



Hawke's Bay Biodiversity Strategy

2015-2050



Hawke's Bay
biodiversity

November 2015

Taio Ora, Tāngata Ora
Working Together for Better Biodiversity

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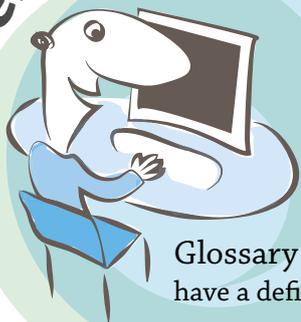
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What is this?

What is the Hawke's Bay Biodiversity Strategy?

The Hawke's Bay Biodiversity Strategy is our response to an issue that affects us all: declining biodiversity. Biodiversity is essential for all life as it gives greater resilience to ecosystems, organisms and humans. In Hawke's Bay we've lost a lot of biodiversity and a lot of our **taonga** are still under threat.

In Hawke's Bay:

- 75% of indigenous vegetation has been cleared
- 2% of wetlands remain

Extinct species (present in other regions) include:

- 1 freshwater fish
- 2 frogs
- 5 lizards
- 9 birds
- 10 plants

What is biodiversity?

Biodiversity is the variability among living organisms, and the interwoven ecological whole of which they are a part, including diversity within **species**, between species, and of ecosystems.

What is biodiversity decline?

This Strategy takes a no net loss approach to biodiversity decline. This means that when we talk about halting biodiversity decline we do not mean protecting everything, everywhere, all of the time. It explicitly recognises that we must focus our efforts on protecting and enhancing high value biodiversity areas without devaluing other land uses and the rights of landowners.

This Strategy

This strategy is our first step to halting biodiversity decline and envisioning a new hope for biodiversity in Hawke's Bay.

It is the first time in our region's history that all of the people involved in biodiversity work have taken stock of what's going on, and agreed that something better needs to be done.

The Strategy has a critical success factor - it engenders a common spirit and goodwill to goals that all parties agree are important.

The Strategy is not a regulatory rule-based document, but a guide to inform our community in their biodiversity efforts. While it is voluntary to participate in the initiatives proposed, the organisations involved are committed to improving biodiversity. The Strategy offers an opportunity and an invitation to everybody to participate.

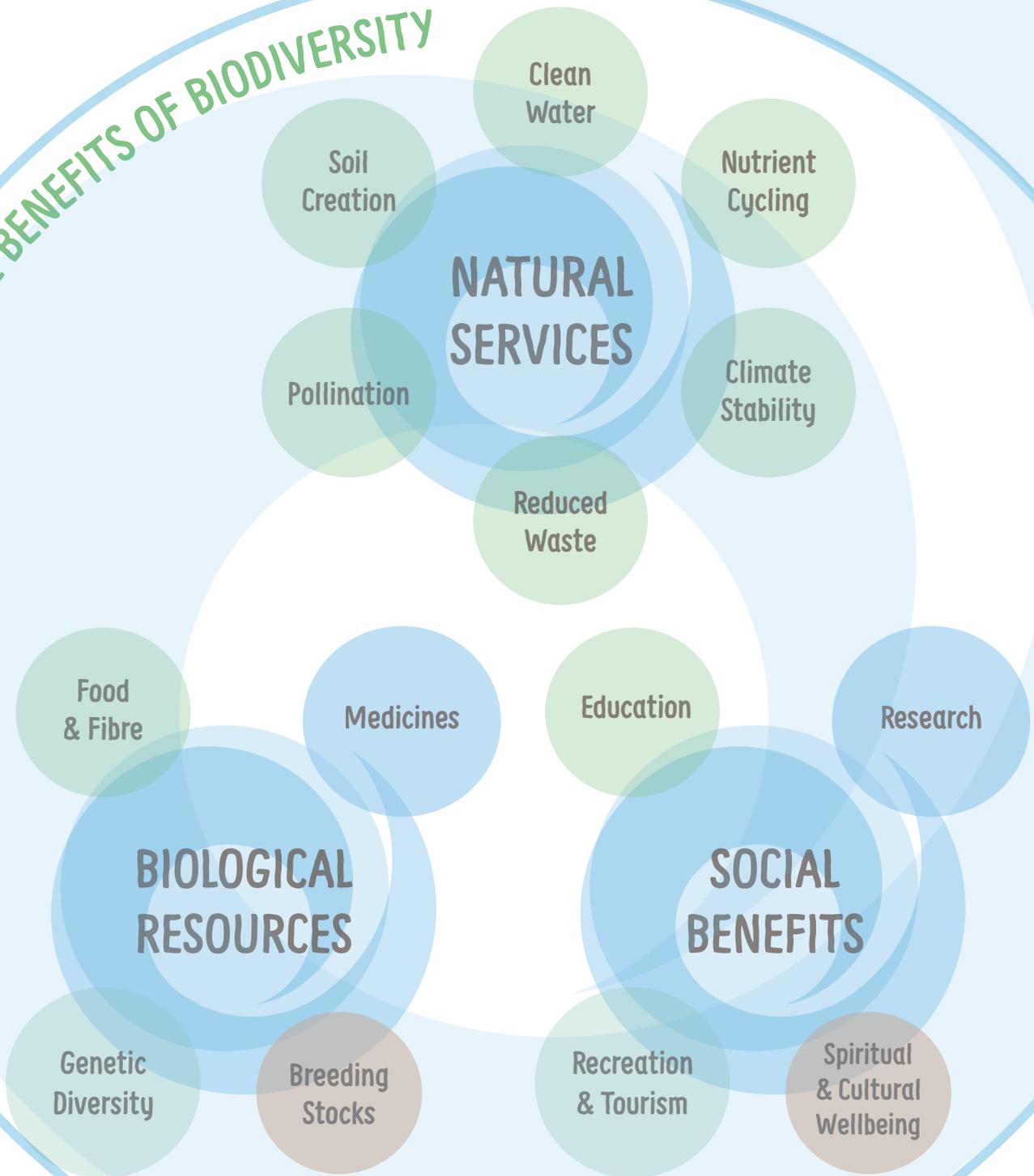
Our Vision



Working together, Hawke's Bay's biodiversity is enhanced, healthy and functioning.

Imagine the surroundings we'd inhabit and enjoy in Hawke's Bay if everybody embraced this vision. Our natural environment would be improved and offer many natural services, biological resources and social benefits. Native species and habitats would integrate and coexist with our backyards. By working together, we plan to increase knowledge and community participation in our region's biodiversity.

THE BENEFITS OF BIODIVERSITY





2050: Healthy
& Functioning



Enhance



Stabilise



Prioritise



2015: Identify

What do we need to do?

We need smart thinking - from the whole community, to ensure that all of the great ideas for improving biodiversity are considered.

We need talking and planning - to get everybody working together and to have a clear direction and vision.

And we need action - so that we can move towards a new hope for Biodiversity in Hawke's Bay.

Biodiversity Hawke's Bay: a new way of thinking

While a lot of great work is currently underway to help restore Hawke's Bay's biodiversity, even more could be achieved if our efforts were better coordinated. We need to align and harmonise our biodiversity programmes so these can be more efficient and effective.

The unifying goal flowing from the overarching vision is to ensure that important biodiversity habitats and populations of native species are enhanced, healthy and functioning by 2050. This is our stake in the ground against which to rally action and to measure success against.

The "How" part of this strategy outlines the first steps in the action plan. We need to identify where our biodiversity is now, prioritise projects so that key habitats and species are stabilised and then work towards ensuring they are enhanced, healthy and functioning.

2050 might seem a long way off but we are realistic about the challenge. It has taken more than 200 years to create the biodiversity problems we have today, so it's going to take a while to make progress towards fixing them.

Many people are already participating in a variety of biodiversity projects. Dunes and wetlands are being restored, and possums and other pests are being controlled. Landowners are voluntarily investing time, effort and money into projects which have wonderful biodiversity benefits, fencing stock from streams and protecting forest remnants. Rural and urban landowners are planting riverbanks, and marae, schools and community groups are planting thousands of native plants across the Bay. We are already seeing positive change – and this will continue.

The Hawke's Bay Biodiversity Strategy (the Strategy) is one part of the blueprint towards achieving our biodiversity vision.

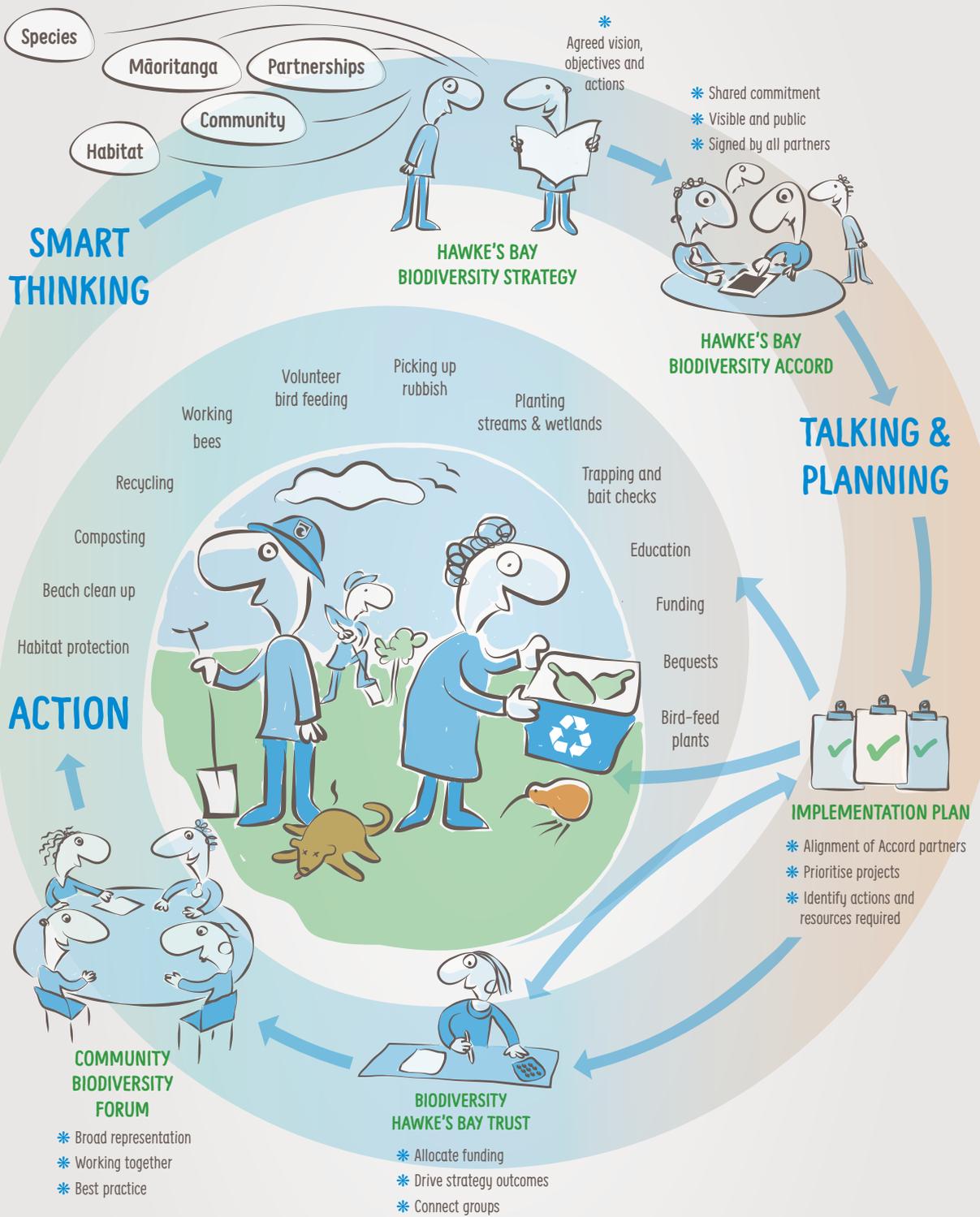
The next step is for key agencies involved in biodiversity programmes to endorse the Strategy by signing up to the Hawke's Bay *Biodiversity Accord*. Accord signatories will be committed to working together to enhance biodiversity.

Accord partners will develop an *Implementation Plan* to get the Strategy moving and to prioritise projects and track progress. The Implementation Plan will identify the roles and responsibilities of Accord partners and will include milestones towards achieving the vision.

Although a lot can be achieved by better aligning biodiversity programmes, achieving our vision will require additional resources. To help secure new funding, a Hawke's Bay *Biodiversity Trust* will be set up to connect groups and projects to resource opportunities.

The vision cannot be achieved without everybody's help and commitment. Everyone in the community can get involved by joining the Hawke's Bay *Biodiversity Forum*.

A Blueprint for Biodiversity





With the right support, geckos like this one could become a more familiar sight in our backyards.

How to read the strategy

THE WHY

Introduces why biodiversity is so important and why we need to prevent further biodiversity decline. In this section we learn about the global and national context and New Zealand's commitment to improving biodiversity, as well as the relationship that **tangata whenua** have, as **kaitiaki**, with biodiversity.

THE WHERE

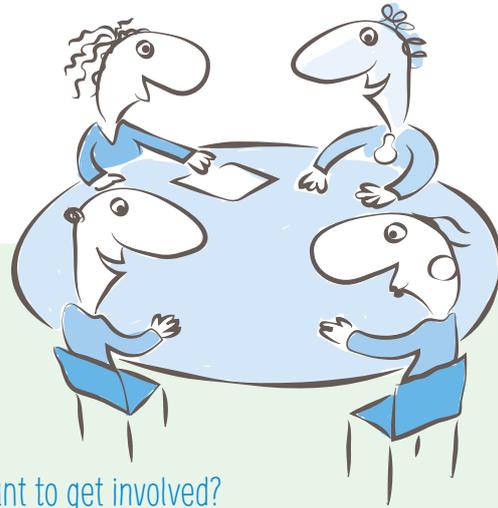
Summarises where we are now with biodiversity in Hawke's Bay. What have we lost? What are the important habitats and species we need to protect? What state are they in and what are they threatened by?

THE HOW

Starts to outline the plan for realising a new vision for Hawke's Bay's biodiversity. How will we work together to halt the decline? How do we want to see biodiversity in 2050? How do we protect **taonga** and improve kaitiaki opportunities? How do we improve partnerships and get all of the community involved in enhancing biodiversity?

THE RESOURCES

Provides resources for learning more about biodiversity.



Want to get involved?

The success of the Strategy will depend on all levels of our community working together and sharing in the responsibility to sustain biodiversity, now and into the future.

You can:

- join the Hawke's Bay Biodiversity Forum
- join an existing project or a restoration group
- learn what you can do in your own backyard to improve biodiversity
- learn what biodiversity events are coming up

Check out the links below and read on to find out how:

www.beeflambnz.com/local/eastern-north-island/

www.dairynz.co.nz/environment/

www.doc.govt.nz/getting-involved

www.doc.govt.nz/getting-involved/run-a-project/funding/nga-whenua-rahui

www.fedfarm.org.nz/membership/Provinces/Hawkes-Bay.asp

www.fishandgame.org.nz

www.forestandbird.org.nz

www.hbrc.govt.nz/Hawkes-Bay/Projects/Pages/regional-biodiversity-strategy.aspx

www.hortnz.co.nz

www.openspace.org.nz (QE II National Trust)

Why do this?



Pou, Ahuriri Estuary.

Why biodiversity is important

Toitu te marae a Tane Toitu te marae a Tangaroa Toitu te iwi.

Sustain the forests and rivers of Tane, sustain the oceans of Tangaroa, so too will people be sustained.

Biodiversity - just a short way of saying biological diversity - is the variety of all life and the interactions between them. It is the variation that exists between the species of plants, animals and micro-organisms, and also within species, in the form of genetic diversity, and where species interact with one another and with the physical environment.

This diversity is vitally important for people, because it underpins how ecosystems function and the wide range of **ecosystem services** which human societies have always depended upon. Essential ecosystem services include pollination, carbon storage, filtration of water, nutrient cycling, soil formation, erosion control and sediment retention.

Biodiversity supports our economic and social sustainability and gives resilience to pests and disease, and to storms, droughts and climate change.

Biodiversity is everywhere and includes native and introduced species in rural and urban places, on public and private land. All of the linkages between these areas and species are important and all parts of the landscape have a part to play in maintaining Hawke's Bay's biodiversity.

When elements of biodiversity are lost, ecosystems become less resilient and their services threatened. Homogeneous, less varied environments are more vulnerable to negative influences such as disease and climatic extremes.

Rare and significant ecological areas like estuaries and dunes are particularly vulnerable to **climate change**.

Throughout Earth's history the climate has always changed, with ecosystems and species coming and going; but rapid climate change affects the ability of ecosystems and species to adapt, resulting in increased **biodiversity loss**. Furthermore, biodiversity, through the ecosystem

services it supports, makes an important contribution to both climate change mitigation and adaptation. Consequently, conserving and sustainably managing biodiversity is critical to addressing climate change.

The decline in biodiversity indicates an imbalance. We have lost many species, our taonga, and more are at critical risk. While we've lost a lot, we know that with a coordinated and determined effort, we can protect and enhance what we have left.

We need to draw a line in the sand and commit to no further biodiversity loss. This doesn't mean that we can't continue to make the best use of our valuable resources. It simply means that we will not allow any further loss of significant habitats or allow our iconic species to become vulnerable to population decline.

For Hawke's Bay, this Strategy marks that commitment.

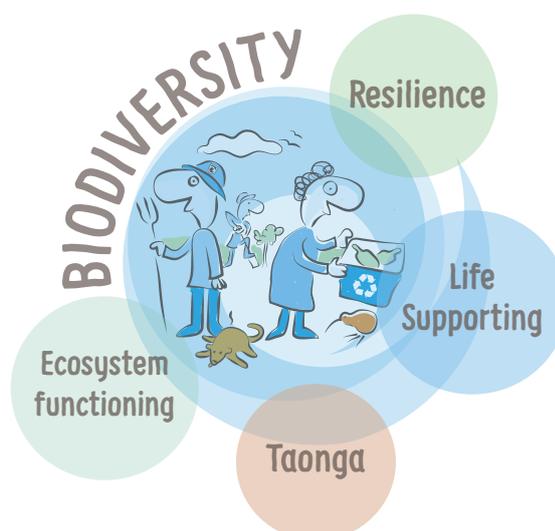
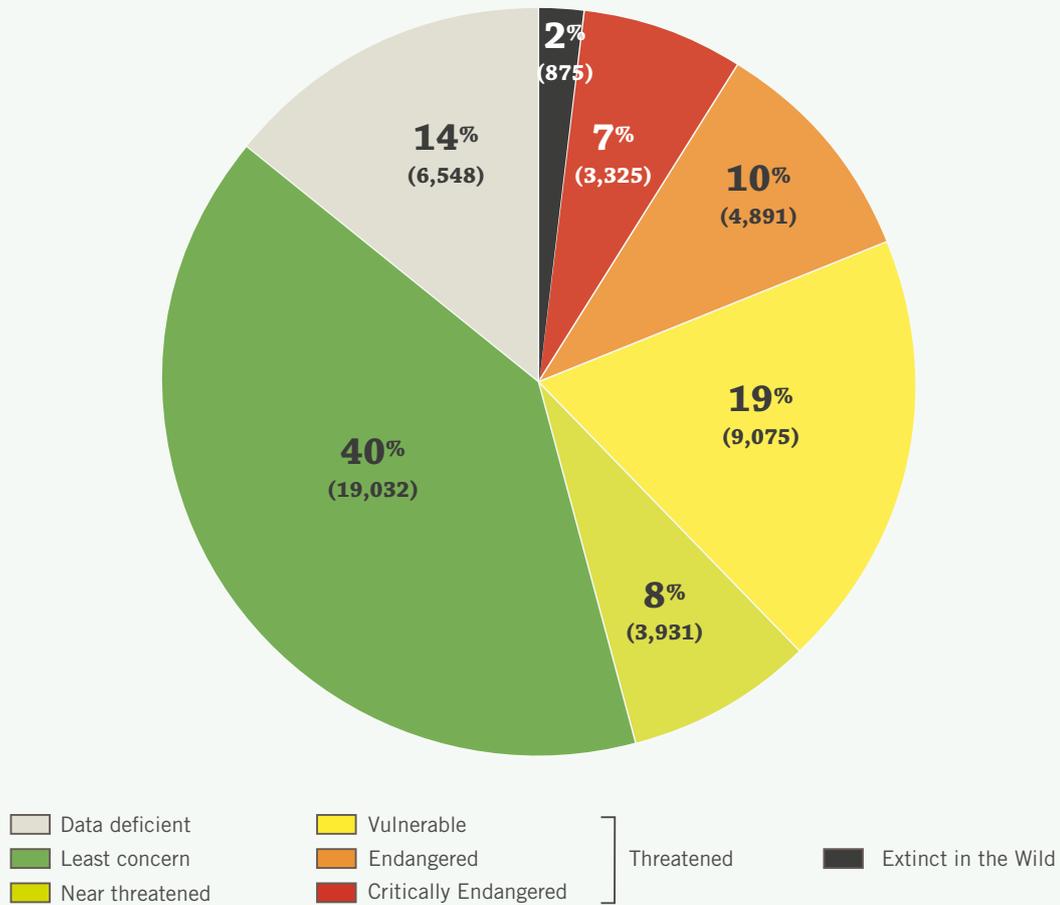


Figure 1: Proportion of species in different threat categories



Source:IUCN

Global biodiversity

Loss of biodiversity is a global concern. We know biodiversity is vital to human survival, yet across the globe and throughout time, we are guilty of allowing biodiversity to radically decline.

Global species facing extinction:

- 34,000 plants
- 5,200 animals
- 1 in 8 birds

While loss of species has always occurred as a natural phenomenon, the pace of extinction has accelerated dramatically as a result of human activity.

It is estimated that humans contribute to species loss at 50-100 times the natural rate, leading to the greatest extinction crisis since the loss of dinosaurs 65 million years ago.

These extinctions are irreversible and, given our dependence on food crops, medicines and other biological resources, pose a threat to our own well-being.

It is reckless and unethical to drive other forms of life to extinction, and thereby deprive present and future generations of options for their survival and development.



Want to read more?

Convention on Biological Diversity
www.cbd.int

Global Biodiversity Information Facility
www.gbif.org

Biodiversity In New Zealand

Although New Zealand was one of the most recent places on earth to be settled by humans, **we have radically modified the landscape, resulting in rapid biodiversity loss.**

These modifications to the New Zealand landscape were necessary to allow us to settle, house and feed ourselves - and the world. Our natural resources have been, and continue to be, vital to our national economy.

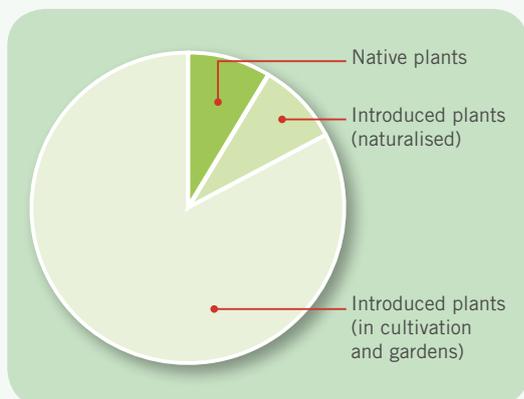
We are fortunate to have a large public conservation estate - approximately one third of our land area - the highest in the **OECD**. However, most of this is contained in uplands and mountains, where habitats and species are generally well-protected.

Habitats and species in lowland areas are more threatened, usually being on private land therefore landowners can play a critical role in protecting and enhancing the natural biodiversity that remains. Many native species in these areas are supported by the presence of introduced species, which provide essential **habitat**.

Since human arrival 1000 years ago, habitats in New Zealand have been extensively modified and native habitats drastically reduced:

- **25%** of indigenous forest cover remains
- **10%** of wetlands remain
- **12%** of sand dunes remain

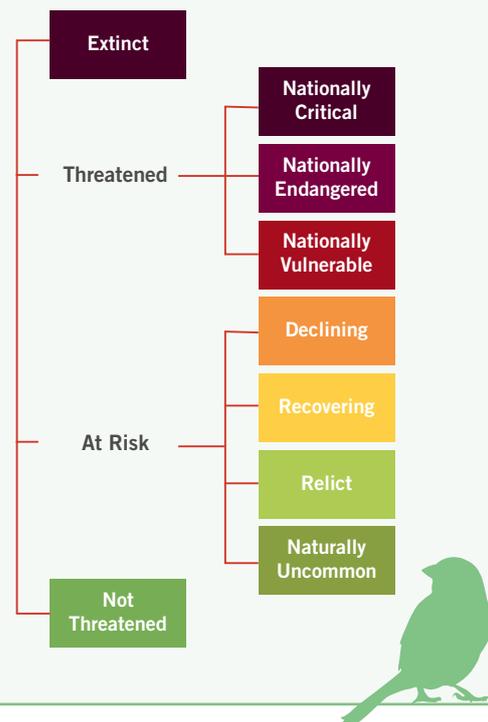
Figure 2: Native vs introduced vascular plants



We have fewer than 2,000 native plant species in total, and these are competing with over 19,000 introduced **vascular** plant species. Many of these introduced species have become weeds which pose a significant threat to native ecosystems.

Source: www.biodiversity.govt.nz

Figure 3: Threat Classification System



Humans have been responsible for the loss of species in New Zealand and many others have been severely reduced in both population size and distribution. **Some species which have not been seen for decades may also be extinct.**

- **40** indigenous land and marine species have become extinct
- **Over 60%** of native freshwater fish, and the only freshwater crayfish and mussel species, are threatened with extinction
- **More than 3,800** New Zealand terrestrial, freshwater and marine species are threatened - almost four times as many as in the 1990s
- **Seven** of New Zealand's ten official 'indicator species' for measuring biodiversity status are threatened: lesser short-tailed bat, kiwi (five species), kakā, kōkako, mōhua (yellowhead), wrybill, and dactylanthus (woodrose).
- **1,000** native animal, plant and fungi species are under threat
- **Almost two-thirds** of New Zealand's seabirds are threatened with extinction



Kōkako are an indicator of biodiversity health

Image: Sarah King, DoC

Biodiversity In New Zealand (cont)

Steps are underway to improve biodiversity across the country.

New Zealand has ratified the **Convention on Biological Diversity**, a multilateral treaty aimed at conserving biodiversity, ensuring sustainable and equitable resource use. The Convention’s vision is: “By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people”.

In supporting the vision, New Zealand showed its support for international action to protect biodiversity.

This Strategy for Hawke’s Bay aligns with the national direction. The New Zealand Biodiversity Strategy 2000 seeks to:

- Halt the decline in indigenous biodiversity
- Improve biodiversity knowledge and management
- Better align and coordinate resources and actions
- Improve community understanding and involvement in biodiversity
- Maintain the genetic resources of introduced species that are important for economic, biological and cultural reasons.



Want more information?

www.biodiversity.govt.nz

Treasuring our Biodiversity
(Brake and Peart, 2010)

www.eds.org.nz

75%



Approximately 75% of indigenous forest cover has been lost

Ewers et al. 2006

61



61 bird species have become extinct due to human factors, and a further 40% are threatened with extinction

Miskelly et al 2008

34%



34% of vascular plant species are either extinct, threatened with or at risk from extinction

de Lange et al. 2004

67%



67% of indigenous fish are threatened with or at risk from extinction and it is a similar story for other species.

Allibone et al. 2009



The official opening of Pekapeka Wetland in 2010 after extensive restoration work.

Tangata whenua and biodiversity

Māori are interconnected with the natural environment. As **kaitiaki**, Māori have a unique and important role in the protection, management, enhancement and restoration of indigenous biodiversity.

The principles of the Treaty of Waitangi are the legal foundation for continued Māori connection with indigenous biodiversity, in particular in regard to the retention of **rangatiratanga** or sovereignty over resources and **taonga**. This recognises the diverse range of interests that **tangata whenua** have with biodiversity ranging from governance to protection, to customary and commercial use.

Of importance to tangata whenua is the ability to maintain and sustain **Mātauranga Māori** (Māori traditional knowledge) through biodiversity. Mātauranga Māori includes traditional biodiversity protection mechanisms tapu (ban) rahui (temporary ban) and **noa** (lifting of the ban). Traditionally, these tools provided for sustainable use of indigenous resources and ensured that food, fibre and medicines in its many varieties would always be in plentiful supply.

Customary use describes traditional Māori use, practice, and knowledge carried out through the use of tikanga (customs), kawa (protocols) and Mātauranga Māori, as well as contemporary uses of biological resources. For example, native species are an important source of materials for carving, weaving, and rongoa (medicine). Alongside customary use, the growing commercial interests of iwi and hapū in agriculture, forestry, fisheries, aquaculture, and eco-tourism, are all associated with successful biodiversity management. Customary use is integral to sustaining relationships with traditional areas and maintaining Mātauranga Māori.

It is vital that tangata whenua are able to fulfil **tino rangatiratanga** and kaitiaki roles. However, time has not only eroded the awareness of indigenous resources, it has also seen the demise of those who have carried Mātauranga. The traditional relationship formed through centuries of close interaction by tangata whenua with

indigenous biodiversity is becoming as eroded as the biodiversity itself.

This Strategy recognises:

- The unique and important role that Māori have in the management, restoration and sustainable use of indigenous resources
- The importance of effective working relationships between iwi, hapū, statutory agencies and the community
- That biodiversity management must reflect different iwi and hapū priorities to ensure benefits are shared, economic and social aspirations are met and kaitiaki responsibilities are fulfilled
- The need for Mātauranga Māori to guide biodiversity management.

Working together

The success of Pekapeka wetland is an example of cooperation between HBRC, Māori, government agencies and the community. They are working to regenerate this area back to a significant habitat rich in indigenous biodiversity where water flow and quality has improved, and fish and bird life is subsequently flourishing.

Use of sprays to eradicate the willows and other trees that were suffocating the wetland was initially opposed by tangata whenua. However, through wānanga and collaboration, agreement was reached on weed control. The result is this now peaceful healthier wetland.

Where we are now



The open braids of the Tūtaekuri River

Hawke's Bay

Hawke's Bay is a unique part of New Zealand with a wide variety of species, habitats and natural features.

Hawke's Bay is a special part of New Zealand with a wide variety of species, habitats and natural features.

Before humans settled here, almost the entire lowlands and hill country of the region would have been covered in dense forests, rich in bird life. Clearance of vegetation cover started with early Māori and continued with the arrival of Pākehā leaving a legacy of almost total modification of the natural ecosystems.

Forest clearance, wetland drainage, engineering of waterways and reclamation of coastal margins has been necessary for the development of our cities and the region. We are able to live safely and prosper in a beautiful part of the world but development has had a considerable impact on indigenous biodiversity.

Little remains of the original forests and other natural habitats, like wetlands, have been greatly diminished and modified. The mountain ranges in the west contain the only sizeable remnants of natural vegetation. The rolling hill country has a number of significant, although not large, remnants, while further east on the plains, such areas are small and scattered. Most of the fertile and accessible land has been converted to agriculture and horticulture.

Hawke's Bay's remaining biodiversity is still vulnerable to a range of threats, particularly ongoing habitat loss and modification of the landscape¹, invasive introduced species predation², and urban development. It is often difficult to attribute declines in biodiversity to specific threats but it is recognised that the adverse impact

from one threat can be exacerbated by the effects of other threats acting together, i.e. habitat fragmentation combined with **invasive species**.

Despite extensive modification, Hawke's Bay contains a great diversity of landscapes, habitats, plants, animals, and areas of high natural and historic value. There are areas in Hawke's Bay which support a diverse and significant range of **indigenous species** and ecosystems including the Kaweka Ranges, Lake Waikaremoana, Pekapeka Wetland, Whakaki Lagoon, Ahuriri Estuary, Blowhard Bush, Cape Kidnappers Sanctuary and Boundary Stream. Many of these sites are in very good condition. Several **endemic species** which are nationally threatened have remnant populations in the region. These include the Hawke's Bay tree weta, kakabeak, Powelliphanta maungaharuru, and the shore plover.

Commercial forests and farmland are also important to regional biodiversity as these areas have wetlands, and plantings for erosion, sediment control and riparian protection. These areas highlight that economic and environmental endeavours can work together.

Hawke's Bay is ideally placed to be a leader in the restoration of native plants and animals on a large scale. Though the rich range of species that used to dominate our region is greatly reduced and fragmented, nationally significant fragments of land and wildlife remain.

¹ For example, wetland modification and drainage or estuary **sedimentation** or impacts as the result of poorly managed storm water discharges

² By dogs, cats, mustelids and hedgehogs



Productive vineyards border river corridors and coastal margins in Hawke's Bay.

Biodiversity on private land

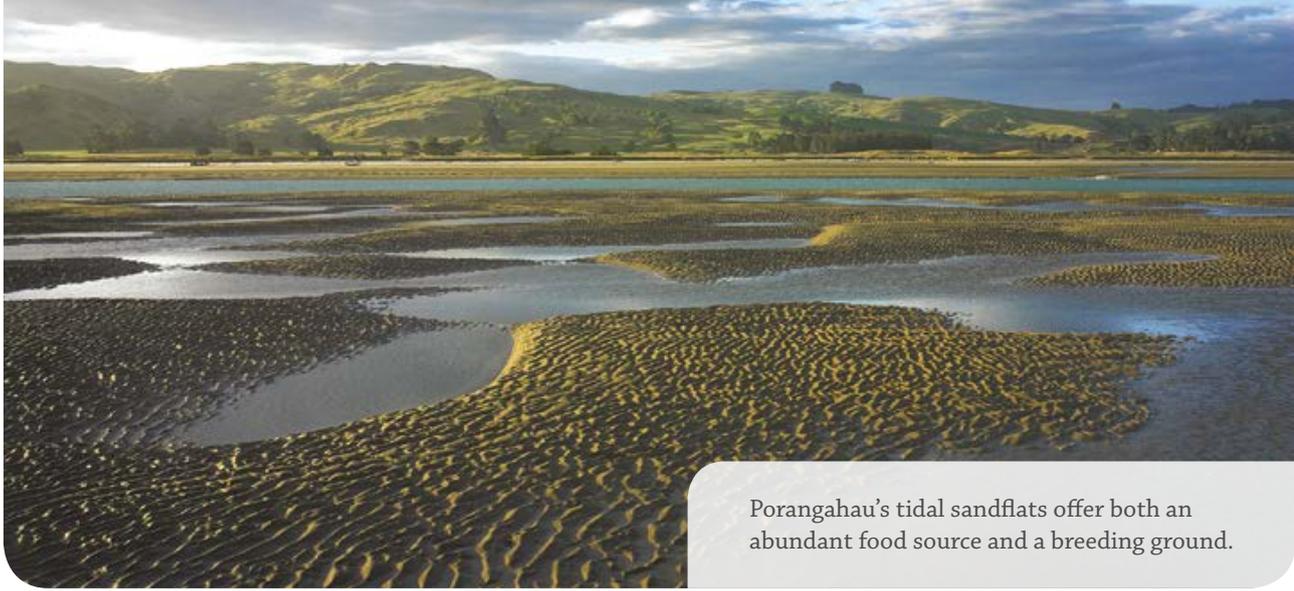
Like elsewhere in New Zealand, much of Hawke's Bay's remaining rare and threatened native biodiversity is found on private land

Like elsewhere in New Zealand, much of Hawke's Bay's remaining rare and threatened native biodiversity is found on private land. Many habitat types and species depend upon these remnants for their survival. Improving biodiversity in Hawke's Bay therefore relies heavily on the support of private landowners – in both rural and urban areas.

To achieve accelerated protection and restoration of indigenous biodiversity on private land, it is vital that biodiversity initiatives provide a supportive environment for landowners to participate. This will be achieved, in part, by ensuring the Strategy and subsequent implementation phases are focussed on the landowners and their respective needs and aspirations.



The Heretaunga Plains offers a myriad of land uses and also connect to essential habitat sites.



Porangahau's tidal sandflats offer both an abundant food source and a breeding ground.

Hawke's Bay Biodiversity Inventory

In 2013, an assessment of what is known about biodiversity in Hawke's Bay was initiated.

This exercise has brought together both our current detailed and high level understanding of the regions biodiversity from previous investigations. The inventory is not intended for the development of policy, but it sets a useful reference against which progress can be measured.

The Hawke's Bay Biodiversity Inventory - our current state of knowledge – has summarised what we have got and where it is, and helped to identify areas of concern and areas where biodiversity gains could be achieved. The inventory is a living document.

While it has improved our biodiversity knowledge, it has also identified significant knowledge gaps. For example, little is known about marine biodiversity or biodiversity on private land. Many smaller organisms like invertebrates, lichen and bryophytes are not well understood. These species are the foundation of biological diversity and without them key ecological processes such as soil formation, nutrient and water cycles, and food provision will not function.

Given these gaps in knowledge, it is essential that we continue to work together so that the inventory is a good guide to help to prioritise where effort is most needed. We would encourage landowners to participate in the development of our knowledge of biodiversity through sharing information about their projects. Efforts need to focus on both native habitats and native species.

Because of the size, scale and variability of the challenge, the following section groups the main habitat types, and describes the issues each of them face. This is followed by a section on key species in Hawke's Bay - and the threats to them.

Native habitats

Indigenous forest

As with other lowland areas of New Zealand, Hawke's Bay has lost a large proportion of its indigenous forests. Indigenous forest in Hawke's Bay has been reduced to 23% of its original extent (Figure 1), and half of the forest types remaining are categorised as threatened.

Losses are much more extensive for forest types which occur in lowlands (such as kahikatea forest, once extensive on alluvial plains), middle-hill countries (such as rimu-tawa forest), and forest types occurring in the high-country outside of legal protection (Podocarp/black/mountain beech forest). Less than 20% of original extent of these forest types remains in the region. Small remnants of threatened forest types are left but are fragmented and prone to on-going threat from introduced animals and weeds.

Forest types that are relatively better preserved tend to be at higher altitudes in the region, and the majority of these are legally protected in reserves but are still under constant pressure from introduced animals and weeds.



Major threats to indigenous forest biodiversity:

- Vegetation clearance
- Uncontrolled grazing animals
- Introduced pest plants and animals



For more information on biodiversity in Hawke's Bay, look at the Hawke's Bay Biodiversity Inventory:

www.hbrc.govt.nz
keyword search:
biodiversity

Figure 4: Indigenous cover before and after human arrival



Plantation forests

Plantation forests can provide important habitat for indigenous biodiversity and support a diverse range of species, including rare and **threatened species**, such as karearea (New Zealand falcon), long-tailed bats and native orchids. These species have been shown to use plantation forests on a full-time basis. Other threatened species in Hawke's Bay, such as kaka and kereru, often use plantation forests to supplement food supplies but remain reliant on adjacent natural forest. Frogs, bats, and native invertebrates can also thrive in plantation forests.

Plantation forests can also provide connections or corridors between indigenous forests, and buffers from adjacent non-forested land uses (photo below).

Forestry managers are increasingly working to protect rare species within their forests, aided by a number of initiatives led by various organisations, primarily driven by independent certification of sustainable forest management practices.



Rural

70% of forest remnants, which are not in conservation estate, in Hawke's Bay are on private land, mostly in plantation forests and on farms. These areas contribute significantly to the range of species and ecosystems that make up the region's biodiversity.

Farms

The farming industry has been, and continues to be, a cornerstone of the Hawke's Bay and national economies. With the large proportion of remnant biodiversity occurring on farms, it is essential that the aspirations of rural communities and the objectives of this Strategy are complementary.

This Strategy recognises the importance of ongoing control of low ecological value indigenous vegetation¹ ("scrub") that has regenerated on productive land.

Left uncontrolled, it can dominate some land and out-compete pasture, rendering large areas of land non-productive. This provides for the sustainable operation of the farming industry.

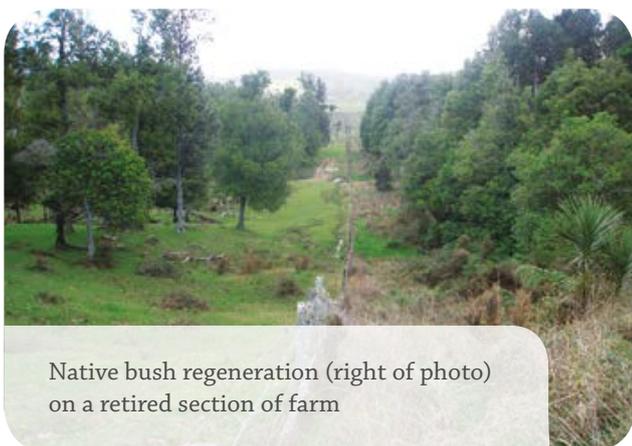
Many landowners have made a considerable contribution to biodiversity over generations, and have a long association with the management and custodianship of land. Landowners often have excellent first-hand knowledge of the flora and fauna on their properties - valuable skills in supporting biodiversity initiatives.

Biodiversity benefits on farms can be seen in retired forest blocks, pest control, and in the planting of trees and shrubs for erosion control, riparian protection and aesthetic reasons. Although these plantings may not always be indigenous, they provide important habitats for indigenous species.

There are many more opportunities to improve rural biodiversity, particularly in the region's lowlands, where increasing the level of protection and restoration is vital. This is agreed by all parties as an important and urgent goal.

Ecological monocultures are no longer considered the most productive farming environment, and the indiscriminate removal of indigenous vegetation, incentivised by central government, stopped decades ago. This Strategy envisages a future where economic viability is maintained or enhanced therefore allowing biodiversity development to be integrated into the farming enterprise.

¹ For example, manuka and kanuka regrowth



Native bush regeneration (right of photo) on a retired section of farm

Today's primary industries are willing and able to add biodiversity goals to their aspirations.

We recognise that land ownership is often intergenerational. These rural properties are both the private businesses and the homes of the farming community.

This Strategy recognises:

- The importance of primary industries to New Zealand's economy and Hawke's Bays regional community
- The central role of the primary industries in improving biodiversity in Hawke's Bay and the importance in gaining their voluntary participation
- That the cost of biodiversity protection and enhancement is high and ongoing and so community support (both financial and non-financial) will need to be available for biodiversity projects on private land
- Biodiversity education and support tools need to be developed with and for landowners
- Support tools need to be accessible and promoted at industry forums and events
- Voluntary and willing participation is the cornerstone for the Strategy and will be the key to its success
- There are existing regulations subject to monitoring and review, (e.g. QEII Act, Conservation Act, Reserves Act, Resource Management Act, District Plans, Fishing Regulations), with regards to protection of biodiversity
- There are 252 QEII Trust covenants in the Hawke's Bay protecting 10,000 hectares of native bush. There are further opportunities for more covenants
- While there are significant areas of existing habitat worth protecting, there are also significant opportunities for new habitat to be created

Increased recognition and support (both financial and technical) for private landowners seeking to protect and restore indigenous biodiversity on their land will assist with the achievement of the goals of the Strategy.



Ahuriri, Napier.

Urban

The restoration of urban ecosystems is increasingly important to protect and enhance indigenous biodiversity as well as to reconnect people to the environment.

We often think that richly diverse ecosystems are only found in remote areas, but urban areas can and do support biodiversity. Although indigenous land cover is low and fragmentation is high within urban centres, indigenous cover increases rapidly out in the peri-urban zone. In New Zealand, nearly three-quarters of all acutely threatened land environments are represented within 20 km of urban centres.

Parks and reserves have an increasingly important role in enhancing biodiversity in urban areas. Councils undertake direct management of plant and animal pests in parks and reserves providing both sanctuaries for native species in urban areas and permanent ecological corridors.

Possum control on Napier Hill is one such success story. The resulting reduction of possums has increased native birdlife and tree health over a wide area bringing widespread benefits for Napier city. This programme has been successfully extended since 2009 to Havelock North surrounds, Hastings semi-urban areas and parts of Taradale.

People living in urban areas have an important role to play in improving Hawke's Bay's biodiversity. Planting trees and shrubs – both native and exotic- helps provide shade, shelter and food for wildlife.

Urban biodiversity programmes underway in Hawke's Bay include HuB (Hawke's Bay Urban Biodiversity) urban possum control, Karamū Enhancement, Wairoa Riverbank Reserves, the Regional Parks Network (e.g. Pākōwhai, Waitangi), Maraenui's Harakeke Waterway and the Taipo Enhancement Scheme.

Figure 5: Biodiversity and ecosystem services

Provisioning services

- food
- medicine
- timber
- fibre
- bioenergy



Regulating services

- water filtration
- waste decomposition
- climate regulation
- crop pollination
- regulation of some human diseases



Supporting services

- nutrient cycling
- photosynthesis
- soil formation



Cultural services

- enriching
- recreational
- aesthetic
- spiritual



When biodiversity is lost, it is not just the loss of species of conservation value that is occurring but also the loss of organisms that can provide substantial benefits by way of ecosystem services. The benefits are widespread including commercial. The processes frequently provided and affected by changes in biodiversity include pollination, seed dispersal, climate regulation, carbon sequestration, and agricultural pest and disease control.

Because biodiversity affects ecosystem processes such as nutrient and water cycling, and soil formation and retention, it significantly supports the production of food, fibre, potable water, shelter, and medicines. The number, abundance, and composition of species and habitats strongly influences the provision of ecosystem services and therefore human well-being.

Wetlands

Wetlands are biodiversity hot-spots for plants, birds and fish, many of which are endangered. Some animal species spend their entire life-cycle in wetlands, while others rely heavily on the habitat to feed, hide from predators, breed and nest, or for spawning or nursery grounds.

Wetlands also provide essential ecosystem services such as flood protection, water storage, erosion control and retention of nutrients and pollutants and are highly effective carbon sinks.

Historically drainage of wetlands was essential for human settlement and development of productive land. Unfortunately wetlands have frequently been regarded as wastelands and were often used as rubbish dumps. With only 2% remaining today, the focus is on protecting and restoring wetlands. This does not have to mean that productive land is lost, as often grazing is an important management tool for weed control and habitat biodiversity. Wading birds, for example, thrive in areas of shallow water that have been grazed.

Recognising the risks arising from wetland loss, agencies, conservation groups and landowners have worked hard to protect and restore the wetlands which remain. Restoration efforts include some of our larger wetlands like Lake Whakaki, Whatuma and Pekapeka, as well as many smaller wetlands. Management has focused on restoring hydrological processes (water levels and flows), weed and animal pest control, fencing, planting and at some sites provision of recreation and education facilities has been important.

Despite the restoration work, wetlands around the region are still under threat, particularly from drainage and invasive plants and animals. Many of the remnant wetlands are on private land and not protected or being restored. While many landowners with wetlands on their properties recognise the value and essential roles of these areas, more work is needed and more community assistance would help landowners with restoration and protection efforts.

Pekapeka wetlands before and after restoration



Major threats to wetland biodiversity:

- Invasive plants
- Uncontrolled grazing animals
- Introduced pest plants and animals
- Poorly planned urban development
- Inappropriate drainage and reclamation
- Uncontrolled domestic pets

2% of wetlands remain

Most are on private land providing opportunities to enhance these unique areas

Freshwater

Freshwater systems support a diverse mix of plants and animals, all of which contribute to regional biodiversity. Fish, birds, invertebrates, algae, bacteria and fungi are all key to the health of freshwater ecosystems.

Hawke's Bay's freshwater habitats, include rivers and streams, freshwater wetlands, lakes, and lagoons. Historically rare ecosystems associated with freshwater environments exist as braided riverbeds, lake margins, **cushion bogs**, ephemeral wetlands and **tarns**. Aside from tarns, all are threatened habitats due to changes in hydrology, weeds, introduced animal pests, riverbed management and land use activities.

Recreational activities are enhanced by healthy freshwater biodiversity including swimming, angling (trout, tuna, whitebait, kahawai), boating, picnicking and photography.

Unlike terrestrial habitats, where the degree of loss can be measured by the quality of what remains, there are limited measures to show biodiversity change in rivers. One available option is to look at macroinvertebrate community composition - one of the best indicators of river health. On the opposite page green indicates that the current macroinvertebrate community is reasonably unchanged from what we would expect to see in an

unmodified system, while red indicates that the current macroinvertebrate community composition is degraded.

Consistent with the pattern of indigenous forest loss, the degree of change in the biological community is greater in the region's rivers and streams running from the foothills (of the main ranges) to the coast, than in those on the mountain ranges.

The degradation of freshwater habitats from reduced flows and contamination, as well as the effects of introduced species and over-harvesting, has severely restricted the distribution of many freshwater species (particularly birds and insects).

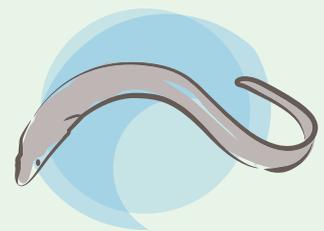
Freshwater habitats are vulnerable to nutrient enrichment, sedimentation, algal blooms, changes in flow and proliferations of invasive plants like didymo and hydrilla. We need to remain vigilant about the spread of these pests. Hydrilla - known as the world's worst submerged weed - has been a major problem in Hawke's Bay. It can restrict water navigation, displace and exclude native vegetation, cause deoxygenation of the water with adverse impacts on animal life, and affect **mahinga kai**. Hydrilla also has significant economic impacts, blocking intakes and affecting irrigation, drainage channels and power generation.

Didymo

Didymo is a freshwater diatom (a type of alga). It can attach itself to stream, river and lake beds by stalks, and can form a thick brown layer that smothers rocks, submerged plants and other materials. Didymo is currently found in over 150 South Island rivers, but is not in the North Island. Under the Biosecurity Act 1993, the entire South Island is a Controlled Area. This means people are legally obliged to prevent the spreading of didymo. A 'Check, Clean, Dry' campaign aims to stop the spread to the North Island, and is also being used to raise awareness of the need to prevent other aquatic weeds spreading.

Working together

In 2008, hydrilla was nearly choking the life out of Lake Tūtira, north of Napier. A forum of community members with government and non-government agencies looked at solutions. It was decided to introduce grass carp to the lake in the hope that they would eradicate the weed, one of their favourite foods. Within 5 years, the hydrilla has almost completely disappeared. This is a great example of people working together to solve serious biodiversity problems.



Major threats to freshwater biodiversity:

- Introduced pest plants and animals
- Uncontrolled grazing animals
- Poorly planned urban development
- Inappropriate drainage and reclamation

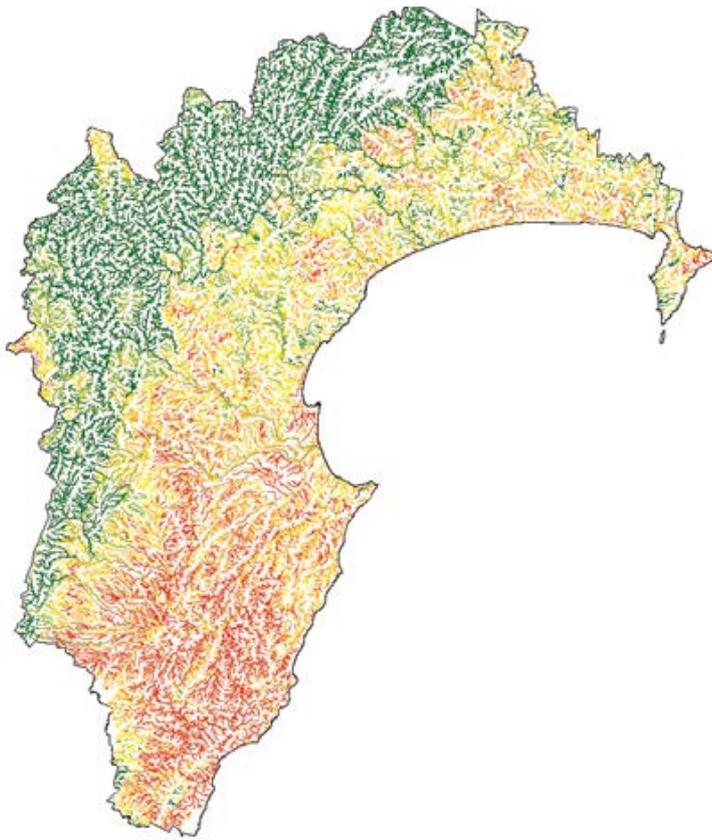


Figure 6: Change in the macroinvertebrate community index of rivers and streams

- Unchanged
- Degraded

Estuaries

Estuarine habitats form the interface between land and sea and as such are unique, distinctive and dynamic environments. They provide important and diverse habitats supporting bird roosting, feeding and breeding, fish spawning and nursery grounds, and ecological services that help to sustain environmental quality and integrity.

Hawke's Bay has a variety of different estuaries, i.e. large tidal lagoons such as the Porangahau estuary and river dominated estuaries like the Tukituki estuary, as well as coastal wetlands. These are productive habitats, and play an important role in water regulation and nutrient cycling. Healthy estuaries with biological diversity also enhance a range of recreational activities including **ornithology**, photography, swimming, kayaking, sailing, and waka ama and provide for food-gathering of species such as cockles and flounder.

Over recent years, a lot of effort has gone into improving the estuarine habitats in Hawke's Bay with many organisations, agencies and community groups involved in restoration projects. In the Ahuriri Estuary, weirs have been installed to create more habitat for the rare bittern, whitebait spawning sites have been fenced, and scrape-lake wetlands have been established (at the Westshore Wildlife Reserve). Suitable native plants have been reintroduced and there are tighter controls around activities and discharges into land and water surrounding these areas.

Despite these efforts, estuaries remain under enormous pressure. All of the estuaries of Hawke's Bay have been heavily modified and reduced in size through drainage and flood protection work. They continue to be affected by coastal development, introduced plant and animal species, sedimentation and run off from farms, urban and industrial areas.



Major threats to estuarine biodiversity:

- Introduced pest plants and animals
- Poorly planned coastal development
- Sedimentation and pollution
- Uncontrolled grazing animals
- Uncontrolled domestic pets



Aramoana beach, Central Hawke's Bay

Dunes and the coastal fringe

The inter-tidal coastline of Hawke's Bay contains two predominant habitat types: the sand and gravel beaches of Hawke Bay itself; and the extensive rock and boulder reefs south of Cape Kidnappers and around the Mahia Peninsula.

In the inter-tidal zone, the highest diversity of species is found in reef areas. These reefs provide habitat for a variety of algae and **invertebrate** species and are important feeding grounds for a large number of wading birds. Inter-tidal reefs are constantly under pressure from the effects of soil run-off, trampling, seafood harvesting, invasive species and reduced water quality. Hawke's Bay's sandy beaches are likely to be important breeding areas for different species of shellfish. A major threat to these ecosystems is vehicle traffic.

Dunes in Hawke's Bay used to provide habitat for tuatara, little blue penguin, mottled petrel and New Zealand dotterel, rare invertebrates such as the sand scarab, katipo spider and a range of native flora such as pingao, spinifex, coprosma acerosa. Today, most dune areas in the region are significantly altered, largely by afforestation and conversion to pasture to increase the region's productive capacity. Dune species are also vulnerable to predators like dogs, cats, rabbits, mustelids, hedgehogs and invertebrates, stock, exotic weeds, and vehicle damage and disturbance.

The dunes at Ocean Beach are a good news story and a lesson in what can be done with restoration. The Ocean Beach dunes are in much better shape than they were a

decade ago - many native species have returned such as the New Zealand dotterel and little blue penguin which are now again nesting in specially constructed boxes along the beach. Plant species pingao and spinifex have been re-established to replace and compete positively with marram grass to reinforce the dune slopes. The return of native flora has improved habitats for native lizards and invertebrate such as the katipo.

Other dune systems in Hawke's Bay are found along the coast, including Rangaiika Beach where a restoration plan similar to Ocean Beach's is underway.

Major threats to coastal biodiversity:



- Introduced pest plants and animals
- Uncontrolled grazing animals
- Poorly planned coastal development
- Vehicles
- Uncontrolled domestic pets



Kingfish

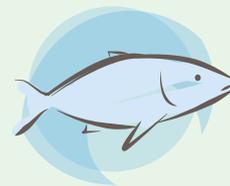
Marine

Up to 80% of New Zealand's indigenous species are thought to occur in the marine environment, approximately half of which are thought to be endemic. The seafloor of Hawke's Bay's near-shore marine environment has high biodiversity values (starfish and crustaceans) and contains invertebrate community assemblages found nowhere else in New Zealand. Areas of cobble and pebble reef are important nursery areas for many fish, in particular snapper.

Areas of shallow sub-tidal rock reef support diverse algal, invertebrate and fish assemblages at Pania reef and south of Cape Kidnappers. The deeper Lachlan Ridge south of Mahia supports a wide range of fish species that are targeted by recreational and commercial fishermen. Mahia Peninsula has a number of sub-tidal areas of significant ecological value.

There are few official records of changes in the marine habitat of Hawke's Bay although it is likely that these habitats have been heavily influenced by sedimentation and fishing activity.

Hawke's Bay's young geology, large number of rivers and propensity for irregular but heavy rainfalls see the marine environment subject to heavy sediment inputs. Clearance of lowland forest, the channelling of river beds, and wetland drainage and modification has increased the volume of sediments in coastal waters. The changes that these sediments may have caused in the marine habitats of Hawke's Bay are unknown.



Major threats to marine biodiversity:

- Sedimentation and pollution
- Overfishing
- Invasive species



Whio inhabit Hawke's Bay's fast flowing rivers but are vulnerable to predators

Native species

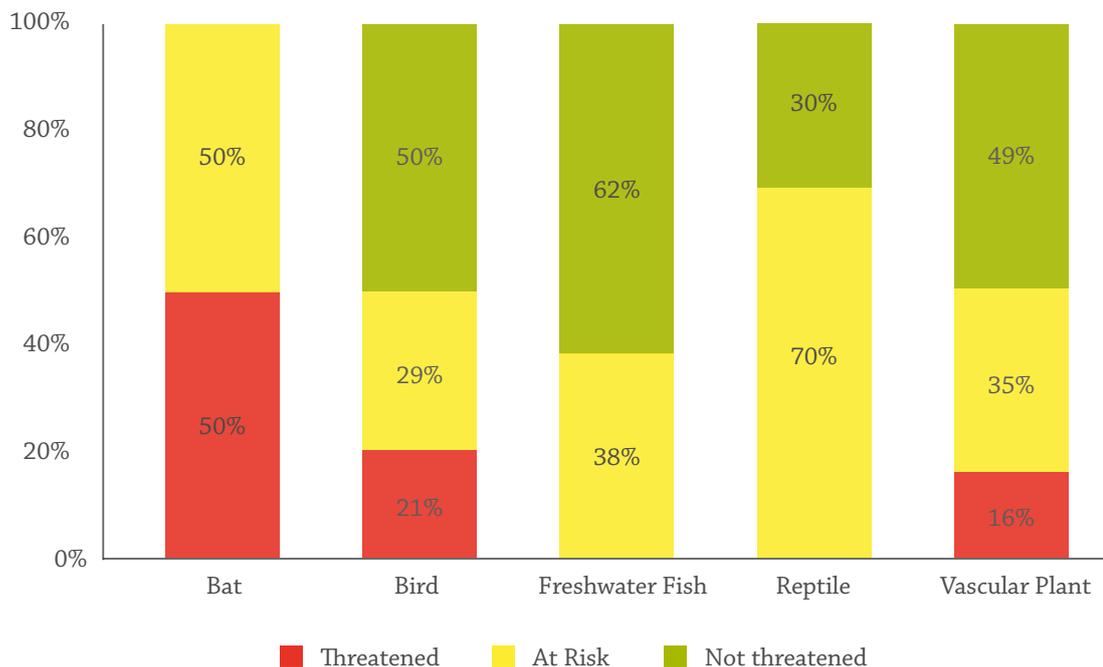
There are a number of species that have been lost from the region including 9 species of bird (e.g. hibi or stitchbird, orange-fronted parakeet), 1 freshwater fish, 5 species of reptile (e.g., Duvaucel's gecko), 10 vascular plant species (e.g., Hector's tree daisy) and all indigenous frogs. 70% of reptiles, half of all birds and vascular plants, and 40% of freshwater fish are threatened or at-risk.

A number of threatened native species are found in Hawke's Bay including whio (blue duck), Australasian bittern, long-tailed bat, small-scaled skink, powelliphanta

snails, kakabeak, and native fish such as dwarf galaxias and koaro. Further investigations need to be undertaken to identify the most vulnerable species to prioritise work programmes.

Each species is under a range of pressures and the threats vary but all are compromised by introduced animals such as cats, possums, rats and stoats. Habitat clearance, as noted in earlier sections is still a major issue in Hawke's Bay, and the impact on native species is significant.

Figure 7: Approximately half of native species in Hawke's Bay are threatened or at risk



CASE STUDY - POUTIRI AO Ō TĀNE



Poutiri Ao Ō Tāne is a large-scale collaborative restoration project with Boundary Stream Mainland Island at its heart.

One aim of the Poutiri Ao ō Tāne project is to boost native flora and fauna not only in protected habitats and native bush, but also within the agricultural, forestry and urban landscape.

Private landowners are instrumental to the success of Poutiri Ao ō Tāne through the retirement of farm land surrounding Boundary Stream for habitat restoration. Wetlands, streams and pockets of native bush unable to be farmed are ideal to enhance and encourage native wildlife back to

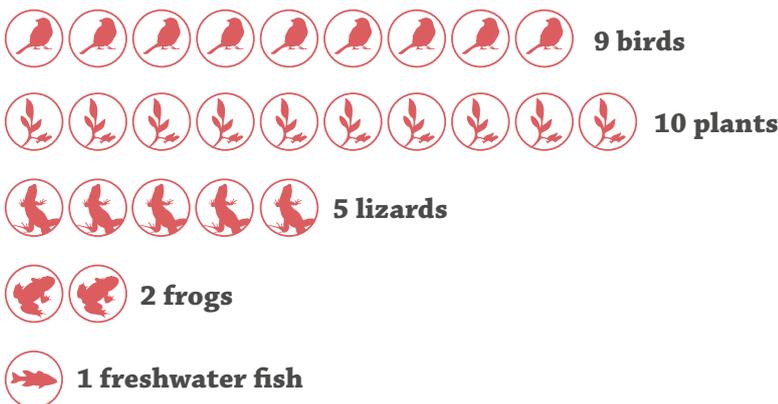
the area and to provide a protected location for translocated bird species to travel between. The area is now home to a number of threatened species including North Island brown kiwi, kākā and kōkako.

A long term goal of the project is to establish sustainable populations of Cook's petrel on the Hawke's Bay mainland. The Cook's petrel was once common in Hawke's Bay with millions of the birds flying from their nests high in the mountain ranges to the coast to feed and then returning on mass each night.



Predators and habitat destruction reduced their breeding areas to a few isolated locations nation-wide. This has resulted in wider biodiversity decline as the birds used to contribute vast amounts of enriching marine nutrients to the native bush on their travels to and from the coast. The demise of the Cook's petrel is a great example of the flow on effects of biodiversity loss.

Figure 8: Species extinction since human settlement in Hawke's Bay



Major threats to native species biodiversity

- Introduced plant and animal pests
- Habitat modification
- Uncontrolled grazing animals
- Uncontrolled domestic pets

How to improve things

Biodiversity objectives

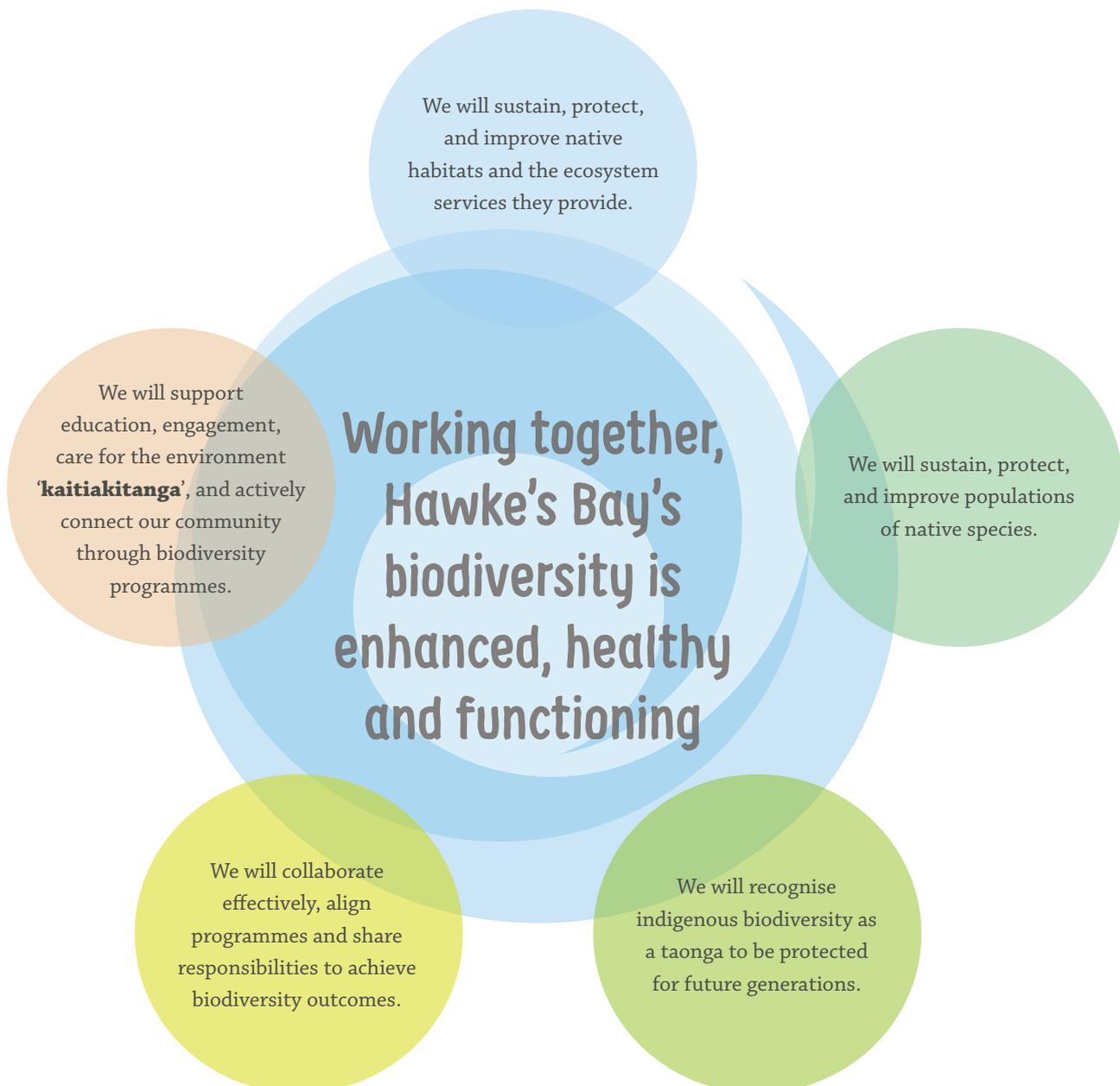
To ensure that Hawke's Bay's biodiversity is enhanced, healthy and functioning, biodiversity activities undertaken throughout the region need to be aligned towards common goals.

The five key biodiversity objectives all begin with “we”:

- We Sustain
- We Protect
- We Improve
- We Support, and
- We Collaborate.

This reminds us that biodiversity gains will not be met without human intervention and everybody working together.

The first three objectives relate to the biodiversity we want to protect – native species and native habitats – and have an ultimate goal to achieve by 2050. The remaining objectives are related to the human aspects needed for biodiversity gains – effective partnerships, community involvement and the integration of Māori values into biodiversity goals.



Improving native habitats and species

The **mana** of Hawke's Bay biodiversity is dependent on the dominance of native habitats and native species.

Native habitats objective:

WE WILL SUSTAIN, PROTECT, AND IMPROVE NATIVE HABITATS AND THE ECOSYSTEM SERVICES THEY PROVIDE.

A variety of habitat types contribute to the natural character and **wairua** of Hawke's Bay. Native habitat variety provides a range of vital ecosystem services including nutrient and water cycling, soil formation and retention, and carbon sequestration. This means that not only the most vulnerable or least represented habitat types need to be protected and enhanced, but also that the less vulnerable but equally important habitats which contribute to ecosystem diversity should be prioritised for enhancement.

An essential characteristic of sustainable regional biodiversity is connectivity and interactions between habitats via ecological corridors, and between habitat types, such as between terrestrial and aquatic ecosystems. We need to seek out opportunities to improve the connectivity between habitats, for biodiversity and to enhance mauri.

A series of steps are needed to achieve the objective for native habitats. The Biodiversity Vision needs to be embraced by our community.

The most significant opportunities for enhancing native habitats in Hawke's Bay are on private land, where 70% of remaining native vegetation that is not in conservation estate is located. We need to increase awareness and recognition amongst landowners of the importance and benefits of biodiversity to them and their business.

Many rural landowners already participate in biodiversity enhancement projects such the establishment of covenants on their properties. However, there are more opportunities available and a lot more could be achieved by improving landowner access to education resources and support tools.

Improvements on private land have wider community benefits, so it is important that the community gives landowners both financial and technical support.

There are already a range of mechanisms available including restoration grants, and covenants through agencies such as HBRC, DoC, QEII National Trust and **Ngā Whenua Rahui** – it is important that these are supported and readily available to landowners willing to undertake biodiversity enhancement projects.

With landowner support, native habitats which are essential to be maintained and/or improved for biodiversity gains can be identified and prioritised.

The formation of a technical group will assist with identifying and prioritising both habitats and species.

Other incentives that encourage indigenous biodiversity protection and maintenance on private land include contributions towards fencing off areas, the purchase of plants, water level management, pest control and rates relief.

While all habitat types contribute to biodiversity, the strategy will not aim to protect everything, everywhere but will seek a net overall biodiversity gain. An identification and prioritisation process will occur in collaboration with all parties.

Important areas, such as rare habitats or those with key connectivity functions, need to be identified and prioritised to ensure their vital biodiversity roles are maintained. Criteria for prioritisation must be evidence-based, transparent, and take into account existing agency strategies, objectives and criteria. These will be developed as part of the Strategy's Implementation Plan. Priority areas are likely to include 'Acutely or Chronically Threatened' areas and 'Historically Rare Ecosystems' as defined by their remnant indigenous vegetation, freshwater habitats, or coastal environments, i.e. dune systems.

Once key habitats have been identified and prioritised, appropriate multi-agency project plans will be needed to target resources to areas most in need. Project plans will need to be developed in conjunction with participating landowners and the wider community.

Activities need to be coordinated with adequate resources so that key habitats are effectively managed, biodiversity corridors are created and significant sites of threatened indigenous biodiversity are protected.

With continued support from throughout the community, we want to reduce the vulnerability of native habitats, see a net increase in area of native habitat and biodiversity across the region.

Ultimately we want key habitats to be enhanced, healthy and functioning by 2050.



40%

of remaining native forest in Hawke's Bay is on private land.

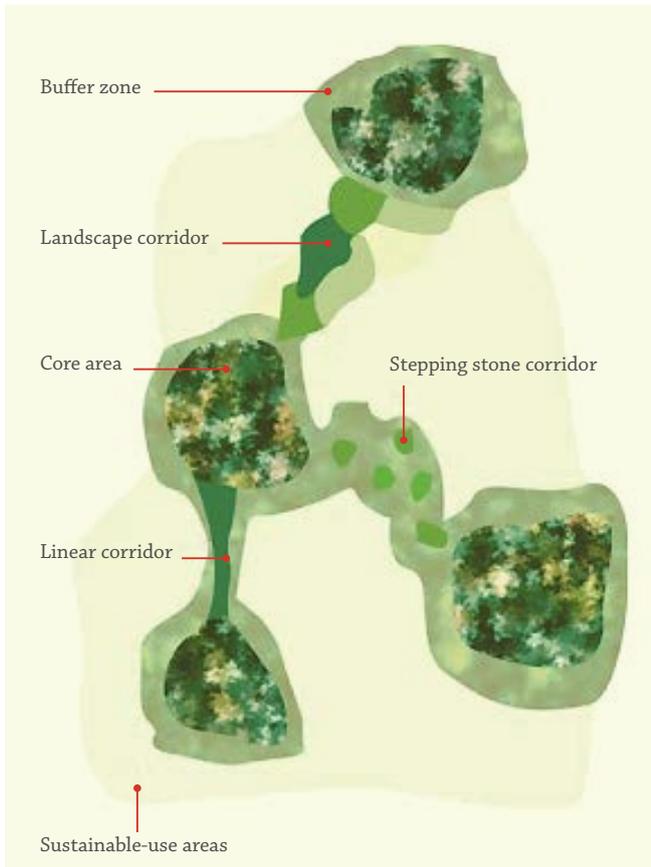


Figure 9: Local ecological networks

Ecological networks consist of core areas, corridors and buffer zones.

- Corridors create a permanent connection between core areas
- The core areas and connecting corridors are surrounded by buffer zones which serve as a protection from possible disruptive external influences
- Beyond the core areas and connecting corridors, are sustainable use areas which are selected based on their ability to preserve several ecosystem functions (e.g. North Island brown kiwi thanks to conservation efforts)

Source: www.sicirec.org

Native species objective:

WE WILL SUSTAIN, PROTECT, AND IMPROVE POPULATIONS OF NATIVE SPECIES.

As noted earlier, many species in Hawke's Bay are threatened or at risk due to invasive pests and habitat loss and fragmentation. While some species are recovering well, others are very vulnerable. To determine the species to focus efforts on, we need a process to enable us to objectively prioritise these.

There are many gaps in our knowledge of species, and it would be a significant task to fully understand the state of all species. Instead, the focus should be on a smaller set of species such as threatened species, species that are sensitive to specific pressures, species that are representative of particular habitat types, or culturally important species. We call these 'key species'.

Key species need to be identified and prioritised for protection. Key species are likely to include the North Island brown kiwi, Australasian bittern, dwarf galaxias and kakabeak, as well as functionally important or **Rangatira species**. Although rangatira species may not be threatened, they are vital to biodiversity because of the ecosystem functions they provide such as pollination and seed dispersal (e.g., kereru, native pigeon) and as indicators of ecosystem health (e.g., patiki, black flounder). All native species contribute to

the composition and integrity of an ecosystem.

Once the key species are identified and prioritised, appropriate multi-agency management plans for such things as habitat restoration, fencing and pest control will be needed so that efforts and resources are coordinated towards agreed goals.

The development of project plans will need to include participating landowners, as areas of private land and exotic forests provide valuable habitat for native species. Native species do not confine themselves to indigenous dominated ecosystems or original habitats. North Island brown kiwi, for example, for which Hawke's Bay is a stronghold, not only thrive in indigenous forests but also in radiata pine forests.

Coordinated adaptive management of threats and restoration actions will help to reach a position where populations are stabilised.

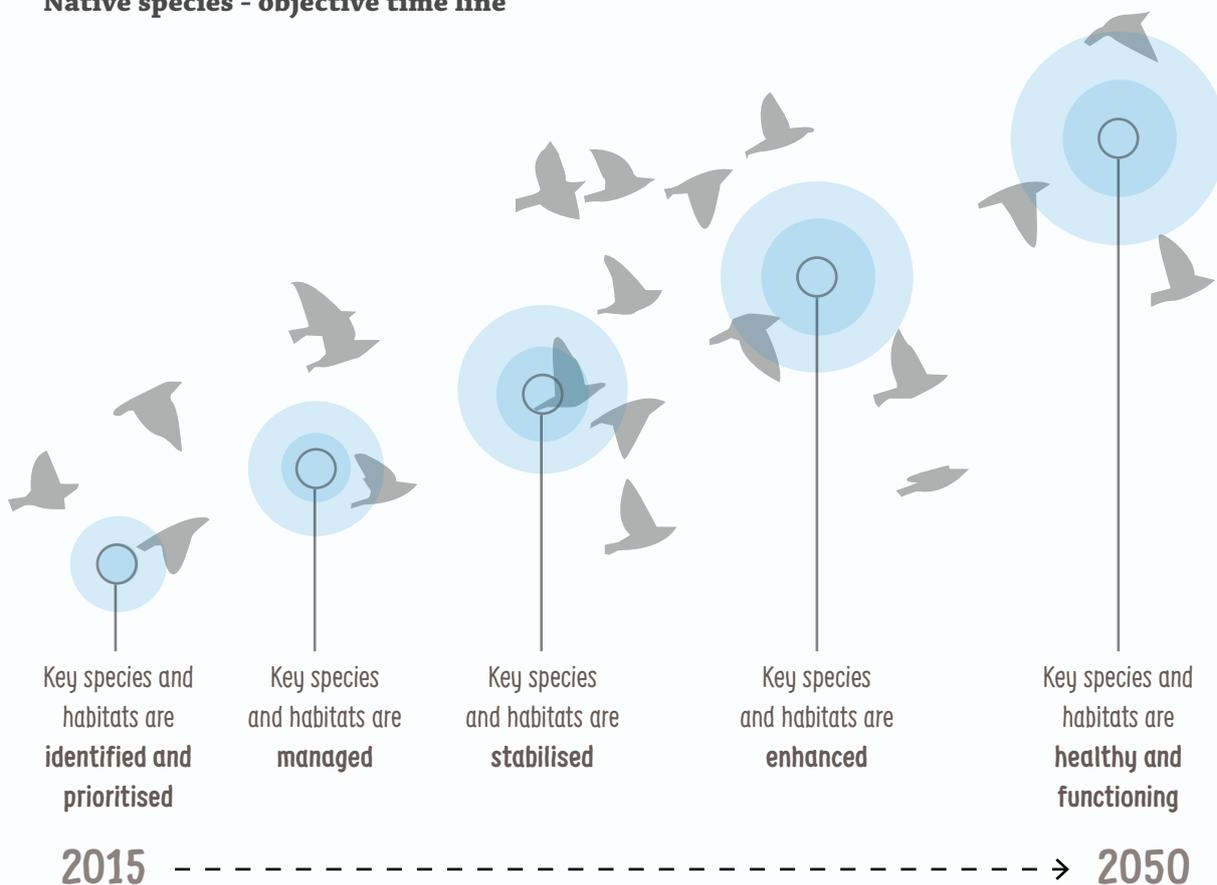
Monitoring and review systems will check progress and in the long term, with continued support the risk of regional extinction of key species will be eliminated.

Ultimately we want populations of key species to be enhanced, healthy and functioning by 2050.

What is needed for native habitats and species?	Actions and outputs
Landowners embrace the Strategy and Vision	Adequate resourcing to promote the Strategy to voluntary landowner participation ²
Criteria for identifying and prioritising habitats and species are developed.	A technical group is formed to assist prioritisation
Key habitats and species are identified and prioritised for improvement using robust criteria	Development of criteria for identifying and prioritising projects for key habitats and species by the major stakeholders
Use of education and support tools, i.e. Biodiversity Project Plans, for greater coverage of biodiversity enhancement schemes across the region	Promotion of and accessibility to education and support tools for landowners
Statutory agencies (HBRC/ DOC/ F&G/ QEII/ Nga Whenua Rahui) coordinate their work plans	Coordination of work programmes between statutory agencies to ensure adequate resources to protect key native habitats and species ³
Key habitats and species are enhanced, healthy and functioning	Monitoring to ensure priority habitats and species are improving Effective management of priority habitats and species Continued support for Biodiversity programmes through to 2050 and beyond.

2. To be developed as part of Implementation Plan. 3. To be developed by Accord Partners.

Native species - objective time line





Te Matau a Maui - the 'fish hook of Maui' at Cape Kidnappers

Integrating Māori values

Māori values objective:

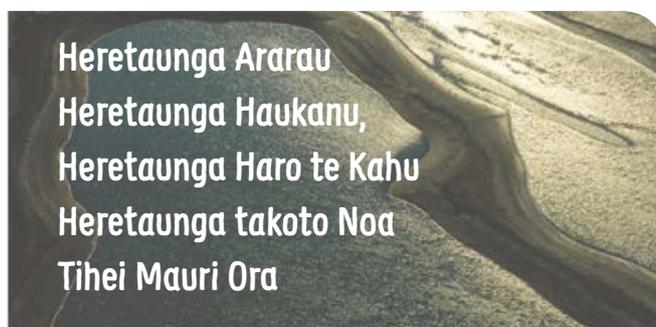
WE WILL RECOGNISE INDIGENOUS BIODIVERSITY AS A TAONGA TO BE PROTECTED FOR FUTURE GENERATIONS.

Hawke's Bay's mana depends on thriving indigenous biodiversity.

Human activities have affected biodiversity to the point that the original state of balance and **mauri** (the binding force between physical and the spiritual environments) has been disrupted. To enhance mauri and restore **mana** we need to target the protection and restoration of **taonga** (highly valued species) and significant biodiversity sites through incorporation of **Te Ao Māori** (the Māori worldview) into biodiversity management programmes and plans.

Mātauranga Māori (cultural knowledge) includes valuable tools to assist in biodiversity enhancement. Management tools such as **rahui** and **tapu** (temporary ban) help protect taonga and sites of biodiversity significance to be maintained for future generations. Traditionally, when food sources were threatened because of environmental change, natural calamities or over-use by mankind, rahui was used to allow the food sources to replenish.

These Māori management tools can also be used to help biodiversity. For example, rahui has been used to protect nesting banded dotterels by prohibiting vehicles, dogs and horses on beaches. The fragile nests, often situated on sand and gravel, are very difficult to



Heretaunga Ararau
Heretaunga Haukanu,
Heretaunga Haro te Kahu
Heretaunga takoto Noa
Tihei Mauri Ora

This well-known Ngati Kahungunu proverb is often understood to be an account of the ancestors' description of their environment, at their time of occupation. They recognised the effects of the human impact on the environment, the relationship between **Papatuanuku** and **Ranginui** on the sustainability of mankind. Importantly they recognised how blessed they were to be in this special place - Heretaunga

The Māori worldview describes the relationship between Papatuanuku and Ranginui and the many environmental goods, or Atua. This history or whakapapa links Māori to the world of biodiversity and balance. This included how the relationships operated between **Ira Tangata** and the natural world.

see and pedestrians are asked to stay off the beach or only walk below the high tide line. With the imposition of a rahui, and a predator control programme supported and implemented by local volunteer groups, banded dotterels face a far more certain future.

The purpose of tools like rahui and tapu is to maintain the relationship between the needs of humankind and the ability of **te taiao** (the environment) to provide. Tangata whenua aspirations include the ability to apply customary practises, customary use and Mātauranga Maori toward sustaining relationships with traditional areas and mahinga kai. It is vital that tino rangatiratanga and kaitiaki roles are able to be fulfilled.

Biodiversity programmes and plans need to incorporate the principles of the Treaty of Waitangi and to improve opportunities for Māori to contribute to biodiversity decision-making. There are a range of indigenous statutory protections and legal obligations aimed at ensuring tangata whenua biodiversity aspirations are met. The Resource Management Act 1991 aims to

safeguard the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, **wāhi tapu**, valued flora and fauna and other taonga.

Mātauranga Māori remains relevant in modern times, although the use or effectiveness of traditional sustainability measures varies depending on the availability of that knowledge or access to cultural resources. Determining how cultural values, customary practises and tangata whenua biodiversity aspirations are met can be developed within the scope of a cultural framework.

A cultural framework will ensure that tangata whenua indigenous cultural values sit alongside biodiversity values complemented by current legislation. This will assist in the appropriate application of solutions to indigenous challenges of advocacy, management, use, protection and enhancement of indigenous biodiversity.

What is needed to integrate Māori values?	Actions and outputs
Taonga and significant biodiversity sites are identified using local knowledge and prioritised for management	Identification and prioritisation of taonga and significant biodiversity sites using local knowledge
Indigenous biodiversity is enhanced through Māori management tools such as rahui and tapu	Development of guidance for using Mātauranga Māori tools in a biodiversity context
Enhance mauri and restore mana by enhancing, improving and sustaining taonga and significant biodiversity sites	Targetted biodiversity programmes and plans aimed at the protection and restoration of taonga and significant biodiversity sites
Customary use is recognised and supported and tangata whenua aspirations are met	Integration of the principles of the Treaty of Waitangi and tangata whenua aspirations into biodiversity programmes and plans
Improved understanding of indigenous statutory protections and legal obligations	Recognition of indigenous statutory protections and upholding of legal obligations by agencies involved in biodiversity programmes
Improved understanding of Te Ao Māori and clarity when defining cultural content	Development of a cultural framework to inform on customary use, Māori management practices and indigenous statutory protections and legal obligations.



Partnerships & community

The mana of Hawke's Bay biodiversity is dependent on effective partnerships and an actively engaged community. It is important that responsibility and pride for Hawke's Bay's biodiversity is shared by all, with widespread support for biodiversity plans and projects.

Partnerships objective:

WE WILL COLLABORATE EFFECTIVELY, ALIGN PROGRAMMES AND SHARE RESPONSIBILITIES TO ACHIEVE BIODIVERSITY OUTCOMES.

Although there are a range of agencies, organisations, individuals and community groups undertaking biodiversity projects, integration and coordination between them is frequently lacking. This can result in inefficiencies and missed opportunities for sharing knowledge and experiences and for better alignment of effort and resources.

Improved biodiversity outcomes will require better coordinated planning of biodiversity projects, and everybody working together towards common goals.

This has already started with multiple key agencies involved in biodiversity in Hawke's Bay working closely together to develop this Strategy. Opportunities to work more efficiently are being explored and the alignment of priorities and resources is being investigated. This Strategy is one of the first outputs of our initiative and the first step towards achieving the biodiversity vision.

In order to achieve effective collaboration, alignment and share responsibilities the key agencies and their partners

will need to work differently. The strategy proposes a way and a structure that would enable this to occur.

The Biodiversity Accord will be an important platform that allows a visible and tangible commitment from agencies and groups to commit to the strategy vision at a level that is appropriate for their interests. These will become our Biodiversity Strategy Accord Partners.

Accord Partners will develop an Implementation Plan for the Strategy. This implementation plan will inform the priorities and direction of resources and will be the process that brings together the various agencies and groups already doing biodiversity work to align and coordinate their work to achieve the better biodiversity outcomes that this strategy seeks to achieve.

The formation of a Biodiversity Forum will be the vehicle that brings together the broad community interest in biodiversity and allows grass roots input to the future refinement of the Strategy and to review progress towards achieving the Strategy's vision and objectives.

Finally a Biodiversity Trust will be formed from the Accord Partners to secure new funding for the region's biodiversity efforts. This Trust will not assume a role that usurps the significant and important work that existing

groups who are working in this space are achieving but will be looking at 'blue sky' opportunities and to lift the level of funding coming into the region for biodiversity work that is aligned to the Strategy's objectives.

What is needed to improve partnerships?	Actions and outputs
Key agencies and industry leaders who align with the strategy are identified	Signing of the Hawke's Bay Biodiversity Accord In 2015, by key agencies and industry leaders committed to the Strategy
Linkages between biodiversity programmes are identified and an integrated implementation plan developed	Development of an Implementation Plan by Accord partners Use of the Implementation Plan to better coordinate and promote programmes and resources to increase voluntary participation in biodiversity enhancement schemes Establishment in 2015, of a Biodiversity Forum so the community can monitor progress and contribute to biodiversity outcomes.
People share responsibility and work together in effective partnerships	In 2015, a Biodiversity Forum is established so the community can monitor progress and contribute to biodiversity outcomes
Biodiversity improvements are provided for in agency planning documents	As agency strategies and plans are reviewed and updated, they seek to align with the Strategy's objectives
Adequate resourcing to achieve improved biodiversity outcomes	In 2015, a Biodiversity Trust is established to secure new funding and to resource activities.

Community objective:

WE WILL SUPPORT EDUCATION, ENGAGEMENT, CARE FOR THE ENVIRONMENT 'KAITIAKITANGA', AND ACTIVELY CONNECT OUR COMMUNITY THROUGH BIODIVERSITY PROGRAMMES.

Biodiversity is central to the unique natural character of our region. Many groups and individuals are actively working towards biodiversity-related outcomes, however we've identified that a coordinated approach will return faster results and wider benefits to Hawke's Bay.

Ultimately, the only way to improve our natural environment is through focusing our best resource - our people - on doing things that help. This segment of the Strategy advocates for the formation of a Biodiversity Forum to connect people to programmes and activities, to encourage and support actions and to share and celebrate successes. The Forum's focus will be both on short-term actions, the 'low-hanging fruit' and initiatives that build greater biodiversity resilience over time.

A representative biodiversity brand for Hawke's Bay has been developed to nurture and embody the role of our people in groups, education, events, planting and weeding, restoration, composting, recycling, clean-ups, volun-

teer feeding, trapping and bait checks, and bequests.

The Biodiversity Forum will draw together into a single body the projects, programmes and resources, groups, actions and events. This will help to display not only the scale of work over big stretches of Hawke's Bay's landscape - such as the Cape to City project - but also the contributions of individual, often small, groups and the value of day-to-day actions such as recycling, picking up rubbish, composting and/or keeping bird feed plants in the garden. Every small action has a role to play in building backyard and broader scale biodiversity. A healthy, functioning natural environment adds considerably to community wellbeing - noting the pleasure people have in seeing and hearing native birds in their neighbourhoods. The people who live in and visit this region are here enjoy many activities in the environment - to tramp, camp, walk, enjoy, learn about plants, hunt and fish, watch birds, weave and carve.

A community planting day at Karewarewa Stream, Mangaroa.



What is needed to engage the community?	Actions and outputs
Our community embraces the vision	Promotion of the Strategy throughout the region and to specific interest groups. Maintain sources of funding, resources and tools
A stock take of biodiversity actions	Identify a matrix of biodiversity actions as agreed in the strategy and adopted by Biodiversity Accord members in 2015
Recognition that economic success allows for biodiversity action	Economic viability is a primary consideration and biodiversity protection and enhancement is planned
Gaps in biodiversity education are identified and appropriate solutions are prioritised	Evaluation of the value of biodiversity education programmes, with a particular focus on landowners, and identify gaps and funding sources for resources and tools
People can collaborate with each other to improve outputs and outcomes	Maximise activities and focus resources through a Biodiversity Accord, Forum and targeted events
The resources of individual groups are better coordinated to support community biodiversity projects	Plan for work and new opportunities for community engagement through improved collaboration and communication tools in an implementation plan
People feel connected to nature, that they are making a difference, recognise the value of biodiversity and understand their impact on it	Increase community ownership of biodiversity gains through voluntary actions and measure this through the number and membership of biodiversity programmes and groups
Landowners are confident to participate	Create an environment that welcomes landowners to participate, and respects their rights and interests over their land.



Resources

Glossary

Biodiversity: the variability among living organisms, and the ecological complexes of which they are a part, including diversity within species, between species, and of ecosystems.

Biodiversity loss or decline: where a natural site has been degraded, modified or removed for the purpose of social, economic or cultural gain, or through natural changes.

Climate change: the change in climate of New Zealand on the scale of years, decades, centuries and longer periods of time.

Convention on Biological Diversity: an international agreement on biological diversity that came into force in December 1993. The objectives of the Convention 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 use of genetic resources.

Coprosma acerosa: sprawling coastal plant with wiry orange branches and small green leaves.

Cushion bog: wetlands with cushion-forming angiosperms (flowering plant group).

Ecosystem: any system of interacting terrestrial (land) and/or aquatic (water) organisms within their natural and physical environment.

Ecosystem services: the interactions between organisms and the physical environment, such as in nutrient cycling, soil development and water budgeting.

Endemic species: an indigenous species which breeds only within a specified region or locality and is unique to that area. New Zealand endemic species include birds that only breed here, but which may disperse to other countries in the non-breeding season or as sub-adults.

Habitat: an area with the appropriate combination of resources - such as, food, water, nesting sites, shelter - and environmental conditions - such as, temperature, humidity or shade - for the survival of a species.

Healthy ecosystem: an ecosystem which is stable and sustainable, maintaining its organisation and autonomy over time and its resilience to stress.

Indigenous species: a plant or animal species which occurs naturally in New Zealand. A synonym is 'native'.

Invasive species: an animal pest or weed that can adversely affect indigenous species and ecosystems by altering genetic variation within species, or affecting the survival of species, or the quality or sustainability of natural communities. In New Zealand, invasive animal pests or weeds are almost always species that have been

introduced to the country.

Invertebrate: small animals without backbones. Includes worms, molluscs, crustaceans and insect larvae.

Ira Tangata: the human aspect.

Kaitiaki: a person who is active in the guardianship of the mauri of ecosystems.

Kaitiakitanga: active protection and enhancement of the mauri of ecosystems.

Macroinvertebrate Community Index (MCI): an index commonly used to assess stream health: MCI quantifies stream condition with a single number.

Mahinga kai: the customary gathering of food and natural materials and the places where those resources are gathered.

Mana: authority associated with the energies of the natural world and people; linked to mauri; can be lost, diminished or restored.

Mātauranga Māori: Māori knowledge regarding Te Taiao.

Mauri: the energy or binding force between physical and the spiritual environments.

Ngā whenua rāhui: a contestable Ministerial fund established to facilitate the voluntary protection of indigenous ecosystems on Māori-owned land.

Noa: lifting of restriction

Ornithology: the study of birds.

OECD: countries who are part of the Organisation for Economic Cooperation and Development forum.

Papatuanuku: earth mother

Pingao: grass-like plant, 30–90 cm tall, from the sedge family, found on active sand dunes.

Rahui: temporary restriction of use or access to a resource or place.

Rangatira: a person of standing within the Māori community respected for their knowledge, skills and wisdom.

Rangatira species: critical species for the ecosystem functions they provide such as pollination and seed dispersal.

Ranginui: sky father.

Sedimentation: the process of sediment deposition by wind or water, particularly in river, lake or coastal/marine environments.

Glossary (cont)

Species: a group of organisms capable of interbreeding freely with each other but not with members of other species.

Spinifex: a perennial coastal plant in the grass family. One of the most common plants that grow in sand dunes along the coast of New Zealand.

Tangata whenua: people of the land.

Taonga: treasures, valued resources, both tangible and intangible

Tapu: sacred, prohibited or restricted

Tarn: a small mountain lake.

Te Ao Māori: the Māori worldview

Te Taiao: the environment

Threatened species: all species determined to be classified by the New Zealand Threat Classification System as Nationally Critical, Nationally Vulnerable, or Nationally Endangered in the 'Threatened' category and all species determined to be classified as Declining, Relict, or Recovering categories of the 'At Risk' category.

Tino Rangatiratanga: self-determination.

Vascular plants: include ferns, flowering plants and trees, but do not include mosses and liverworts.

Vertebrate: animal with backbone; amphibians, reptiles, birds, mammals and fish.

Wāhi Tapu: sacred place.

Wairua: spiritual dimension.

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This strategy was developed collaboratively with the following agencies:

Ministry for Primary Industries
Manatū Ahu Matua



Hawkes Bay Fruitgrowers' Association



HAWKE'S BAY FORESTRY

TE TAIAO HAWKE'S BAY
ENVIRONMENT FORUM

NGĀ WHENUA RĀHUI



Taio Ora, Tāngata Ora
Working Together for Better Biodiversity