystems (including their genetic and species diversity), is essential due to the key role they play in the global carbon cycle.

Restoring habitats can aid climate change mitigation by removing carbon dioxide from the atmosphere and storing the carbon, and mean the land isn’t used for activities that generate higher emissions. Conserving intact ecosystems, such as wetlands and mangroves, for example, can also lessen the impact of extreme weather events which are projected to increase in frequency under climate change scenarios, such as flooding and storm surges.

Conserving or restoring biodiversity for greater resilience to climate change also supports New Zealand industries such as the wild-caught commercial sea fisheries that depend on natural biological resources and healthy ecosystems.

As well as the growth of New Zealand’s population, we will also see **demographic change** and **increasing diversity** of our societies.

By 2038: The proportion of Maori is projected to increase to 18%, Asian to 22% and Pacific populations to 10.2% of the total population, with the European proportion dropping to 65.5%.

By 2043: People in New Zealand will be living for longer. Those 65 and older are likely to exceed 1.3 million.

Statistics New Zealand Estimates and projections (February 2018).

<sup>14</sup> Statistics New Zealand Estimates and projections (February 2018).

<sup>15</sup> Ministry of Business, Innovation and Employment New Zealand tourism forecasts 2017–2023 (MBIE, 2017)

## The journey from 'Our Chance to Turn the Tide' – the 2000 New Zealand Biodiversity Strategy

The current New Zealand Biodiversity Strategy, 'Our Chance to Turn the Tide', was developed in 2000. It was formally reviewed in 2005<sup>16</sup>. In 2016, an updated action plan for 2016 – 2020 was released.

The current strategy was ambitious and comprehensive in its objectives and actions. It set out a number of themes, each of which had its own set of outcomes and actions. Ecological domains (biodiversity on land, freshwater biodiversity, and coastal and marine biodiversity) were considered as three separate themes. The current strategy promoted biodiversity management work on private land, which was a new concept for the time. As a result of the strategy, the use of methods such as landscape scale predator control, fenced sanctuaries and spatial prioritisation became more common.

Over the last 20 years there has also been an increase in the level of engagement and commitment to biodiversity protection and restoration from local councils and communities. There has been a rise in philanthropic initiatives, providing much needed funding for biodiversity projects.

However, it has been hard to track our progress against the current strategy. The 2005 review found that its targets were difficult to measure progress against, and that we didn't have the right monitoring and reporting systems set up to do so.

The targeted funding that came with the current strategy when it was released was a huge part of its early success, but over time it lost focus and momentum. There has also been a view that investment in knowledge and science has been generally lacking. For the past few years, the current strategy hasn't been the go-to guide that it once was.

Significant natural areas on land (places which have been identified to contain threatened species, or rare or naturally uncommon ecosystems) and freshwater and coastal wetland habitats are still being reduced today, pointing to a failure to protect them.

There is also a wider suite of threats and issues that haven't received enough attention – weeds, the emergence of freshwater and biosecurity issues, pathogens, and threats to the marine environment. Climate change is already affecting our natural environment<sup>17</sup> and the impact on our indigenous plants and animals, as well as their habitats, is an urgent issue to grapple with.

At the same time, New Zealand's society has been growing and becoming more diverse. Globally there is an increasing awareness of the urgency to protect biodiversity and the environment. A new set of global biodiversity targets that will set the level of international ambition for a decade or more are due to be agreed in 2020.

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<sup>16</sup> See 'The Synthesis Report: Turning the Tide? A review of the first five years of the New Zealand Biodiversity Strategy' by Bruce Clarkson and Wren Green.

<sup>17</sup> See Environment Aotearoa 2019

## Developing a new biodiversity strategy for Aotearoa New Zealand

The development of a new biodiversity strategy for Aotearoa New Zealand comes at what can be seen as a historical turning point for nature conservation in this country.

Here in New Zealand, we are witnessing an unprecedented conjunction of changes. We are coming near the end of the process for negotiating and settling historical Treaty claims and the emergence of a new Māori/Crown post-settlement relationship. There is a burgeoning public awareness and concern about the state of our environment. Major reforms are in train for freshwater management. Climate change policies are evolving and will likely impact all corners of society. There is an increasing focus on the marine environment. There are moves in both society and government to renew our environmental laws and resource management frameworks. Considerable effort is going into landscape-scale restoration, community driven projects and pest management initiatives. Indigenous trees are being planted at scale.

Taken together these changes show a shift to a new phase, one focused on ecological restoration and the restoration of our connection with nature. There is growing recognition that we – all New Zealanders - have a duty of care, we are all stewards of this precious resource, our taonga.

All this makes it timely to reset our approach to conservation and biodiversity management through a new biodiversity strategy.

There is a huge opportunity for nature to become the foundation for the future success of Aotearoa New Zealand. Restoring biodiversity and people's connection to it will help our country to mitigate and adapt to climate change and its impacts.

The new biodiversity strategy will set out a vision and long-term outcomes for us all to work towards. We will need to communicate the new strategy very effectively across an increasingly diverse society. The new strategy will require a new way of thinking which proactively avoids risk to and supports the enhancement of our indigenous biodiversity. A central focus ought to be how do we fit into nature and not, how does it fit with us.

### **We will all need to work together to succeed**

A key aim of a biodiversity strategy for Aotearoa New Zealand is to provide direction and guidance for our biodiversity system and contribute towards the global response to biodiversity decline.

The new strategy will not be confined to government action. Rather we want it to ignite a groundswell of action and long-term behavior change within New Zealand. As iwi/hapū/whānau, councils, land owners, Non-Governmental Organisations, community groups, businesses, the New Zealand public and the Government we all have a responsibility in managing and enhancing biodiversity – we can all be part of the solution.

Implementing the strategy will require the collaboration and sharing of knowledge. On the ground action will be guided by local, district and regional plans or strategies (which will be informed by the strategy), as well as national tools such as National Policy Statements and legislation.

### **The scope of the new biodiversity strategy**

The new biodiversity strategy will be endorsed by Cabinet. It won't just be for Government – it will be for all of us, as New Zealanders, to own and implement.

The strategy will cover all ecological domains and types of tenure – land, freshwater, estuaries and wetlands, the marine environment from the coastline to the outer edges of the Exclusive Economic Zone. We'll also need to think about migratory species that travel between New Zealand and other countries in the oceans and through the air.

The strategy will explain how we intend to meet our global responsibilities under the Convention on Biological Diversity, as set out in the Aichi Biodiversity Targets.

### **The biodiversity system**

The biodiversity system is the structure that takes actions to maintain and manage our biodiversity. It includes the legislation, governance and leadership, people and organisations (and their roles and responsibilities) including iwi partners, community organisations, philanthropists, farmers, landowners, fishing companies; everything and everyone that delivers something for biodiversity.

Key government agencies involved in the biodiversity system include:

The Department of Conservation (DOC) – responsible for conserving the natural and historic heritage of New Zealand on behalf of and for the benefit of present and future New Zealanders.

The Ministry for the Environment (MfE) – responsible for advising the government on policies and issues affecting the environment, and developing and providing a national environmental management system, including laws, regulations, national policy statements and national environmental standards.

The Ministry for Primary Industries (MPI) – responsible for growing and protecting New Zealand by maximising export opportunities for the primary industries, improving sector productivity, increasing sustainable resource use, and protecting New Zealand from biological risk.

Te Uru Rākau (Forestry New Zealand) is focused on supporting the planting of exotic and indigenous forests, sustainable forestry management, programmes like the Emissions Trading Scheme, and forestry grants.

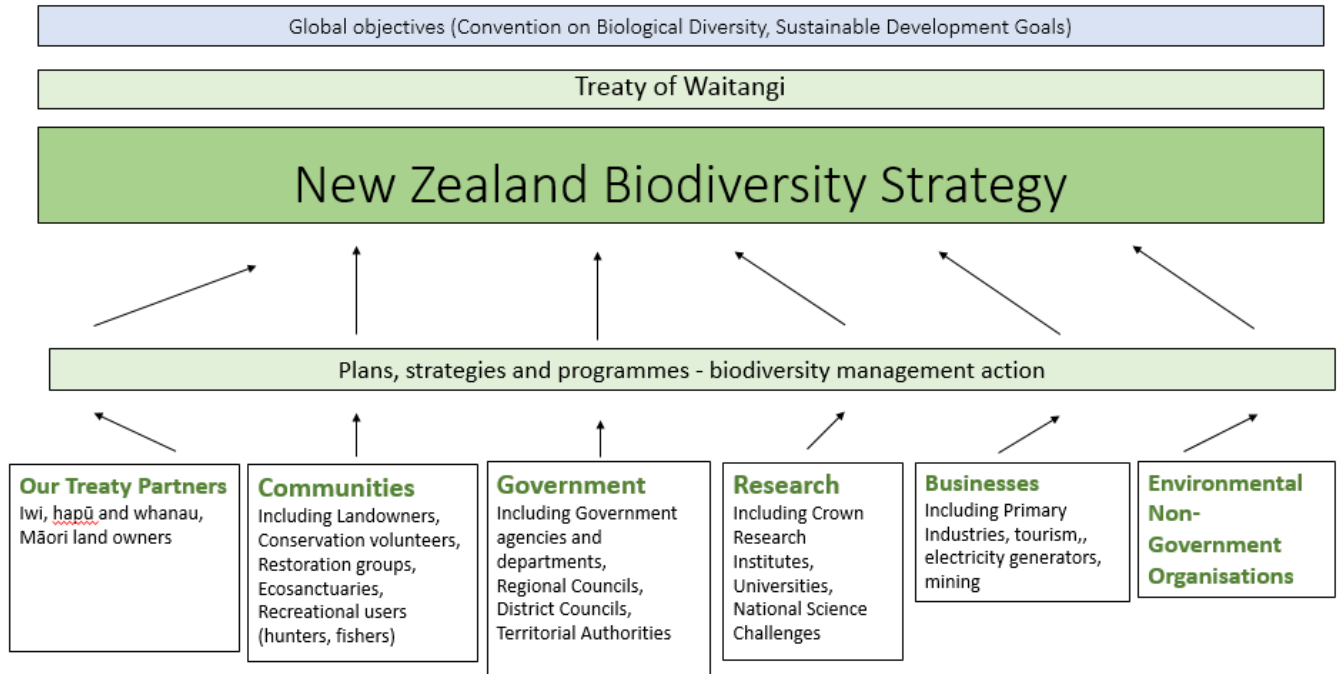
Fisheries New Zealand works to ensure that fisheries resources are managed to provide the greatest overall benefit to New Zealanders.

Local Government – Regional Councils, Territorial Authorities and Unitary Authorities responsible for the day-to-day management of our environment under the Resource Management Act 1991.

Land Information New Zealand (LINZ) - responsible for land titles, topographical information, managing Crown property, and a variety of other functions.

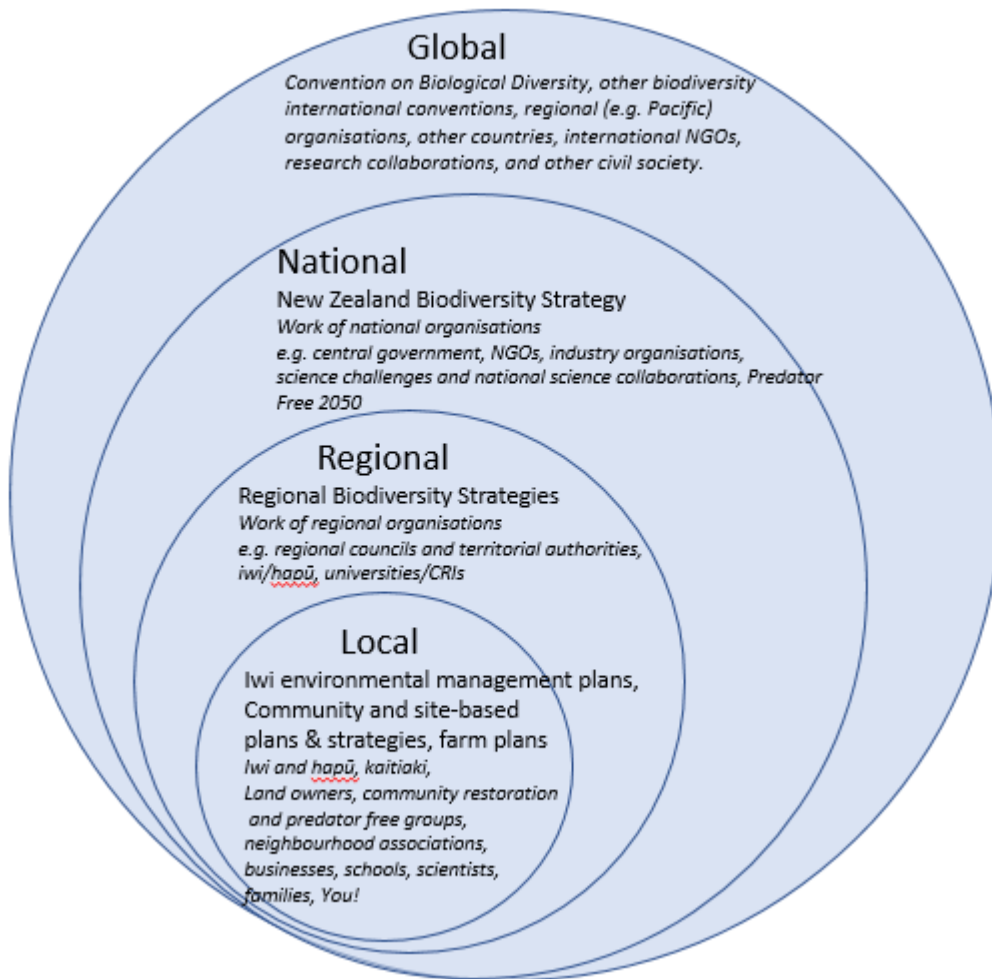
Other key elements of the biodiversity system include Treaty partners, communities, research organisations, businesses and environmental non-government organisations.

Many of the people involved in the biodiversity system are shown in the figure below. The new biodiversity strategy will act as an over-arching canopy which guides biodiversity management action, with all those involved contributing towards it through their programmes of work.



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Figure. Nature is inherently local. It is valued, experienced and managed at place. But there are also larger layers – regional, national and global – where people are working to make a difference.



New Zealand is a party to the **international Convention on Biological Diversity (CBD)**, the objectives of which are:

the conservation of biological diversity;

the sustainable use of its components; and

the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

Under the Convention, New Zealand is required to produce a national strategy, plan or programme for the conservation and sustainable use of biological diversity. The current national strategy (New Zealand Biodiversity Strategy 2000) and Action Plan (New Zealand Biodiversity Action Plan 2016-2020) expire in 2020. New Zealand will be required to report internationally on progress against the strategy.



In 2020, the CBD will adopt a new global biodiversity framework. The new biodiversity strategy for Aotearoa New Zealand will form a core part of New Zealand's contribution to what are expected to be even more ambitious and urgent global targets to be agreed as part of the framework.

New Zealand also has other international obligations, such as the UN Convention on the Law of the Sea, the Convention on the Conservation of Migratory Species, the Convention on Wetlands, the Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, the Antarctic Treaty System, the Paris Agreement, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Convention on Desertification and the Agreement on the Conservation of Albatrosses and Petrels.

New Zealand supports biodiversity in developing countries through Official Development Assistance. In particular, we promote regional approaches to biodiversity protection by providing core support to the Secretariat for the Pacific Regional Environment Programme. We also fund specific programming where there is close alignment to development objectives and New Zealand expertise (for example by supporting training in the management of invasive ants in the Pacific).

Some of the plans and programmes that will directly contribute to actioning the vision and outcomes of the new biodiversity strategy:

**National Policy Statements** are regulatory tools under the Resource Management Act 1991. Work is currently underway to consult on and finalise a National Policy Statement for Indigenous Biodiversity, which will include objectives and policies to help guide the way regional and district councils work with landowners and communities to look after indigenous biodiversity.

The **Predator Free 2050** national initiative brings together central and local government, iwi, philanthropists, non-government organisations, businesses, science and research organisations, communities, land owners and individuals towards an overarching goal of ridding forests of the devastating impacts of stoats, rats and possums by 2050.

**Biosecurity 2025** is a partnership between people, organisations, Māori, and central, local and regional government. Its aim is to make our biosecurity system more resilient and future-focused to protect indigenous biodiversity, ecosystems and landscapes, taonga species and valued non-indigenous species from pests and diseases.

**Regional biodiversity strategies**, developed-collaboratively by councils, tangata whenua, industry, community groups and other interested stakeholders, can enable large scale integrated landscape and catchment planning, align a community behind a shared set of priorities and shared vision, assign roles, set milestones, build relationships, create funding avenues, support iwi management plans and other strategies and enhance biodiversity outcomes through strategic biodiversity planning.

Ecological systems and resources throughout a rohe (area) are diverse and at risk from a range of varying impacts. **Iwi environmental management plans** created by Rūnanga articulate their values, aspirations and priorities for protection, management and sustainable utilisation of natural resources and biodiversity in their regions.

- ❖ *Q. How well does Part 1 of the discussion document set out the problem and consider the challenges and opportunities facing nature now and in the future?*

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## Part 2: Proposals for a strategy

This section sets out proposed components for inclusion in a new biodiversity strategy, including:

- **Te Ao Māori framework** – to show how the parts of the strategy fit together
- **Vision** – a vision for what nature and our relationship with it could look like in the future
- **Values and Principles** – values for how we will go about our work and principles to guide our actions
- **Long term outcomes** – long-term outcomes that describe what we are aiming to achieve
- **Implementation** – how the strategy will be implemented, what areas of change we should focus on first to ensure our actions have the biggest impact, and how we will track progress.

The ideas in this section have been drawn from discussions with a large range of people about what they want biodiversity to look like in the future, what would help them to achieve their goals, and how we can bring everyone together to make the biggest difference. The proposals have been developed considering the essential role of nature for our livelihoods, the drivers of biodiversity loss, and the current and future context, as set out in Part 1 of this document.

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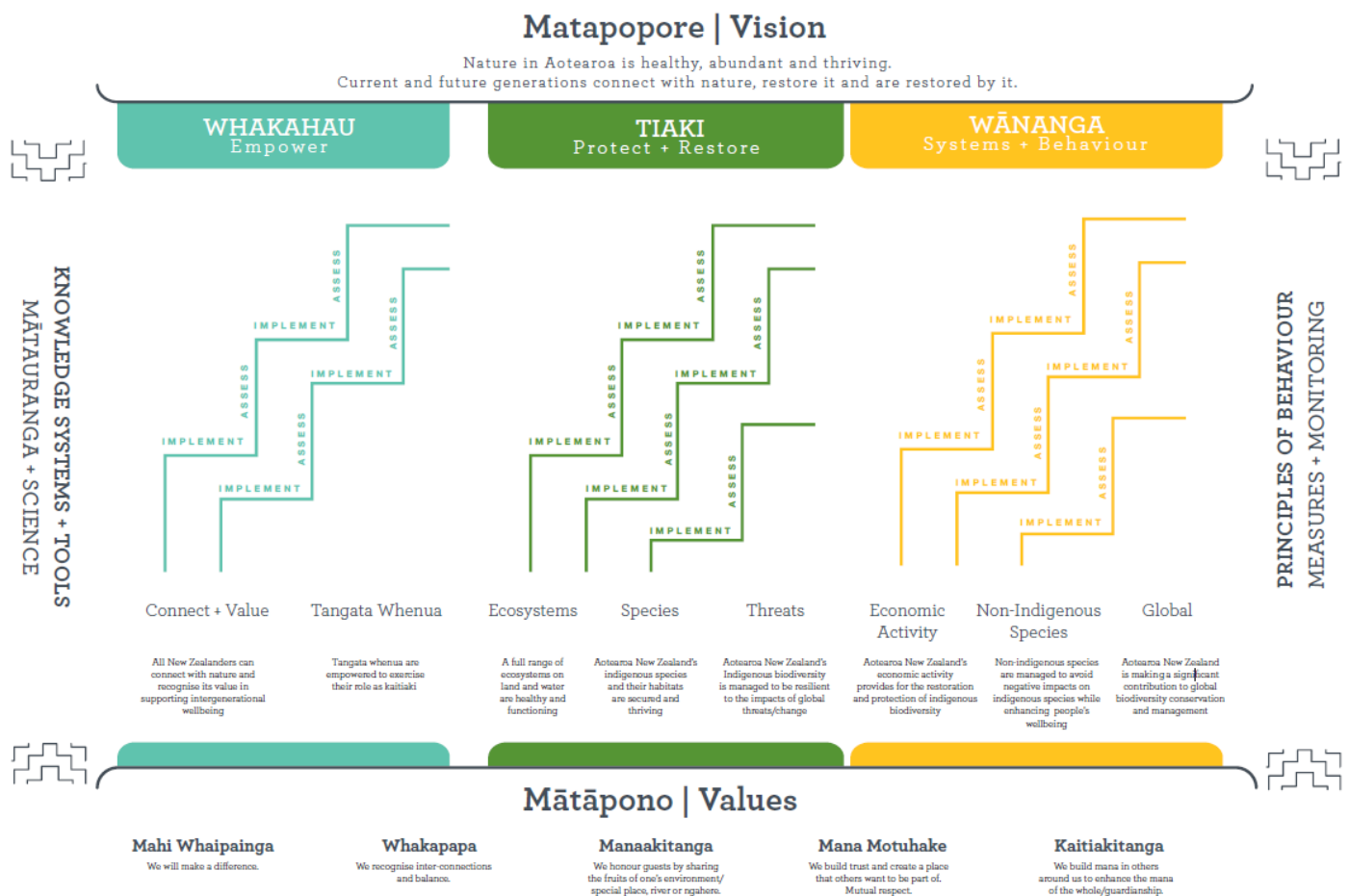
## Te Ao Māori framework

This section will set out the framework currently under development by the Te Ao Māori reference group. The draft framework will be incorporated throughout this document. Once we have received the framework, we will draft text re Te Tiriti o Waitangi around it.

The biodiversity strategy framework is informed by the overarching Te Ao Māori belief system (Te kauwae runga), based on things pertaining to the gods, the origins of all things, the creation of man, the science of astronomy, and the record of time, the intangibles. Secondly, the framework deals with history of people, their genealogies, migrations, their knowledge pertaining to things on the ground, terrestrial matters (Te kauwae raro), the tangibles.

The framework incorporates knowledge of both Te Ao Māori and science, draws on the past and present to achieve a relevance and connection to the future. A future where biodiversity and the life force of all parts of the natural world are in natural harmony.

Current draft [still under development]



## Vision – what we want the future to look like

A key starting point for any new strategy has to be a vision of a future that is different to today. It will take a long-term effort to maintain what we have and to restore our natural environment. We need a vision that truly reflects where we want to be in the future – something ambitious that everyone involved can see themselves working towards. Thinking 50 years from now – the year 2070 – is far enough into the future to stimulate long-term thinking but not too distant that it seems incomprehensible. People have strongly stated that we should be aiming beyond just halting the decline of biodiversity.

### **The vision we see for New Zealand by 2070**

*[The Te Ao Māori Reference Group will develop a Te Reo vision that reflects the narrative below]*

“Nature in Aotearoa is healthy, abundant, and thriving. Current and future generations connect with nature, restore it and are restored by it.”

Amongst other things, this means that, in 2070:

- our species, habitats and ecosystems (especially those that are currently rare and threatened) are increasing, not declining, in number and extent, across private as well as public land and in the sea;
- this increase is not just captured in statistics, we can all see and feel it – for example, the dawn chorus across Aotearoa New Zealand sounds like it does on our offshore islands;
- thriving nature is seen to underpin our economic success and wellbeing, rather than being seen to be in conflict with it – economic growth is a net restorer, not a net subtractor, of our natural environment;
- everyone who wants to can access nature and gain the benefits of doing so, no matter where they live – including, if they wish to, being a part of restoration;
- mana whenua feel that they can genuinely practice their role as kaitiaki - and nature is thriving to the extent they are able to practice customary take.

This vision aims to reflect the relationship between people and nature, and how wellbeing for both is inextricably linked. When we enhance the life force – the mauri – of New Zealand, we are investing in mana for ourselves.

The vision sets a direction based on restoration of nature and ecological processes. We want to see healthy, functioning ecosystems across land, freshwater and sea, for areas to be connected by nature whether we are in cities, protected areas, or the countryside. This includes conserving what remains, enabling ecosystems and processes to rebuild, and protecting them into the future.

We recognise that both indigenous and non-indigenous species are part of this system, but that foremost we will focus on what is unique to Aotearoa.

The timeframe of 50 years and the reference to current and future generations reflect the need for sustainability and long-term thinking.

New Zealand has also committed to support the international Convention on Biological Diversity’s vision of a world of "living in harmony with nature", where "by 2050, biodiversity is valued, conserved,

restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people."

- ❖ *Q: What do you think of the proposed vision for Aotearoa New Zealand and its timeframe?*

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## Values and principles – how we all work together and make decisions

Many people have said that addressing the challenge of biodiversity loss requires coordinated and consistent action across the country. Given the diverse range of people, agencies and groups who will need to be involved, the below values and principles in the strategy are proposed to guide how we work together and make decisions to deliver action. These would for example be some of the values and principles a local biodiversity governance or advisory group might adopt.

**Values** to guide how we will work together:

*Mahi Whaipāinga* - 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 as one, collectively towards a common purpose

*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, and build mana in others around us to enhance the mana of the whole

*Mana motuhake* – We respect each other and recognise sovereignty and autonomy

*Kaitiakitanga* - We enable stewardship of our natural environment

**Principles** to guide how we deliver on our ambition:

Knowledge:

*Knowledge* – Biodiversity management decisions are evidence based, transparent and informed by the best available information including science and mātauranga Māori.

*Learning* – Biodiversity management approaches are adapted based on continual learning.

*Courage* – Innovative approaches are encouraged, and action is not delayed due to of a lack of complete information, especially where significant or irreversible damage could occur or species are at risk of extinction.

Biodiversity management:

*Indigenous biodiversity* - Priority should be given to conserving indigenous species over non-indigenous species, when making management decisions.

*In situ management* - Where possible, biodiversity is best conserved in situ by conserving ecosystems and ecological processes to maintain species in their natural habitats.

*Sustainable use* – Conserving species, habitats and ecosystems is a priority, but does not preclude use or activities that would impact on them, where this is ecologically sustainable and does not result in their long-term decline.

Tools:

*Tools* - A mix of regulatory and non-regulatory tools should be used to achieve the best outcome, recognising that incentives, regulatory guidance and backstops are important elements of an effective response.

*Outcomes* –A range of tools and solutions are considered using an outcomes-based approach to select the best tool to achieve the outcome.

*Respect for property rights* – Respect for property rights and their associated responsibilities, is essential to ensure a collaborative partnership between resource owners and users and public agencies

*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.

*Scale* - Decision making, action, prioritisation and communication occurs at the most appropriate level; be it international, national, regional or local.

*Connections* - Decision making takes into consideration spatial connections across landscapes and seascapes, and impacts through time.

- ❖ *Q: What do you think about the proposed values and principles? Is there anything you would add or change? Which of the values and principles do you think are most important?*

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## Long-term outcomes – what we need to achieve

A strategy needs to define what we are all aiming to achieve. Below are eight proposed long-term outcomes that describe what we want the future to look like. Achieving all of these will together add up to achieve our vision. These outcomes are ambitious and may take up to 50 years to fully achieve. We may not yet know how to achieve all of the proposed outcomes.

The proposed long-term outcomes set out what we are aiming to achieve for nature across land, freshwater and marine environments.

<b>Tiaki – protect and restore</b> <i>Our key outcome is to protect and restore our special indigenous biodiversity to realise the benefits for current and future generations</i>		<b>Whakahou - empower</b> <i>In order to restore nature and realise the benefits for current and future generations, New Zealanders will need to be empowered to act</i>		<b>Wānanga – Systems and behaviour</b> <i>To restore nature and empower others, and respond to the drivers of decline, we will need to make changes to our systems and the way in which we behave</i>	
<b>A full range of ecosystems on land and water are healthy and functioning</b>	This outcome reflects a desire to restore all of Aotearoa New Zealand's ecosystem types to enable them to support indigenous species and deliver ecological processes and services. This reflects a desire to restore the mauri of ecosystems. A full range is a comprehensive and representative range reflecting the known diversity of Aotearoa New Zealand's habitats and ecological communities. This includes habitats and ecological communities that are particularly threatened.	<b>All New Zealanders can connect with nature and recognise its value in supporting intergenerational wellbeing</b>	This outcome seeks to achieve increased awareness of the value individuals and society receive from nature to enable it to be incorporated into decision making. This will lead to improved actions benefiting nature at a personal, societal and economy-wide level. Strengthened connections have benefits for both people and nature. While experiences in nature are important, actively protecting, restoring and nurturing nature creates an even stronger connection. The ability to sustainably use, manage and benefit fairly from New Zealand's biodiversity, in harmony with conservation and restoration efforts, is also key to ensuring long-term community-wide support for, and investment in, conserving Aotearoa New Zealand's biodiversity.	<b>Non-indigenous species are managed to avoid negative impacts on indigenous species while enhancing people's wellbeing</b>	As a society we have diverse values regarding nature, and people value both indigenous and non-indigenous biodiversity for the social, cultural environmental and economic benefits they provide. This outcome recognises the special responsibility we have towards indigenous species - because they are special to New Zealand - and the importance of considering this when making decisions on non-indigenous biodiversity and its benefits to people's wellbeing. It also recognises that non-indigenous species may benefit indigenous biodiversity, for example by providing habitat, and that indigenous biodiversity can be integrated into the places where we live, work and play.
<b>Aotearoa New Zealand's indigenous species and their habitats are secure and thriving</b>	Survival of some indigenous species will require targeted and specific intervention in addition to maintaining the habitats and ecosystems to which they belong. This includes species that are particularly threatened, and those that are highly mobile or sedentary. This outcome reflects a desire to ensure all our indigenous species will persist for future generations.	<b>Tangata whenua are exercising their role as kaitiaki</b>	Kaitiakitanga is the obligation, arising from the kin relationship, to nurture or care for a person, place or thing. It has a spiritual aspect, encompassing not only an obligation to care for and nurture not only physical well-being but also mauri. Mana whenua aspire to exercise kaitiakitanga over their ngāhere, whenua and moana. However currently there are many barriers to this taking place. In order to strengthen kaitiakitanga there is a need to strengthen relationships between people and nature and re-establish cultural practices.	<b>New Zealand's economic activity provides for the restoration and protection of indigenous biodiversity</b>	The environment sets the parameters of our economy. This outcome recognises that there is an opportunity to approach economic activity in a way that helps drive indigenous biodiversity restoration. This will benefit both nature, our wellbeing and the economy itself.
<b>Aotearoa New Zealand's Indigenous biodiversity is managed to be resilient to the impacts of global change</b>	Global changes include climate change, marine plastic pollution, disease spread and biosecurity. This outcome reflects how important it is for biodiversity to be managed to be resilient to the impact of these, and other future global, changes. Nature can also contribute to the resilience of our communities and how we mitigate and adapt to the impacts of global changes, for example, indigenous vegetation as a carbon sink and to protect against extreme weather.			<b>New Zealand is making a significant contribution to global biodiversity management</b>	As a global biodiversity hot spot, protecting and restoring Aotearoa New Zealand's indigenous biodiversity makes a significant contribution to global biodiversity. Aotearoa New Zealand can play a leading role in improving biodiversity globally by sharing our expertise, innovation and knowledge, contributing to international agreements, and delivering improved outcomes for species that migrate across the world.

❖ Q: What do you think about the proposed long-term outcomes? Is there anything you would add or change?

## Implementation

A strategy is only as good as the action it delivers. Many people and organisations will need to be involved in implementing the new biodiversity strategy for it to be successful. It will be critical to have a robust and transparent system governance that oversees the implementation planning and delivery of the new strategy, as well as secure and adequate resourcing.

### **Proposed system shifts**

The section on system shifts sets out five proposed system shifts for implementation. These areas have been identified based on what people have said are the most important areas to focus our efforts in the first five years of the strategy. It is proposed that by being focused and taking coordinated action in these areas, we – all of New Zealand - could make the greatest progress towards the goals and long-term outcomes of the new strategy.

The system shifts are intended to be the main areas for investment and change across the biodiversity system for the first five years of the strategy. After this period, they will be reviewed to see if they are still the most important areas to focus on.

### **Proposed first steps**

At the end of the description of the five system shifts are some proposed ‘first steps’ that could be taken to initiate action in that area. It is envisaged that these actions could be completed in the first few years after the strategy is launched.

These first steps are just a starting point. It is envisaged that other actions will be suggested through consultation, and this will enable a more comprehensive set of first steps to be developed.

These first steps are a starting point for more detailed implementation planning that will take place following the release of the new biodiversity strategy.

### **Measuring our success**

A set of measurable goals that will help to collectively track progress towards our long-term outcomes and vision will be set out in the implementation plan for the new strategy. These goals will describe what we want to have achieved by 2025, 2030 and 2050. An initial set of proposed goals are set out below. You are invited to provide feedback on the proposed goals, what the most important things to track are and what other goals should be included in the implementation plan.

### **A more detailed implementation plan will be developed collaboratively**

A collaborative process will take place following the publication of the final strategy to finalise many of the elements of the implementation plan. It will be important to have the involvement of a wide range of people and organisations to be involved in this process, as the strategy will need to be implemented by us all. This process will produce an implementation plan, focused on the five priority areas, that sets out actions and measurable goals to track progress. The implementation plan will sit alongside the new strategy to direct action towards the vision and long-term outcomes.

This process will need to take account of what actions best sit at a national level and should be delivered through this strategy, and what actions are better planned and delivered at a regional and local level.

Regional or local actions could be planned through regional biodiversity strategies, which will align with the national biodiversity strategy. It will be important that implementation is supported by long-term targeted funding.

**Regular progress reviews will be crucial**

Progress against the new strategy and implementation plan will be regularly assessed and publicly reported on. At the same time, the new strategy will be reviewed to ensure that it is fit for purpose and updated if required. It is proposed that this reporting and review process should take place every five years over the life of the strategy. Some goals may suit more frequent or longer reporting cycles.

Implementation plans are proposed to be developed every five years, so following each progress assessment, a new implementation plan will be developed to guide efforts for the next five years.

- ❖ *Q. What do you think about the proposed plan for implementation planning? What do you think are the requirements for a governance structure to oversee implementation planning and delivery?*
  
- ❖ *Q. What do you think about the proposal for progress reporting and review of the strategy? How do you think this reporting should take place to ensure it is useful, transparent, inclusive, and drives accountability?*

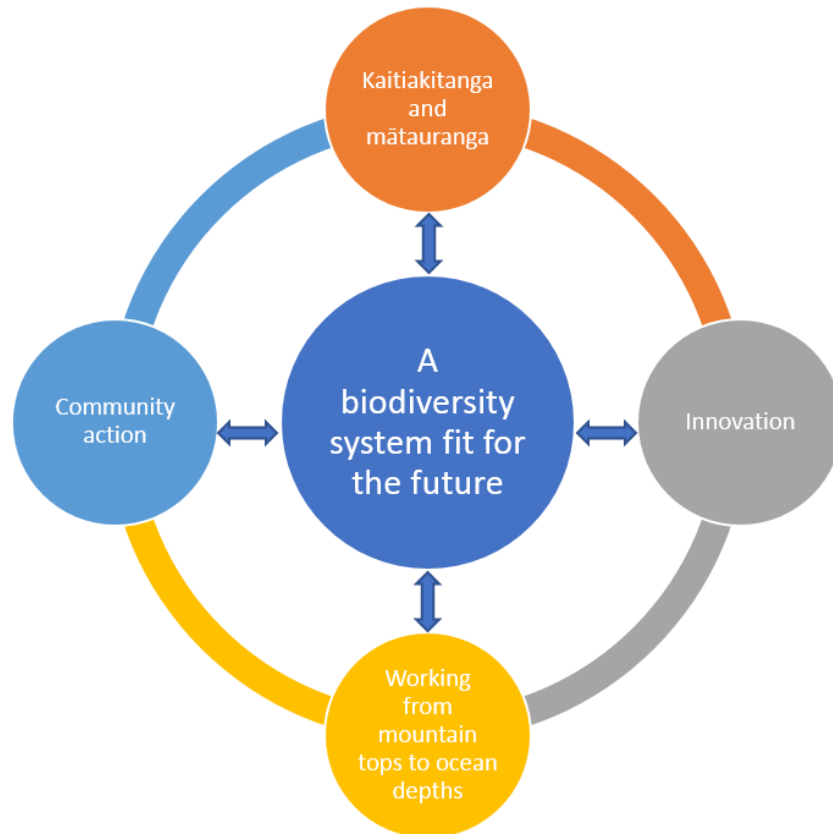
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### Five system shifts to support change

The pressures on biodiversity and drivers of loss are often not confined to one ecological domain (land, freshwater, coastal and marine).<sup>18</sup> Similarly, many potential solutions or ways to address pressures and drivers can provide benefits across ecosystems and domains. A cross-cutting approach is proposed for the new strategy – one that steps back and looks at the biodiversity system and the environment as a whole.

The long-term outcomes proposed in the previous section are ambitious and complex. In order to achieve them, we will need to make changes to the way we approach the challenge of biodiversity loss.

The five areas below are proposed as the most important changes to focus on getting right in the next five years. They will enable us all to make the biggest impact possible. Developing and strengthening these areas, in addition to the biodiversity work that is already underway, will set New Zealand on the best path towards achieving the long-term outcomes and vision.



The **biodiversity system** is the structure that takes actions to manage and maintain our biodiversity – including legislation, governance and leadership, people and organisations.

<sup>18</sup> For example, the way we use land can have effects on the land itself but also extend to connected streams, estuaries and seas. Climate change is an example of cross-cutting issue that will impact all aspects of life in New Zealand. (Environment Aotearoa 2019)

Achieving these system shifts would mean that by 2025, the following would be in place:

### **Getting the system right**

A biodiversity system that's fit for the future – a well-co-ordinated system, optimised to plan, enable, support and deliver action, with clear roles, responsibilities and accountabilities for those involved at national, regional and local levels. This is a fundamental building block if we are to respond to the key drivers of loss and learn the lessons from implementation of the first strategy.

### **Empowering kaitiakitanga and mātauranga māori**

Te Ao Māori perspectives are embedded throughout the biodiversity system, and tangata whenua are enabled to be kaitiaki at all levels of the system. Getting this right is critical for our Treaty relationship, and for our overall success.

### **Communities are empowered to take action**

All New Zealanders are empowered to be stewards of nature, conserving, managing and using it wisely, and those who are actively contributing are connected, effective, and well-supported. Given the many drivers of biodiversity loss and the range of actions that need to be taken by many players, ensuring empowerment (through resources, information and better coordination) is key to success.

### **Working at scale from the mountain tops to the ocean depths**

Biodiversity is managed at scale in a joined-up way across boundaries in the places we live, work and play. The drivers of biodiversity loss are many and varied, as are the number of people who need to play a role in addressing them. Ecosystems are interconnected. Delivering joined up work at scale is therefore critical if we are to make progress.

### **Innovating for the future**

The power of technology, data and science is used to transform the way we manage biodiversity. The pressures on biodiversity are many and complex. We don't yet have all the technology that we will need to succeed - and we will need to innovate. We are working to fill the many gaps in our knowledge to help finalise effective approaches.

- ❖ *Q. What do you think about the five priority areas? Are they the right areas to focus on in the near term? Are there other areas that should be included?*

## Getting the system right

A biodiversity system that's fit for the future – a well-co-ordinated system, optimised to plan, enable, support and deliver action, with clear roles, responsibilities and accountabilities for all involved at national, regional and local levels.

### **Why is this a priority area?**

The biodiversity system is the structure that takes actions to maintain and manage our biodiversity. It includes the legislation, governance and leadership, people and organisations (and their roles and responsibilities) including iwi partners, community organisations, philanthropists, farmers, landowners, fishing companies; everything and everyone that delivers something for biodiversity.

Our current biodiversity system isn't working as well as it should. It fails to tackle issues at the scale needed to address the ongoing and cumulative loss of indigenous biodiversity. People have strongly voiced that action in this area must be a priority and needs to happen now in order to address the range of drivers for loss.<sup>19</sup>

The biodiversity system will need to be resilient and adaptive to respond to future changes and challenges, for example the impacts of climate change.<sup>20</sup>

### **Roles and responsibilities**

There is currently a lack of coordination and clarity around who is supposed to do what. Central government (mainly the Department of Conservation, the Ministry for the Environment, Fisheries New Zealand and Te Uru Rākau) and local government have legislated roles and responsibilities for biodiversity, but these are ambiguous, and result in different approaches across the country.

Other roles, such as statutory bodies like Fish & Game, community groups, environmental NGOs, trusts, private landowners and many more are a crucial part of the system that play a role in advocating for the protection of nature, supporting and delivering interventions, and providing input on legislative and political systems. These organisations rely on local people and often need the support of legislated players to support their capacity and capability – meaning they may spend time competing over funding and resources, particularly to support local on the ground action.

We all have a responsibility to ensure that our actions and the systems we operate within do not contribute to biodiversity loss. Industry, resource owners and consumers have a critical role to play.

### **Regional and local planning**

The new biodiversity strategy will provide priorities at the national level and will support more detailed and specific planning at a regional, local and sector level.

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<sup>19</sup> See the 2017 Regional Council Thinkpiece on Addressing New Zealand's Biodiversity Challenge for further reading about issues in biodiversity management.

<sup>20</sup> See The 2016 Royal Society Report on Climate Change Implications for New Zealand

The proposed National Policy Statement for Indigenous Biodiversity (NPSIB) includes a requirement for regional biodiversity strategies to be developed and for them to support any national biodiversity priorities.<sup>21</sup> Currently, two-thirds of regions have a regional biodiversity strategy existing or in development. These strategies should align with national priorities and support national frameworks such as monitoring.

Regional biodiversity strategies should be developed or reviewed collaboratively by Regional Councils to enable large scale integrated landscape and catchment planning and drive action towards regional priorities across multiple players. They should take into account linkages across ecosystems and include consideration of socio-ecological systems. Regional biodiversity strategies will also enable national visibility of regional outcomes that will support national and regional investors to contribute to them.

The new biodiversity strategy should also support local planning, such as iwi environmental management plans, and sector plans, for example from industry.

### **System co-ordination**

There is a lack of cohesive prioritisation or direction. It's hard for everyone involved in the system to see how they fit together, where overlaps or gaps are, and how to share knowledge or resources. No one has a role to facilitate coordination, partnerships and communication between those involved.

A shift in culture across the system from one where entities work in siloes to one where there is true collaboration, co-design and partnership would deliver better outcomes for nature.

System governance should be inclusive of central, local and non-government and iwi/hapū. One example of this is the Stewardship Council for the Biosecurity system.

### **System capability**

We also lack a strategic view of what is needed to ensure the system is capable of underpinning biodiversity management, both now and in the future. There is a need for increased training opportunities, career pathways, and a plan for how to manage future needs and the transition towards more sustainable models to address climate change, freshwater quality and biodiversity.

### **Regulation**

There are often numerous pieces of legislation governing a particular environment and sometimes these legislative regimes are overlapping, contradictory, contested, ineffective (they allow activities that cause biodiversity loss) or slow. Some of the legislative regimes, are outdated and not able to adapt well to the current and future pressures they need to respond to.

### **Wider influence**

A step change in New Zealanders' relationship with nature will require transformational shifts in the way we use our natural resources, and thus won't be achieved via the new biodiversity strategy on its own.

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<sup>21</sup> See the 2018 Report of the Biodiversity Collaborative Group: Policy 17 (Enhancing and restoring through regional biodiversity strategies) for further reading.

Nature needs to be integrated into the way we make decisions in all sectors and areas of society. In central government the biodiversity strategy needs to work alongside other sector strategies, policies and actions. This can also occur across industries, businesses and wider society. There needs to be a fit for purpose innovative science system for research funding on conservation and biodiversity issues that is built on a co-operative rather than competitive model. Our science system also needs to recognize mātauranga Māori as an equal methodology, albeit one that is local and focused on in depth, intergenerational knowledge held by hapū and whānau.

Government, people and communities have a range of priorities, some of which compete or conflict. A strong, co-ordinated system will enable nature to have a stronger voice in some of these competing priorities.

### First steps

*This section sets out an initial list of actions to get things started. You are invited to comment on what you think about these actions, and to identify other actions that you and other system participants could do.*

Priority actions	Timeframe
Establish an interim governance structure to oversee Strategy implementation planning and delivery.	Immediate (Y1)
Deliver the National Policy Statement on Indigenous Biodiversity to regulate the way we manage biodiversity on land through council plans and resource consent decisions.	Short term (Y1-2)
Review system responsibilities, governance, leadership and statutory roles and responsibilities to ensure these are fit for purpose. Implement the recommendations of this review. At a national level this will include: regular reporting; an independent audit of progress against this strategy; and independent advice on the key actions to be taken in development of the next round of action planning in 5 years' time.	Short term (Y1-2)
Based on the review above, undertake a targeted review of natural resource legislation to ensure it is fit for purpose, enabling, and consistent.	Medium term (Y3-4)
Deliver regional biodiversity strategies developed or reviewed collaboratively by Regional and Unitary Councils with tangata whenua and their communities.	Short – Medium term (Y1-4)
Review current and future system capability needs and implement a plan to address these.	Short - Medium term (Y1-4)
Deliver freshwater policy reform that will provide benefits to freshwater biodiversity.	Immediate (Y1)
Develop a work program to investigate and implement nature based solutions to climate change in relation to the United Nations Climate Action Summit.	Short - Medium term (Y1-4)



Strengthen the biosecurity system, in order to achieve biodiversity outcomes, through the delivery of the Biosecurity 2025 Implementation Plan.	Short - Medium term (Y1-4)
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❖ *Q. Do you agree with the proposed first steps? What other actions should be included?*

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### **Case study: Remediation of the Kaipara Harbour**

Kaipara Moana is taonga. It is an ancient living, spiritual entity, a bastion of nature, alive with history of days past; its bounty is its inherent beauty; its waters, beaches, banks, streams and seabed, and all the minerals below the water; and all the minerals above the water. For Kaipara Uri, Kaipara Moana is the 'processing data-centre', the heart of their Ukaipo, their locale of origin, their homeland, for which they are kaitiaki – to care for and pass on to future generations.

The Kaipara Harbour extends across the Auckland and Northland regions. The Kaipara supports pastoral farming, agriculture and fisheries. Due to changes in land-use over time, the Moana has been and continues to be degraded by sediments and elevated nutrient levels.

The Kaipara is governed by a number of government departments, all of which apply statutory regulations at different management scales, and using different management philosophies. This management approach has contributed to the continuing decline in the mauri of the Kaipara Harbour.

The future of the Kaipara relies on partnership initiatives across sectors, agencies, industry, groups and private land owners to restore mauri of the Kaipara Harbour. Using an integrated management approach, the Integrated Kaipara Harbour Management Group (IKHMG) aims to do this. This group was established by Ngāti Whātua in 2005 and is led by the Te Uri o Hau Settlement Trust.

Integrated management of the Kaipara harbour is a process of utilising both traditional Māori philosophy and science philosophy to manage the Kaipara as an interdependent system. Cross-sectoral management, planning and research recognise that the catchment, harbour and coast are linked - to restore the mauri of the Kaipara, the health of the Kaipara whenua must also be restored.

The work and relationship of the Integrated Kaipara Harbour Management Group is guided by a set of four principles, grounded in Ngāti Whātua ki Kaipara hapū tikanga and values: Kaitiakitanga, Integrated Ecosystem-Based Management, Manaakitanga and Co-management. The concept of whakapapa is core to workplans, ensuring the work is guided by the wisdom of Tupuna (ancestors). The group embraces long-term visioning, sustainability and intergenerational equity. This kaupapa also provides an opportunity for Kaipara hapū to apply their responsibilities and knowledge and achieve particular cultural aspirations.

The Kaipara Harbour's Strategic Plan encourages the development of innovative methods that can be applied at farm-level, encouraging leadership amongst the Kaipara community. Best-practice initiatives include using biological activity in the soil to grow grass crops, addressing run-off, and riparian and wetland planting and restoration.

## Empowering kaitiakitanga and mātauranga māori

Te Ao Māori perspective is embedded throughout the biodiversity system, and tangata whenua are empowered as kaitiaki at all levels of a bicultural system.

### Why is this a priority area?

While Te Ao Māori is an essential part of all elements of the strategy, this area recognises the need for specific action to take place to enable Māori to effectively engage across the whole biodiversity system.

### Partnership with the Crown

A partnership between tangata whenua and the Crown should reflect aspirations for co-management, co-design and management of nature. This includes tangata whenua holding key roles at all levels of the biodiversity system, including governance.

Despite significant improvements in recent years, Māori do not have sufficient recognition as partners in protecting our natural environment. Many iwi, hapū and whānau have significant aspirations to play a greater role in managing biodiversity on public and private land. There is a need for greater capability and support in this area for iwi, hapū and whānau to be able to enact their aspirations.

Concern has been expressed over legislative blocks which prevent whānau or hapū from exercising kaitiakitanga, ranging from the 'watering down' of the input provided by whānau or hapū in plans and policy, to statutory land classifications which prevent access and use of land.

**Wai 262** was a claim lodged in 1991 on behalf of Te Rarawa, Ngāti Kurī, Ngāti Wai, Ngāti Porou, Ngāti Kahungunu and Ngāti Koata to rights in respect of mātauranga Māori and indigenous flora and fauna. This claim is about the place of Māori culture, identity and traditional knowledge in New Zealand's laws, and in government policies and practices. This includes who controls Māori traditional knowledge and the environment that created Māori culture. It also concerns core Māori cultural values such as the obligation of iwi and hapū to act as kaitiaki towards taonga such as traditional knowledge, important places, and flora and fauna that are significant to iwi or hapū identity.

The Waitangi tribunal's response in 2011<sup>22</sup> found that iwi and hapū are obliged to act as kaitiaki towards taonga in the environment such as land, natural features, waterways, wāhi tapu, pa sites and flora and fauna within their rohe. It also found that laws and policies on resource management, conservation and wildlife did not support kaitiaki relationships to the degree required by the Treaty. A Crown response to Wai 262 will need address many aspects of the current biodiversity management system.

### Supporting capability and capacity

It is imperative to get the structures, mechanisms and processes right so that iwi, hapū and whānau can comfortably and confidently participate, improve the visibility of their contributions and initiatives, and to allow progress towards the outcomes of the strategy.

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<sup>22</sup> Ko Aotearoa Tēnei: Report on the Wai 262 Claim

Part of this will be about providing local training opportunities and long-term sustainable employment opportunities in nature restoration.

### **A different approach to conservation**

Strengthening relationships between people and nature includes moving towards creating abundance and sustainable use. Imagine a future where indigenous species are so abundant that sustainable mahinga kai and cultural take can be carried out without affecting the health of the populations. Although populations must grow significantly to reach a point of sustainable use, we need to consider what steps we need to take in the meantime to preserve knowledge and to reach the understanding of population dynamics and management that would be required to enable sustainable use. Traditional management practices need to be a central part of the way we manage biodiversity.

### **Mātauranga Māori**

Mātauranga Māori is knowledge and action that is profound, intergenerational, local and owned by iwi/hapū/whānau at a particular location and should be recognised as being equal with science. The use of mātauranga Māori is dependent on the agreement of the local mana whenua - careful consideration must be given to the sensitivities of the acquisition and use of traditional knowledge.

Better systems are required to enable mātauranga Māori to inform biodiversity management, right from planning through to monitoring success.

### **Iwi management plans**

Many iwi have environmental management plans that set out their aspirations and actions. It will be crucial to ensure that regional and national planning supports these plans.

### **First steps**

*This section sets out an initial list of actions to get things started. You are invited to comment on what you think about these actions, and to identify other actions that you and other system participants could do.*

<b>Priority actions</b>	<b>Timeframe</b>
Agencies to work with Treaty partners to develop ways to improve the management of iwi rights and interests relating to conservation, for example DOC to work with Treaty partners in relation to public conservation land.	Immediate (Y1)
Ensure Māori hold key roles in newly established system governance structures.	Immediate (Y1)
Expand Māori training programmes to increase opportunities for practical conservation skills. Ensure there is a programme in place to facilitate graduates to move into roles at DOC and other organisations.	Medium term (Y3-4)
Review key legislation that relates to biodiversity to ensure it recognises and provides for kaitiakitanga and mātauranga Māori	Medium term (Y3-4)
Support Māori to contribute to international conversations and agreements (e.g. Intergovernmental Panel on Biodiversity and Ecosystem Services and the Convention on Biological Diversity)	Medium term (Y3-4)

- ❖ *Q. Do you agree with the proposed first steps? What other actions should be included?*

Placeholder: for case study

**Legal personhood (e.g. Te Urewera and the Whanganui River)**

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## Communities are empowered to take action

All New Zealanders benefit from and care for nature. Those who actively contribute are connected, effective and well-supported.

### **Why is this a priority area?**

The decisions we make have an impact (positive or negative) on nature. Everybody has a responsibility towards nature. Everyone should be encouraged to consider how they can protect and restore nature through the decisions they make. Given the range and complexity of drivers for loss, this level of wide buy in and support will be critical for success.

This is about all New Zealanders connecting with nature in their own way, in accordance with their values – as individuals, iwi and hapū, as communities, as landowners, as business groups.

### **Education and awareness**

There is an increasing awareness of the importance of nature in our everyday lives. We know that direct experience of nature is crucial, both for increasing the value that people place on it, and for a range of other positive cultural, social, mental and physical health impacts it delivers.

To be successful in achieving our vision for nature, we need to increase this awareness - all New Zealanders should understand the importance of nature, have access to it and embrace opportunities to be involved in action. Education has a critical role as it strengthens the ability of individuals and communities to positively influence the environment and society. It needs to allow for, and increase understanding of, the diverse values within our society.

The challenges we face are inter-generational. We need to ensure equip our young people with the understanding, skills and motivation they need to help address New Zealand's many environmental challenges – including biodiversity loss.<sup>23</sup>

### **Mainstreaming nature**

The tension between economic prosperity and biodiversity protection has not yet been resolved. Our natural environment is a public asset, yet on land private owners are expected to manage it on behalf of all New Zealanders. There is currently a perception that legal protection of private land for its biodiversity values negatively impacts on land value.

Economic incentives that help and encourage land-owners to protect and manage biodiversity on their properties are few and far between. Landowners require support for transitioning land-use and advice on biodiversity management through on-going dialogue.

A similar shift may be needed in the marine environment to manage resources on behalf of all New Zealanders.

Enabling businesses to act is critical to achieving the 'all-of-New Zealand approach' that is needed to make real change. Conservation needs to be 'easy to see and easy to do' for the business community and considered essential for business sustainability practices of every New Zealand business.

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<sup>23</sup> See DOC's Environmental Education for Sustainability Strategy and Action Plan 2017 – 2021 for further reading.

Philanthropic investment for environmental projects is an important source of funding, and there are opportunities to encourage this investment into the areas of highest priority.

### **Incentivising nature protection and restoration**

There are opportunities to use tools to incentivise resource owners and users to make decisions to protect and restore nature. These include economic incentives for restoring habitat on private land (for example payments for ecosystem services), an environmental consumption tax or an environmental protection fund, contributed to by those who harm biodiversity (a polluter pays mechanism).

### **Supporting on the ground action**

Community conservation has grown significantly in the last few decades. Community restoration groups, backyard trappers, coastal marine advocates and the sanctuary movement have changed the face of biodiversity management. There has also been an increase in philanthropic funding and increased awareness and contribution from business and industry.

As we become more aware of the pressures our indigenous biodiversity is facing, it becomes more urgent for us all to work together. There are many small-scale community groups involved, for example in predator-free initiatives, but larger scale co-ordination is needed.

In many cases currently the myriads of groups and individuals doing conservation work are not joined up or supported. They cannot access ongoing funding or best practice information, and are not sufficiently monitoring the effects of their efforts.

Little direction is provided about national and regional marine, freshwater and land priorities, and local people may not feel they have avenues to inform direction.

We need to enable community ownership of biodiversity action and provide consistent, effective and targeted best practice advice, support and capability building accessible to all individuals and groups. We need to standardise, align and simplify funding processes and ensure funding is tied to delivery of biodiversity outcomes.<sup>24</sup>

Many iwi, hapū and whānau have significant aspirations to play a greater role in managing biodiversity on public and private land. There is a need for greater capability and support in this area for iwi, hapū and whānau to be able to enact their aspirations (see the Te Ao Māori priority area on page X).

There is an opportunity to enable and support local people, particularly rangatahi, in monitoring and restoration projects.

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<sup>24</sup> See the report Transforming Community Conservation Funding in New Zealand (Marie Brown 2018).

## First steps

*This section sets out an initial list of actions to get things started. You are invited to comment on what you think about these actions, and to identify other actions that you and other system participants could do.*

Priority actions	Timeframe
Implement a consistent national approach to rates relief for covenanted and other protected private land.	Immediate (Y1)
<p>Assess the need for regional community conservation hubs/forums, to provide strategic advice and practical support and coordination/connection to community conservationists and businesses (including landowners), while also allowing for local needs. These could be run by regional councils, iwi/hapū or other organisations where appropriate.<sup>25</sup></p> <ul style="list-style-type: none"> <li>• Review current hubs/similar arrangements to establish what is most effective and what barriers may exist</li> <li>• If required, establish a national function to support establishment of hubs and provide coordination and oversight, such as a nationwide network of biodiversity hubs and connection to national and regional funders</li> <li>• Establish additional resources for advice eg. rural advisors, and capability growth eg. training/workshops for community groups and businesses</li> </ul>	Short term (Y1-2)
<p>Assess the approach to funding for community conservation, including:</p> <ul style="list-style-type: none"> <li>• Aligning funding with conservation need and regional/national priorities</li> <li>• Increasing the focus on monitoring and delivery of outcomes</li> <li>• Streamlining processes to reduce transaction costs, including reporting</li> <li>• Allowing for research</li> </ul>	Short term (Y1-2)
<p>Review current tools for providing best practice information and advice for the management and monitoring of biodiversity, to determine whether a new online portal should be established and maintained. This should include (but not be limited to) the following topics:</p> <ul style="list-style-type: none"> <li>• Restoration and pest control best practice</li> <li>• Information on ecosourcing</li> <li>• Advice and tools for community group administration</li> <li>• Working with local iwi/hapū/whānau to see how their mātauranga Māori practices can help us more fully understand our natural environment.</li> </ul>	Short term (Y1-2)
Develop a Communications strategy and advocacy programme to promote interest and people’s desires to protect nature, which is informed by prior research into diverse values and includes a Māori worldview.	Short term (Y1-2)
Implement the Environmental Education for Sustainability Strategy and Action Plan.	Short term (Y1-2)

<sup>25</sup> This action relates to Biodiversity Collaborative Group recommendations 2.1 and 2.2.



Assess of the recommendations of the Tax Working Group relating to the environment.	Short term (Y1-2)
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❖ *Q. Do you agree with the proposed first steps? What other actions should be included?*

**Case study: Tourism Sustainability Commitment**

Tourism businesses operating in our natural places provide a means for people to connect with nature, often in a very hands-on and powerful way. These businesses are then in a unique and important position to encourage and enable people to become champions of our environment.

In 2017, the Tourism Industry Aotearoa launched the Tourism Sustainability Commitment (TSC) which aims to see every New Zealand tourism business committed to sustainability by 2025, supporting our vision of leading the world’s most sustainable tourism industry. Driving the focus on environmental sustainability is the commitment that tourism is recognised for its contribution to protecting, restoring and enhancing New Zealand’s natural environment and biodiversity. This is supported by industry goals that ‘Tourism businesses actively support and champion ecological restoration initiatives’ and ‘Tourism businesses are measuring, managing and minimising their environmental footprint’. Well over 1000 tourism operators have signed up to the TSC since its launch.

Real Journeys is a company that is taking the sustainability commitment to the next level. This tourism company sees nature conservation as a key part of their business, and they partner with the Department of Conservation and local communities to support habitat and species management programmes in Fiordland. The removal of stoats and rats from Cooper Island in remote Dusky Sound has been a key achievement and Real Journeys' vision is for some of New Zealand's most vulnerable indigenous birds like kākāpō and kiwi to eventually be able to return to the island.

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## Working at scale from the mountain tops to the ocean depths

Nature is managed at scale, in a joined-up way, across boundaries in the places that we live, work and play.

### **Why is this a priority area?**

There are many drivers for loss of our species, habitats and ecosystems. Nature is everywhere and interconnected. Whilst local and community action is vital; to effectively protect and restore nature we must also think large-scale and across boundaries. Nature does not abide by artificial human boundaries or lines on a map – species move between areas, and what happens in one ecosystem will affect what happens in another. This should be the basis of approach for making decisions and taking actions for nature.

Connections between ecosystems are often not accounted for. Actions within one environment can have cascading effects on other areas. For example, many of the threats to marine habitats arise from outside of the marine environment. A recent NIWA report concluded that many of the top threats to marine habitats (such as ocean acidification, rising sea temperatures and sedimentation from changes in land use) stem largely or completely from human activities external to the marine environment<sup>26</sup>. Adverse effects on biodiversity that cross the land-sea boundary need to be managed more effectively.

The integration of management regimes also needs to account for the connections that environments share with people. The connections through whakapapa between Māori and ecosystems in their rohe (area) extend through our rivers and encompass the freshwater taonga that inhabit them. Various land-use practices that adversely affect the biodiversity of freshwater ecosystems flow downstream, ultimately affecting marine ecosystems and negatively affecting the rights and interests of communities and Māori.

We need to move towards large scale co-ordinated biodiversity management and action being the norm, where we work collaboratively across ecosystem and tenure boundaries. This approach will help address the impacts of climate change on our species, habitats and ecosystems.

### **Working at scale has ecological benefits**

Managing threats at a large scale provides larger safe areas, which can provide habitat for more species to thrive as well as being essential for species that range over large areas. Managing threats at scale can be more effective as well as provide opportunities for efficiency. Management at a catchment scale allows the interconnection of land, freshwater and marine environments to be managed as a whole, as well as accounting for ecosystems that often fall through the cracks, such as freshwater and marine estuaries, dunes, soils, and caves.

The approach to working at scale can be to start with protecting existing ecosystems and then working towards restoring connections across other land, freshwater and marine environments. This includes corridors for nature, linkages over landscapes, reducing fragmentation, considering externalities, and working strategically to fill in the gaps between ecosystems and maximise biodiversity outcomes.

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<sup>26</sup> MacDiarmid et al. 2012. Assessment of anthropogenic threats to New Zealand marine habitats.

## Joining up smaller scale efforts

Small scale efforts are fundamental to the survival of many localised species, often occurring in areas where indigenous biodiversity is either absent or under pressure. Those efforts need recognition, support and connection.<sup>27</sup>

Considerable action on the ground is already underway, however it is often piecemeal and could benefit from expansion to improve results. Local efforts are not always connected or strategic, potentially missing opportunities to have a bigger impact. There is a significant opportunity to join up management efforts and scale up both the effort and the impact of our actions.

Joining up people and organisations across boundaries enables us to bring together resources and effort, and share learnings. We can also think about the boundaries that do exist and work with them in the most strategic way.

## Where people live, work and play

Both nature and people will benefit if we can effectively integrate nature into the places where we live, work and play. An integrated landscape approach (a way of managing a landscape that brings together multiple stakeholders, who collaborate to integrate policy and practice for their different land use objectives) should also recognise the value of productive landscapes for our wellbeing and economy, and the role they can play in supporting indigenous biodiversity.

New Zealand is one of the most urbanised countries in the world. There is significant opportunity to restore nature in cities and integrate it into urban planning, which in turn will help reconnect urban dwellers with nature.

## First steps

*This section sets out an initial list of actions to get things started. You are invited to comment on what you think about these actions, and to identify other actions that you and other system participants could do.*

Priority actions	Timeframe
Scale up programmes for privately protected areas (for example Nature Heritage Fund, QEII and Nga Whenua Rahui) to consider landscape connectivity	Short term (Y1-2)
Establish landscape scale projects that are defensible against predator reinvasion. For example, connecting project boundaries to the sea, major rivers, high mountains or other features which increase the ability to prevent predators reinvading or recruiting from within a site.	Short term (Y1-2)
Implement strategic plan for Predator Free 2050, including regional planning.	Short term (Y1-2)
Undertake national climate change adaptation planning for biodiversity, identifying key threats and actions	Short term (Y1-2)
Integrate biodiversity management into farm management, for example through inclusion in integrated farm plans.	Short term (Y1-2)

<sup>27</sup> See the report Transforming Community Conservation Funding in New Zealand (Marie Brown 2018).

Ensure regional biodiversity strategies include a focus on integrated catchment (including receiving environments) and landscape scale biodiversity planning	Medium term (Y3-4)
Map marine ecosystems to identify priority threats, and implement management actions, including priorities for marine protection.	Medium term (Y3-4)
Complete key marine protection initiatives in the Hauraki Gulf, Kermadecs and Southern South Island.	Medium term (Y3-4)
Deliver freshwater policy reform that will provide benefits to freshwater biodiversity.	Immediate (Y1)
Ensure that the One Billion Trees Programme delivers benefits for biodiversity.	Medium term (Y3-4)

❖ Q. Do you agree with the proposed first steps? What other actions should be included?

[Case study on Mackenzie in development]

**Case study: Reconnecting Northland**

Reconnecting Northland is a visionary initiative that is working to restore ecosystems and build greater resilience across the communities and landscapes of Te Tai Tokerau. Its vision of, 'Whenua ora, wai ora, tangata ora', recognizes the need to strengthen the connection between people and nature, where people value and care for nature and nature provides for the people. It is the country's first programme to simultaneously focus on ecological restoration and community well-being – acknowledging that the wellbeing of people and the natural world are interdependent.

Reconnecting Northland is working to “reconnect” the landscape and make space for nature while including human uses of the land. This connectivity approach to conservation is helping to address biodiversity loss and build greater ecological and socio-economic resilience to climate change. By creating ecological corridors, buffer zones increasing the diversity of land use it is helping to reconnect a tapestry of ecosystems so they can function more efficiently as a whole landscape.

In order to achieve this conservation goal Reconnecting Northland is working as a key pollinator and connector between hapū, iwi, communities, landholders, funders and government agencies. It is now also helping to lead a paradigm shift in the way we approach landscape-scale conservation right across Aotearoa New Zealand.

The programme uses a process of 'Connectivity Action Planning' to facilitate the active involvement of multiple stakeholders in the design process to identify and align common goals. This process encourages new innovative ideas to emerge and Reconnecting Northland can then help to broker external expertise and resources to support local entrepreneurs to convert their ideas into tangible opportunities for ecological, whānau and social enterprise.

The programme currently works with communities, iwi and hapū to identify the needs and challenges, values and motivations they have in relation to carrying out their conservation initiatives. A significant part of its work involves co-designing meaningful solutions that create regenerative practice, brokering meaningful partnerships between central and regional government agencies to leverage resource and outcomes for the communities of Northland.

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## Innovating for the future

Harnessing the power of technology, data and science to transform the way we manage biodiversity.

### **Why is this a priority area?**

Science and information underpin biodiversity management – from research to understand our indigenous biodiversity and the pressures it faces, to the development of tools to manage these threats, and adaptive management approaches to improve our management. Data is necessary to monitor progress, evaluate effectiveness and inform decisions.

Science is essential for achieving the vision and long-term outcomes of this strategy. Actions need to draw on environmental knowledge developed by tangata whenua over many generations, as well as the biological, social and economic sciences and developments in technology.

For us to be successful in achieving our aspirations for nature, we must continually innovate. We need to learn from and adapt approaches towards challenges, and look for new ways to solve problems.

### **Foundations to build on**

There are many examples of innovative and collaborative research in New Zealand that contribute towards improving biodiversity management. For instance, the National Science Challenges are cross-disciplinary, mission-led programmes designed to tackle New Zealand's biggest science-based challenges – including New Zealand's Biological Heritage Nga Koiora Tuku Iho.<sup>28</sup> The projects require collaboration between researchers from universities and other academic institutions, Crown research institutes, businesses and non-government organisations to achieve their objectives.

Predator Free 2050 is a good example of where effort will be focused on enabling innovation in predator management.

It is important to build on this momentum by investing in science and the people who contribute, enabling collaboration, addressing knowledge gaps and making sure that the biodiversity system has the best possible tools and data to draw on.

### **Investing in knowledge**

A strong evidence base is crucial. However, there are critical knowledge gaps in many core areas of understanding (for example data deficient species, where insufficient information is available to make an assessment on conservation status)<sup>29</sup>. We must invest in science to fill key knowledge gaps and ensure that science delivers the knowledge and tools we need to improve biodiversity management outcomes.

We must also invest in outcome led social science to understand New Zealanders values, attitudes and aspirations about biodiversity management. This includes consideration of social license to use existing tools and starting a journey with society about the potential of new tools.

We need to drive better value from current investment in science and research. This will necessarily involve a move away from a competitive model for conservation and biodiversity science to a

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<sup>28</sup> <http://www.biologicalheritage.nz/>

<sup>29</sup> See Environment Aotearoa 2019, pg. 27

collaborative model, with better co-ordination and a more systematic approach to how we fund and deliver research. We need to ensure that outcomes from research are well communicated and are used to inform management.

Many businesses are increasingly aware of New Zealand's biggest environmental challenges and opportunities and the benefits of working together on solutions. Linking key conservation challenges with businesses is an opportunity to encourage investment and innovation.

### **Ensuring we have the scientific capability we need**

It is crucial that we retain, maintain and grow our scientific capability in organisations and research institutes. We need to plan ahead so that the biodiversity system, both now and into the future, provides support for science through sustainable career pathways and on-going capability.

Some examples of capability we need to maintain includes knowledge of identified species and ecosystems as well as working towards filling knowledge gaps, the design of monitoring, providing advice on operational policy and policy making, and areas that underpin evidence-based management. (For example, taxonomy - the science which allows us to understand and identify New Zealand's indigenous species as well as pests and weeds<sup>30</sup>).

### **Tools and technology**

In many cases, we are still managing and researching biodiversity with tools developed fifty years ago. So much has changed in the technological world since then – there is the potential to transform the way we do biodiversity management.

For example, recent innovation into making 'smart' rat and stoat traps that self-reset and send information to a mobile app when a predator has been caught, can make predator control a lot more efficient and engage a wide range of people in conservation. There are opportunities to further develop tools that allow the public to see and interact with real-time information – such as DOC using live webcams to show events such as Northern Royal Albatross breeding.

New Zealanders hold diverse values and beliefs around the use of tools and technology. With innovation and development comes the need for transparency, good communication and research around social license.

### **Data**

Biodiversity monitoring is very uneven across the country and the lack of comparable consistent data for assessing trends leads to an issue of accountability for performance. Many of the monitoring systems at present do not have the ability to undertake biocultural monitoring (biocultural restoration aims to equally improve both biological and cultural diversity), nor do they take account of local mātauranga Māori concepts, or connect data between domains.

The data used for state of the environment reporting and for environmental decision-making comes from monitoring and data collection undertaken by many agencies, organisations and science providers. Availability and quality of data varies across topics and between regions of New Zealand, and baseline

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<sup>30</sup> See the 2015 Royal Society report on National Taxonomic Collections in New Zealand.

data is insufficient in many areas. Data collections are often inaccessible and not joined up, making it hard to know what information exists and how to analyse it.

Success in this area will ensure that information needs are understood at a system-wide level, data is collected, maintained and stored using agreed consistent standards, data is reported and made available to all who can make effective use of it, and we unlock the full value of information through the best data use and analysis. Innovation in this area will increase what we can do.

This will enable decision making to be based on high quality information and for Aotearoa New Zealand to tell a clear story about our progress. New data should be integrated into the Open Government Data Initiative led by Statistics NZ, to make sure that it's fully accessible and reproducible for future needs. Intellectual property rights will also need to be considered.

There are significant opportunities to expand the role and value of mātauranga and citizen science in contributing towards biodiversity monitoring.

### Prioritisation

Data and knowledge are necessary to inform consistent decision-making about the best use of resources. There needs to be an integrated consistent spatial prioritisation approach, across ecosystems on land and sea, and across tenure, that considers ecological, socio-ecological and cultural data and knowledge. This will inform evidence-based prioritisation to direct efforts across the system ensuring the best outcomes with the resources available.

### First steps

*This section sets out an initial list of actions to get things started. You are invited to comment on what you think about these actions, and to identify other actions that you and other system participants could do.*

Priority actions	Timeframe
Deliver a Conservation Science Prospectus to set out research priorities for the biodiversity system, and drive research funding towards these priorities/ensure that it influences the science funding system.	Immediate (Y1)
Ensure the research landscape supports development of mātauranga research.	Short term (Y1-2)
Review the current biodiversity monitoring systems, across central government, iwi/hapū/whānau and regional councils to enable us to establish a system that aligns monitoring from community to national level. <sup>31</sup>	Short term (Y1-2)
Review prioritisation system as carried out by DOC and Regional councils, and roll out a coordinated national prioritisation system for ecosystem based management, as well as site and species-based management.	Short term (Y1-2)
Establish a data commons for biodiversity information that: <ul style="list-style-type: none"> <li>brings together current disparate data-sets,</li> </ul>	Medium term (Y3-4)

<sup>31</sup> This action relates to Biodiversity Collaborative Group recommendation 4.1.



<ul style="list-style-type: none"> <li>• includes data standards to enable databases to be joined up (including for citizen science),</li> <li>• provides a full national picture of biodiversity status, trends, threats, mātauranga and management interventions,</li> <li>• includes an accessible dashboard of biodiversity indicators,</li> <li>• engages with iwi/hapū and whānau at place on their mātauranga Māori concepts,</li> </ul> <p>The data commons might take the form of an atlas of living Aotearoa. Development of a data commons should align with related work programmes such as those in Biosecurity 2025.</p>	
<p>Undertake a review of the scientific capability needed across the biodiversity system both now and into the future.</p>	<p>Medium term (Y3-4)</p>

❖ *Q. Do you agree with the proposed first steps? What other actions should be included?*

Placeholder for case study [to be developed]:

**New Zealand Bird Atlas** – a citizen-science based national bird monitoring scheme to develop an atlas of New Zealand's birds. (launch date 1 June 2019).

- <https://www.osnz.org.nz/sites/osnz.org.nz/files/1901%20Atlas%20Design%20Discussion%20Document.pdf>
- Modern advances in computer modelling and mapping mean that this Atlas will be a powerful tool in advocating for the conservation for our birds. An important output will be the ability to compare bird occupancy estimates between each of the three atlas project datasets, enabling us to describe nationwide changes in bird distribution over 45 years.
- In particular the Atlas will provide the best indication of how a wide range of our endemic birds are faring. For all those species which are neither common, nor rare enough to be receiving conservation attention, the Atlas provides the best opportunity to measure their population trends.
- It will provide a sound, solid, scientific basis to inform management actions and enable better protection of both birds, and their habitats.

## Goals – tracking our progress

Setting goals over the timeframe of the new strategy will help us to track our progress and know whether we are successful in moving towards our long-term outcomes and vision. These goals will describe what we want to have achieved by 2025, 2030 and 2050. Everyone involved in protecting and restoring nature can contribute to these goals, and therefore the goals should be set to be ambitious in what we can all achieve together.

Restoring people's connection nature will require intergenerational change. Ecological timeframes can be significantly longer than a human life. Therefore it is important to have long-term goals to provide goal posts and inspiration for future direction, as well as short-term goals in address current challenges facing our biodiversity and keep momentum.

The new biodiversity strategy's long-term outcomes and goals will also need to deliver on New Zealand's international commitments under the new, post-2020 global biodiversity framework, to be adopted under the Convention on Biological Diversity next year. This framework will include a new, high-level global 2030 goal or mission, as well as specific new targets to replace the current Aichi Biodiversity Targets. For this reason, there may be potential to further build on or refine our proposed goals and priority actions in 2021 to ensure they also meet and deliver on our new international targets, once they have been agreed in late 2020.

A set of proposed goals are set out below. You are invited to provide feedback on the proposed set of goals, what the most important things to track are and what other goals should be included. This will allow a comprehensive set of measurable goals to be set out in the implementation plan for the strategy.

### **By 2025, if we have been successful, we will see:**

- No further decline in the number and extent of coastal and freshwater wetlands.
- All Significant Natural Areas on land mapped and protected.
- Marine ecosystems mapped and evidence-based priorities for protection and management have been established.
- All predators and non-indigenous browsers eradicated from all offshore island nature reserves and other priority biodiversity hotspots.
- Threats from climate change comprehensively integrated into species management plans and strategies.
- Tangata whenua meaningfully engaged by government in decision-making about the whenua, awa and moana with which they associate.
- Tikanga concepts applied widely in biodiversity management.
- There is a complete network of biodiversity hubs across New Zealand.

### **By 2030, if we have been successful, we will see:**

- No net loss of extent of rare and naturally uncommon terrestrial indigenous habitat (active sand dunes, braided riverbeds, estuaries, cloud forests etc)
- Ten key freshwater pest species and ten key land-based weed species are reduced or controlled to a level that does not diminish ecological integrity.

- In the marine environment, Marine Protected Areas have been established in priority areas and priority risks are being actively managed. Indicators are demonstrating positive changes.
- New Zealand acknowledged internationally as a source of biodiversity protection and restoration know how.
- Plans identify mahinga kai species and put in place management to enable cultural take.
- Large-scale planning and action is being undertaken for large geographical areas in high priority places e.g over 500,000 hectares.

**By 2050, if we have been successful, we will see:**

- Overall, the net extent of indigenous ecosystems is increasing.
- The extent of our undegraded rare and naturally uncommon terrestrial indigenous habitat (active sand dunes, braided riverbeds, estuaries, cloud etc) is increasing.
- The number and extent of our freshwater and coastal wetlands is increasing.
- Ten key freshwater pest species and ten key land-based weed species have been eradicated.
- Aotearoa New Zealand is free from stoats, possums and rats.
- All established pests are reduced to the level where ecological integrity is not diminishing.
- Populations are increasing for all our threatened species.
- Bycatch of seabirds, corals, and marine mammals reduced to zero.
- Mahinga kai, cultural take and sustainable use of our indigenous species is taking place.
- Every business is helping to restore nature.

❖ *Q. What do you think of the proposed set of goals? What are the most important things to track to measure our progress? What else should be included?*

❖ *Q. Overall, are these the components of an effective strategy?*

### Part 3 – International context

The new biodiversity strategy for Aotearoa New Zealand will fulfill our international obligations under the Convention of Biological Diversity by specifying the actions New Zealand plans to undertake to achieve the current set of global biodiversity targets, the Aichi Biodiversity Targets. More information on the Aichi Biodiversity Targets can be found on the Convention of Biological Diversity website:

<https://www.cbd.int/sp/targets/>

#### **The new set of global biodiversity targets**

The Aichi Biodiversity Targets are set to end in 2020. There is a process underway in the Convention of Biological Diversity to determine a new set of targets to replace them by late-2020. The process will involve a number of international meetings to discuss and negotiate the new targets. Ultimately it will be countries that decide between themselves what the new targets will be, but the process is open to input from everyone, as everyone will be needed to work towards the new goals to prevent global biodiversity decline.

More information can be found here: <https://www.cbd.int/conferences/post2020>. Also available on this website are possible goals, principles and structures for the new framework that have been proposed by other countries, NGOs, indigenous peoples, businesses and others.

You are invited to provide your views on what should be included in the new global targets, as a part of this consultation process on the New Zealand Biodiversity Strategy.

There will also be other separate opportunities to input into the global process over the next year.

- ❖ *Q. What do you think a global vision and targets for biodiversity should look like? Are they the same as what is proposed in our national strategy, or should they be different? Are there any other things that should be included in the global framework? How do we make sure that our national strategy aligns with global goals?*

## Part 4 – Next steps

### How to have your say

Any submission you make becomes public information. Anyone can ask for copies of all submissions under the Official Information Act 1982 (OIA). The OIA says we must make the information available unless we have a good reason for withholding it. You can find those grounds in sections 6 and 9 of the OIA.

Tell us if you think there are grounds to withhold specific information in your submission. Reasons might include it being commercially sensitive or personal information. However, any decision DOC makes to withhold information can be reviewed by the Ombudsman, who may require the information be released.

### Consultation information

*This will be filled out following confirmation of dates. Consultation engagement will likely include the use of online and social media platforms as well as public consultation meetings.*

### Next steps

Consultation on this discussion document will inform the development of the new biodiversity strategy for Aotearoa New Zealand. The new strategy will be finalised by Cabinet.

A collaborative process will take place following the publication of the final strategy to develop an implementation plan.

### Discussion questions

Page #	Section	Question
	Why Aotearoa New Zealand needs a strategy for nature	<i>How well does Part 1 of the discussion document set out the problem and consider the challenges and opportunities facing nature now and in the future?</i>
#	Vision – what do we want the future to look like?	<i>What do you think of the proposed vision for Aotearoa New Zealand and its timeframe?</i>
#	Values and principles – how do we want to work together?	<i>What do you think about the proposed values and principles? Is there anything you would add or change? Which of the values and principles do you think are most important?</i>

Page #	Section	Question
#	Long-term Outcomes – what do we need to achieve?	<i>What do you think about the proposed long-term outcomes? Is there anything you would add or change?</i>
	Implementation	<p><i>What do you think about the proposed plan for implementation planning? What do you think are the requirements for a governance structure to oversee implementation planning and delivery?</i></p> <p><i>What do you think about the proposal for progress reporting and review of the strategy? How do you think this reporting should take place to ensure it is useful, transparent, inclusive, and drives accountability?</i></p>
#	Five system shifts to support change	<i>What do you think about the five system shift areas? Are they the right areas to focus on in the near term? Are there other areas that should be included?</i>
#		<p>Getting the system right: <i>Do you agree with the proposed first steps? What other actions should be included?</i></p> <p>Communities are empowered to take action: <i>Do you agree with the proposed first steps? What other actions should be included?</i></p> <p>Working at scale from the mountain tops to the ocean depths: <i>Do you agree with the proposed first steps? What other actions should be included?</i></p> <p>Empowering kaitiakitanga and mātauranga māori: <i>Do you agree with the proposed first steps? What other actions should be included?</i></p> <p>Innovating for the future: <i>Do you agree with the proposed first steps? What other actions should be included?</i></p>
#	Goals – how will be track our progress?	<i>What do you think of the proposed set of goals? What are the most important things to track to measure our progress? What else should be included?</i>
#	International context	<i>What do you think a global vision and targets for biodiversity should look like? Are they the same as what is proposed in our national strategy, or should they be different? Are there any other things that should be included in the global</i>

Page #	Section	Question
		<i>framework? How do we make sure that our national strategy aligns with global goals?</i>

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## Glossary

**Biological diversity** - the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (Convention on Biological Diversity). Components include:

**Genetic Diversity:** The variability in the genetic make up among individuals within a single species. In more technical terms, it is the genetic differences among populations of a single species and those among individuals within a population.

**Species Diversity:** The variety of species - whether wild or domesticated - within a particular geographical area. A species is a group of organisms which have evolved distinct inheritable features and occupy a unique geographic area. Species are usually unable to interbreed naturally with other species due to such factors as genetic divergence, different behaviour and biological needs, and separate geographic location.

**Ecological (ecosystem) Diversity:** The variety of ecosystem types (for example, forests, deserts, grasslands, streams, lakes, wetlands and oceans) and their biological communities that interact with one another and their non-living environments.

**Biosecurity** - the protection of people and natural resources, including biodiversity, from unwanted organisms capable of causing harm.

**Ecosystem** - an interacting system of living and non-living parts such as sunlight, air, water, minerals and nutrients. Ecosystems can be small and short-lived, for example, water-filled tree holes or rotting logs on a forest floor, or large and long-lived such as forests or lakes.

**Healthy ecosystem** - an ecosystem which 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.

**Indigenous species** - a plant or animal species which occurs naturally in New Zealand. A synonym is "native".

**Introduced species** - a plant or animal species which has been brought to New Zealand by humans, either by accident or design. A synonym is "exotic species".

**Kaitiakitanga** - a spiritual and environmental ethos that governs tangata whenua responsibilities for the care and protection of mauri, the dynamic life principle that underpins all heritage. Kaitiakitanga includes components of protection, guardianship, stewardship and customary use. It is exercised by tangata whenua in relation to ancestral lands, water, sites, resources and other taonga.

**Mahinga kai** – customary food-gathering.

**Matauranga Maori** - the body of knowledge originating from Māori ancestors, including the Māori world view and perspectives, Māori creativity and cultural practices.



**Mauri** - life principle, life force, vital essence, special nature, a material symbol of a life principle, source of emotions - the essential quality and vitality of a being or entity.

**Mokopuna** – grandchildren or grandchild.

**Pest** - an organism that has characteristics that are regarded by people as injurious or unwanted. (Pest Management National Plan of Action).

**Sustainable use** - 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).

**Rohe** - boundary, district, region, territory, area, border (of land).

**Taonga** - treasure, anything prized - applied to anything considered to be of value including socially or culturally valuable objects, resources, phenomenon, ideas and techniques.

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